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**The relationship between student engagement, teacher proficiency, and technology**

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**Abstract**

The purpose of this research project was to see if there are any connections between student engagement and teacher proficiency when digital technology is being used in the elementary classroom. In order to determine if such a connection does exist, scholarly articles were reviewed and an online survey of students in the Bachelor of Education Program was conducted. Through scholarly review, it was determined that there is a direct connection between the proficiency of the teacher using the digital technology and the engagement of the students in the learning activity. If the teacher is highly proficient, then students are more likely to be engaged in the lesson. Through the online survey, teacher candidates answered questions about their own proficiency levels with specific digital technologies. From the findings of this project, it can be concluded that teacher proficiency is very important when it comes to engaging students through the use of digital technologies in the classroom. Professional development in this area would be useful for both teacher candidates and practicing teachers, as the use of digital technology in the elementary classroom is increasing.

## Introduction

My research study investigated how realistic is it for teachers to be expected to learn how to use all of these different technological devices that are being used in classrooms effectively? Is there a point where using technology becomes detrimental to learning because the teacher does not know how to effectively use the technology in order to engage students and promote individual learning both in the classroom and outside of it?

I personally think that a lot of teachers mean well when they try to use technology in the classroom, however I think that it is not always used in a way that engages the students. I want to see if there is a link between how effectively teachers use the technology they have access to and how engaged students are when this technology is being used. How could we improve teacher training in this area?

I think student engagement is essential for learning, and I think it is important for us as future teachers to be able to hold their focus using a variety of different tools. In today's day and age, I think technology is becoming an important part of the elementary classroom. I feel that teachers need to learn how to effectively use technology to hold students' engagement and to help them build up their own technological skills.

From personal experience, I know that technology can be wonderful if it is used well in a classroom. My Social Studies teacher in Grade 12 was proficient at using his *SMART Board*, and we had a lot of interesting classes that were broken up with discussions and related *YouTube* videos. We were also encouraged to make our own short movies as an assignment, which was a lot of fun. On the other hand, I have been in classes where teachers seem to use the technology they have, almost reluctantly, and they seem to spend more time trying to get the equipment to work than they actually did teaching. To me this time felt like it was wasted, and even after the

equipment was working it was hard for us as students to become engaged in the lesson again.

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### **Background and Literature Review**

Over the last five to ten years the use of technology in elementary classrooms has increased substantially. Even though these technologies, such as personal laptops, have become more available to many teachers, it is unclear whether teachers' ability to use this technology and to integrate it into their classrooms has increased alongside the use of technology.

According to Ritzhaupt, Dawson, and Cavanaugh (2012) there is a link between teachers being proficient with technology and students being able to build up their own skills in this area. For this reason, it is important for teachers' to incorporate technology into their classroom well. A link has also been found between teacher proficiency and the engagement of the students (Tay & Lim, 2012). When teachers are more effective at integrating technology into their classroom, the lesson is more likely to catch and keep the students' attention.

Figg and Jamani (2011) documented how two pre-service teachers integrated technology while teaching in their practicums and the results of student engagement and skill development with this technology. It was found that if the teachers focused on the content of the lesson more heavily than the skills needed to use and integrate the technology, then the students were more engaged and were more likely to learn the content of the lesson and the required technical skills necessary to use the digital technology. These findings have the potential to benefit students in a

learning environment where technology is integrated because the study showed how focusing on the content of a lesson in an engaging way while using digital technology can help them to learn technical skills necessary to use some digital technologies without necessarily needing to focus on these skills. Kershner et. al. (2010) also determined that student engagement was a key in terms of students using digital technology - specifically interactive whiteboards - in order to build up their skills in the areas of collaborative communication and thinking.

Professional development that focuses on successfully integrating technology in the classroom is essential (Schrum & Levin, 2013). In order for teachers to be able to proficiently use technology in their classrooms in an engaging way, professional development in this area must be stressed.

The use of technology in the classroom has a direct link to everyday life because technology-based skills, such as typing, are becoming more important in everyday life. It is important to keep students engaged during lessons using technology in order to help them to develop important life skills.

### **Research Context**

This study was conducted at Mount Royal University. My research participants were fellow Bachelor of Education students, most of whom are currently in their second year. I selected my participants based on the research I wanted to gather. As we will soon be embarking on our third year practicums, I wanted to know how future teachers felt about using technology in the classroom and what their comfort levels were using specific devices. Everyone who participated in this study was assured anonymity to ensure they were kept from harm, as is required by Canada's Human Research Ethics Guidelines. As my research was collected through an anonymous *Google Forms* survey, even I do not know which individuals participated in my

study. There were a total of 22 people who completed my online survey.

