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## Technology Use in the Classroom

### Abstract

This action research study investigated students' perceptions about the use of technology in the classroom. The participants were English Language Arts students at a high school in Iowa. The participants included 33 freshmen, 28 juniors and 15 seniors. Students were given a survey to gauge their perceptions of how the use of technology in the classroom impacted their engagement and allowed them to meet learning targets. Additionally, the survey examined students' perceptions regarding the benefits and limitations of technology in the classroom. The results of this study suggest that students perceived the use of technology to be more engaging and to improve their ability to meet learning targets. Students in the study believed that technology helps them complete assignments in a more thorough and efficient way. However, along with the efficiency and thoroughness, the students believed that technology can be distracting.

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Action Research Report Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Education

# TECHNOLOGY USE IN THE CLASSROOM

Technology Use in the Classroom

by

Danny Mooers

B.A. Dordt University, 2018

Action Research Report  
Submitted in Partial Fulfillment  
of the Requirements for the  
Degree of Master of Education

Department of Education  
Dordt University  
Sioux Center, Iowa  
(May 2020)

Technology Use in the Classroom

by

Danny Mooers

Approved:

Patricia Kornelis, Ed.D.  
Faculty Advisor

April 29, 2020  
Date

Approved:

Stephen Holtrop, Ph.D.  
Director of Graduate Studies

April 29, 2020  
Date

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I was sitting in my apartment as a senior in 2018 with a plan to pursue a career as a journalist. I had a job and dreams of making a name for myself. Two years later, God proved that His plan is always better than what I originally had in mind. He provided an opportunity to pursue a life in the world of education; one I know I should have been in all along. God gave me the strength to complete both an undergraduate and master's degree in education in a matter of two years. While the journey has provided its own challenges, He has been faithful through it all. On top of His goodness, I have had the constant support of my parents Mick and Julie, my brother and sister-in-law, friends and the entire staff at Dordt University. You can never be too sure what direction your life will go when you follow Christ, but the journey is always worth it.

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**Abstract**

This action research study investigated students' perceptions about the use of technology in the classroom. The participants were English Language Arts students at a high school in Iowa. The participants included 33 freshmen, 28 juniors and 15 seniors. Students were given a survey to gauge their perceptions of how the use of technology in the classroom impacted their engagement and allowed them to meet learning targets. Additionally, the survey examined students' perceptions regarding the benefits and limitations of technology in the classroom. The results of this study suggest that students perceived the use of technology to be more engaging and to improve their ability to meet learning targets. Students in the study believed that technology helps them complete assignments in a more thorough and efficient way. However, along with the efficiency and thoroughness, the students believed that technology can be distracting.



In 2017, studies showed that children eight and under spend two and a quarter hours per day in front of a screen. Teenagers spend well over four hours a day on social media alone (Watson, 2019). These statistics do not account for Netflix or other types of screen entertainment. Screen usage numbers are continually on the rise and do not show signs of slowing (Watson, 2019). The implications of these statistics are yet to be known and technology use continues to be a prominent factor in the daily lives of young people.

As a result of the increase in technology use amongst minors, certain states are opting to update their educational standards to keep up with technological developments (“ISTE Standards for Students,” 2020). The Iowa Department of Education has a section of standards in their Iowa Core devoted to “21st Century Skills.” Within these standards are categories on employability, financial literacy, health literacy, political science-civic literacy and technology literacy. There are six standards within the technology literacy category. They range from demonstrating creative thinking and problem-solving using technology to understanding the legal/ethical issues with technology (“Iowa Core,” 2017).

While Iowa opted to include 21st Century Skills into their standards, other schools are putting more focus on training teachers on the use of technology (Roland, 2015). These trainings include an introduction to educational technology tools and offer instruction on how to teach students to be responsible with technology. Only 18 percent of teachers included in a 2014 study reported they received no technology training that year (Johnson, Jacovina, Russel & Soto, 2016, p. 20).

Students and teachers are encouraged to use technology, but to do so in a responsible way (Johnson et al, 2016, p. 24). A 2018 study of 386 school districts showed that over 55 percent of schools provided each student with their own laptop (one-to-one). In these same school districts,

the middle schools saw an increase from 56 to 63 percent in one-to-one from 2017 to 2018 (COSN 2018-2019 Infrastructure Report, 2019). The increased emphasis on the use of technology in the classroom is due to the realization students learn better with differing styles of instruction (Leung & Pluskwik, 2018). Whether it is one day spent discussing and the next spent in lecture, students need differentiated instruction. Differentiation can include laptop usage to help students reach course objectives (Johnson, 2009, Stern, 2015).