### **Methods of Investigation**

The general approach for this study was to gather qualitative data through a *Google Forms* survey. This approach was chosen in order to document how useful participants perceive technology is in an elementary setting, and if they think teachers are properly trained in the use of technology. I also used this method to ask teacher candidates about their own comfort levels with specific digital technology devices and whether or not they think they will have received enough professional development in this area. The data I collected was organized and analyzed using *Google Spreadsheets* and *Google Docs*. *Google Spreadsheets* has a useful function which makes it possible to graph survey results, and I used *Google Docs* to organize the written response answers.

### **Findings**

As Figure 1 below illustrates, Mount Royal University teacher candidates expect to use a variety of different technologies and applications in their future classrooms. This response was not a surprise because the number of digital technologies being used in elementary classrooms has increased dramatically over the past decade. All twenty-two participants in the survey expect to use *SMART Boards* in their classroom, which reflects the current trend in the use of these devices. A number of teacher candidates still expect to use older technologies in their classrooms, like overhead projectors and desktop computers (Figure 1).

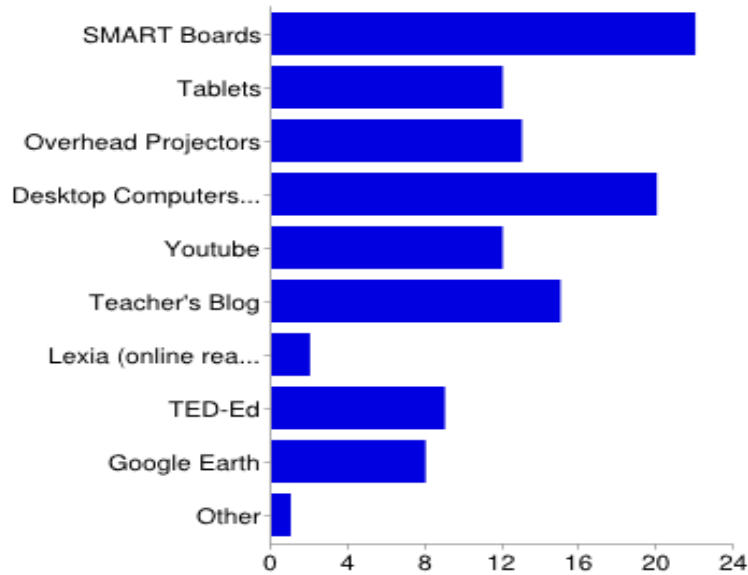


Figure 1. Technology perspective teachers expect to use in the classroom

Teacher candidates were also asked how proficient they were at using each of the technologies or applications listed in the Figure 1 such that they would be able to teach an engaging lesson. I have included the results for several of these questions below. Interestingly, only one participant out of twenty-two felt they were highly proficient at using a *SMART Board* - as shown in Figure 2 - even though all twenty-two respondents expect to use this device in their future classrooms. Over half of the respondents felt they were barely proficient with a *SMART Board* or were not able to use one at all. As shown in Figure 3, over half of participants felt they were somewhat proficient or highly proficient at using an overhead projector, which is often being used less than *SMART Boards* in elementary classrooms today.

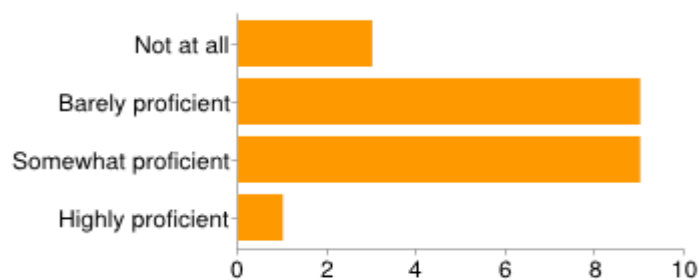


Figure 2. Smart Board proficiency

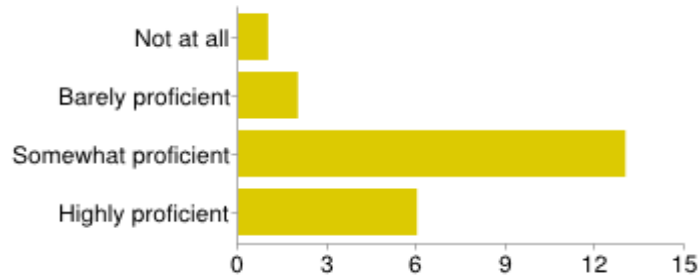


Figure 3. Overhead projector proficiency

Desktop computers and the website *YouTube* saw high proficiency rates among participants - both of which can be used in a more social or entertainment setting than either a *SMART Board* or overhead projector (Figures 4 and 5).