With increased emphasis on technology use in schools, educators need to consider what pedagogical strategies that include technology work best. Though best strategies vary for each content area, without the use of best strategies, students can be prevented from reaching their full potential and may have negative experiences with technology in the classroom. Glass and Kang's (2017) study tested students' ability to comprehend lectures in an English classroom where they split time between an electronic device and the lecture. Their study found that use of an electronic device did not reduce students' short-term memory. The use of laptops, however, did impact students' long-term retention as compared to their long-term retention when using paper and pen. As a result, final exam grades suffered. The students who did not use electronic devices to take notes reported higher scores than those who did use devices (Glass & Kang, 2017).

While the use of electronic devices for note taking in the English Language Arts classroom may not guarantee higher scores, technology does allow teachers to personalize the educational experience, provide instant access to results, facilitate collaboration and relate school work to the real world (Banitt, Theis & Leeuwe, 2013). When technology is used well in the English Language Arts classroom, teachers can expect a five to ten percent increase in student

engagement (Bannit, Theis & Leeuwe, 2013). Students are more willing to engage in the classroom activities if technology is used (Perera, 2007).

While technology use has the ability to increase student engagement, it also has the potential to negatively impact the classroom. It can lead to poor communication, off-task behavior and isolation (McGrail, 2005, p. 16). The goal for technology use in the English Language Arts classroom is to fully grasp its potential and guarantee engagement along with an improvement in overall grades (Flanagan & Shoffner, 2016).

### **Purpose of Study**

The purpose of this study was to examine student's perceptions regarding the use of technology in an English Language Arts classroom. This study sought to answer the following questions:

- 1) According to the students, does the use of technology increase students' ability to meet learning targets?
- 2) What do students perceive as the benefits of technology in their ability to meet learning targets?
- 3) What do students perceive as the challenges or limitations of technology to meet learning targets?
- 4) What do students perceive as the most engaging strategies for the use of technology?

### **Definitions of Terms**

For the purpose of this study, the following terms were used throughout. Unless otherwise noted, these definitions are the author's own.

*Differentiated Instruction*- Adaptions that educators use to instruct a diverse group of students, with diverse learning needs, in the same course, classroom, or learning environment (“Definitions,” 2018).

*Digital Native*- A person born or brought up during the age of digital technology who is familiar with computers and the internet from an early age (“Definitions,” 2018).

*Hybrid Classroom*- A classroom that utilizes both electronic and traditional learning strategies (“Definitions,” 2018).

*Iowa Core*- Information students should know and be able to perform from kindergarten through 12<sup>th</sup> grade in math, science, English Language Arts and social studies. It is a set of common expectations for school districts across the state (“Iowa Core,” 2017).

*One-to-one Technology*- Programs that provide all students in a school district, or state with their own laptop, netbook, tablet computer, or other computing device. It refers to one computer for every student (“Definitions,” 2018).

*Smart Boards*- A large touch sensitive whiteboard that uses a sensor for detecting user input that are equivalent to normal PC input devices, such as mice or keyboards (“Definitions,” 2018).

*Standards*- A set of concise, written descriptions of what students are expected to know and be able to do at a specific stage of their education (“Definitions,” 2018).

*Technology-based Instruction*- Instructional technique that uses technology such as a computer, Internet, Ipad, Smart Phones and other electronic or digital products or systems in its delivery (“Definitions,” 2018).

*Traditional Classroom*- Learning space in which the teacher provides face-to-face instruction to students. Technology use is limited (“Definitions,” 2018).

### **Review of Literature**

Technology use in the classroom is a heavily debated topic due to the lack of certainty regarding best practices as well as technology's usefulness (Hannafin & Savenve, 1993, p. 28; Levin & Wadmany, 2006, p. 167; Watson, 2011). In the past 20 years, the debates have grown due to the increased access students have to technology. With the incorporation of technology into the classroom, Prensky (2001) dissected the reality of content today. Prensky (2001) organized student content into two categories: legacy and future. Legacy content includes the traditional subjects: reading, writing, arithmetic, logic, history, etc. Prensky (2001) argued that aspects of the traditional subjects are still important, but not as important as they once were. He defined future content as digital and technological. Initially, the challenge with "legacy content" instruction involves the teacher's desires to keep tradition (Prensky, 2001, p. 2).

Legacy content teachers are hesitant to use technology in the classroom (Watson, 2011). However, educators have seen how important it is to not separate technology from the learner (Watson, 2011). "In math, for example, the debate must no longer be about whether to use calculators and computers- they are a part of the Digital Natives' world- but rather how to use them to instill the things that are useful to have internalized, from key skills and concepts to the multiplication tables" (Prensky, 2001). As Prensky predicted, technology in the classroom has only increased and schools are learning to adapt (COSN 2018-2019 Infrastructure Survey, 2019). The issues with the "future content" revolve around pedagogy.