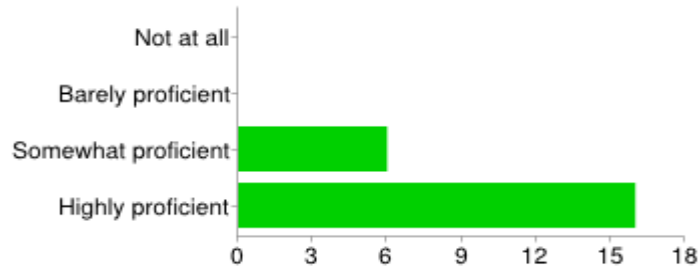


Figure 4. Desktop computer proficiency

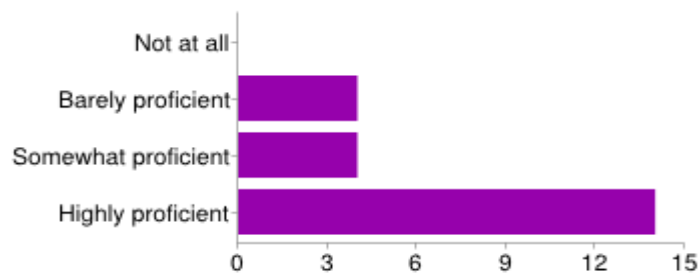


Figure 5. *YouTube* proficiency

Although many teacher candidates do not feel comfortable in using the digital technologies to teach that are present in elementary classrooms today, they also do not think they will get very much professional development (PD) time to learn how to use these technologies

and applications well. As can be seen in Figure 6 below, eight out of twenty-two participants (37%) do not expect to get any technology-based PD time and support once they start teaching. 40% expect to get one to two hours per week; 18% expect three to four hours; and none expect to get five to six hours per week. One participant also answered 'other.'

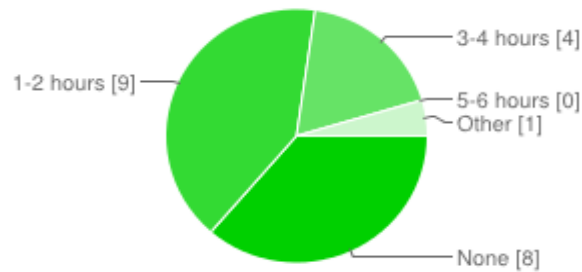


Figure 6. Expected amount of technology-based PD time and support per week

Participants were also asked: “How do you think students' increased access to technology outside of the classroom may affect engagement in the classroom?” There were mixed answers for this question with a split between participants thinking access to technology outside of the classroom can be a distraction for students when it comes time to learn at school or it can be an engaging tool which sparks interest in learning. Many participants stated both the pros and cons of students having such easy access to digital technologies. One participant stated: “I have noticed one instance in particular where a student is so distracted by his computer games outside of school it's all he can focus on at school. He can't wait to get back to his game at home. But mostly I believe technology can benefit student learning when used in the right way.”

I also wanted to find out how engaged participants are when technology has been used in their own classes or if they have access to a digital technology device. Many participants stated that they were often distracted when they had access to digital technology in class. Some even admitted to spending time on social networking sites like *Facebook* instead of concentrating on the assigned task or the lecture if they had a computer in front of them during class. Others,



however, felt that the use of technology had been a positive and engaging experience, and had benefitted them in their learning.

### **Conclusions and Recommendations**

From this study, I conclude that teachers need to closely monitor student activity when digital technology devices are being used in order to keep the distraction level to a minimum and to keep students on task. There also needs to be more technology-based professional development (PD) time for teachers to work on developing skills with specific digital technology devices. I think more PD time is important so that teachers are able to collaborate and learn from each other in terms of how these devices can be used in an engaging way in the classroom. This study is potentially significant for my future teaching practice as an elementary teacher because use of these digital devices has become commonplace in elementary schools, so I will need to learn how to use them in an engaging way.

A potential research question that this study has identified is “How can more PD time be created for teachers to learn specific skills for using digital technology?” There are many areas that need to be covered in terms of professional development, with technology being only one area. I think the need for this specific technology-based PD time is high, however there is only so much time in a school year for PD time.

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