With a rapid increase of one-to-one technology in schools, teachers are having to adapt their pedagogical techniques to give students the best educational experience possible. Their instruction, however, must incorporate the school's available technology. The following literature review examines the benefits and limitations of technology in the English Language

Arts classroom. It also offers best strategies to ensure technology use enhances student learning and engagement.

### **Benefits of Technology**

Adding technology to the classroom can enhance the learning experience of each student (Flanagan & Shoffner, 2016). Proper implementation requires an individual analysis of each classroom to determine how students work with and rely on technology (Johnson, 2009).

One benefit of technology in the ELA classroom is that it can be a useful way to engage students in a lesson (Schmid, 2006). Schmid's study (2006) using Smart Boards showed students were more focused when teachers utilized them compared to when the boards were not used. Several schools in this study opted to purchase personal Smart Boards for students. This gave students a unique opportunity to play the role of a teacher. Teachers used a large Smart Board to give a mini-lecture and asked the students to respond via their personal Smart Boards. When the students were ready to respond, they provided an in-depth explanation utilizing their Smart Board. The study showed that allowing students to use technology encouraged them to take an active role in their learning (Schmid, 2006).

Engagement of students is a challenge that teachers face on a regular basis and technology use can lead to victory (Hicks, 2011, p. 189). Ashgar and Rashid (2016) conducted a study to determine if technology could impact student engagement and self-directed learning among undergraduate students. Seven hundred female participants completed a survey about technology's impact on engagement and self-motivation. Participants reported that technology use increased their engagement with the content. Whether it was simple things like using social media or watching videos in class, students were willing to be engaged when technology was

brought into the classroom. On top of the engagement, the survey showed that there was a positive relationship between technology and self-directed learning (Ashgar & Rashid, 2016).

Another benefit of technology in the English classroom is the anonymity it provides. Studies show students are more likely to answer honestly if they can hide their identity (Schmid, 2006; Verhoeven, Poorthuis & Volman, 2019, p. 51). Whether using a private vote or giving students a public exercise that hides their identity, anonymity leads to further engagement. Students often choose not to answer questions out loud or to participate out of fear of answering incorrectly (Schmid, 2006). Using an online quiz tool with nicknames (teachers can still find identities) or a response online (via email), students are much more willing to participate (Dichev & Dicheva, 2017; Schmid, 2006).

In addition to technology's ability to increase student engagement, technology in the English classroom gives teachers the option to present information in multiple ways. Many aspects of English Language Arts are difficult to teach unless students are invested in the material (McNabb, 2005). For example, classic literature can be difficult to comprehend. As a result, teachers use audio books to help students follow along. Teachers may also use YouTube videos or television shows to relate the information in the text to something relevant to the students (Chen et al, 2009, p. 476; Hicks, 2011, p. 190; McNabb, 2005).

With technology's ability to benefit students by providing access to the real world, students are capable of offering and formulating opinions about current events and social issues. By relating classic literature or writing to a current event while using technology, students can express their thoughts and views and take responsibility for their own learning (Mirra, 2015). Teachers can encourage this passion and channel it towards responsible technology use. In the English classroom, it does not only have to be a written essay. Students can write a podcast,

formulate a video or even communicate their findings via photography. Technology allows teachers to utilize the traditional aspects of the English classroom and transform them into 21<sup>st</sup> century creations (Mirra, 2015). It is a formula called “connected learning” that brings the student’s world into the classroom.

Technology also benefits the classroom when it is used to increase collaboration. Inside a collaborative classroom, the “focus shifts from the transmission of knowledge to the generation of it” (Sheridan, Byrne & Quina, 1989, p. 51). Bakshaei, Hardy, Francisco, Noakes, and Fusco’s (2018) study showed students were more engaged in collaboration when technology was used compared to collaboration without technology. Students were given two tasks to complete; one was to be done in a group with technology and the other in a group without technology. The tasks completed with technology were higher quality and were finished faster over 80 percent of the time.

In the English Language Arts classroom, collaboration is not always easy to facilitate. However, it is possible to take the traditional English assignments and breathe new life into them via collaboration with technology (McKay, 2013). Students can be given a variety of different tasks and hold one another accountable while using their devices. For example, McKay (2013) noted if the class takes a deep dive through *Scarlett Letter*, teachers have the freedom with technology to do more than a traditional literature circle. A set of two chapters can be retold by creating an online comic strip. The next three chapters can be explained via a “video interview”. These types of exercises bring the story to life in a unique way (Garcia, 2014; McKay 2013).

### **Limitations of Technology**

Like most educational tools, technology does not automatically create success. A Smoker, Murphy and Rockwell (2009) study showed technology has limitations if it is the only



tool used to differentiate an assignment. In this study, sixty-one high school students were split into two groups with each receiving the same list of sixth grade-level vocabulary words. One group was asked to hand write the words and definitions. The other was asked to type the words and definitions. The handwriting group was nearly 20 percent more successful on their comprehension quiz than the group who typed (Smoker et al, 2009). Vocabulary is a necessity for content-area literacy. If technology limits a student's comprehension ability, teachers need to discover a way that combines the best of both worlds (Longcamp, Boucard, Gilhodes, Anton, Roth & Vejaly, 2008, p. 106; Smoker et al, 2009).

In a similar study, Glass and Kang (2017) used a hybrid classroom as a testing ground to determine the impact of technology on academic performance. Two sections of psychology courses were tested over 23 class periods. On Tuesdays, students were not allowed to use an electronic device except to answer a few quiz questions at the end of the period. On Thursdays, students were allowed to use electronic devices the entire period. Scores were higher on days when students were not allowed to use electronic devices during class compared to the days where they were allowed to use electronic devices. On the final exam, the students who were not allowed to use electronic devices scored almost 10 percent higher than those who were allowed to use them (Glass & Kang, 2017).

Along with comprehension issues, technology may also limit student's ability to focus when technology is allowed. Neiterman and Zaza (2019) conducted a survey with 478 students and 36 instructors at the University of Waterloo that showed that nearly 50 percent of those who used technology in class were distracted. Similar to the study regarding technology and test scores, the students argued that technology use can affect performance in the classroom (Neiterman & Zaza, 2019). This concerned many of the professors who were surveyed. The

multitasking opportunities can lead to an overload for students (Lee, Lin, & Robertson, 2012, p. 97). As a result, students lower their chances to retain the information and gain the most out of their school day. (Bolkan & Griffin, 2017, p. 315).

Another limitation of technology in the classroom involves its constant evolution. While many teachers have access to technology, it does not necessarily mean they are able to use it correctly or keep up with its changes (Cuban, Kirkpatrick & Peck, 2001, p. 835). Since technology is constantly evolving and schools are adopting new technologies every year, teachers cannot realistically be proficient in all of them (Hughes, 2005, p. 285). It is a difficult issue schools have yet to conquer.

### **Pedagogical Practices**

With no clear consensus on whether technology leads to better learning, the search for best practices and teaching strategies that integrate technology continues. Teachers must lay solid groundwork before technology is used to its full potential. First, a pedagogical framework should be developed (Young & Bush, 2004). The pedagogical framework must include learning goals and student needs within the classroom. Technology use should enhance the learning experience (Young & Bush, 2004). If learning goals and student needs are improved by the use of technology, teachers should consider implementing it. If at any point technology becomes a burden in the classroom, teachers should re-evaluate their instructional strategies. It is not uncommon for teachers to use technology without fully understanding the negative effects it might have on student productivity (Young & Bush, 2004).

When debating whether to use technology in the English classroom, teachers must ask questions regarding the best time and ways to incorporate it into a lesson. However, asking themselves whether the technology will enhance the educational experience will truly help

determine its usefulness (Young & Bush, 2014). These questioning techniques prevent using technology solely because of its availability. Truthfully determining that technology will not assist in a lesson is validation that it does not belong (Groff & Mousa, 2008, p. 30; Hicks, 2011, p. 190; Young & Bush, 2014).

A list of guidelines created in Young and Bush's (2014) study show several different improvements that technology should bring to the classroom. In summation, technology should always add to the educational experience in a positive way. The first improvement is that technology must always empower students to achieve real world success. On the flip side, technology should not simplify the learning experience, replace teachers, or replace any traditional literature that is often found in English classrooms. Technology should enhance the material. Regardless of the content covered, technology should provide more access and allow for a more thorough understanding of the material (Young & Bush, 2014). Technology also cannot stifle a student's creativity. With a variety of answers available at their fingertips, students should use technology to develop their creative skills (Young & Bush, 2014). Finally, technology use in the classroom should always facilitate a discussion. Technology should not be used to limit collaboration. It should expand ideas and lead to a more fruitful dialogue amongst the class (Young & Bush, 2014).

### **Promising Strategy**

Given the guidelines presented above regarding the improvements technology should make to the classroom, gamification is one technological strategy proven to have a positive impact on student learning and engagement (Buckley & Doyle, 2016, p. 1165; Lister, 2015; Maslac-Aleksic, Sinkovic, & Vranesic, 2014). Leung and Pluswik's (2018) study on the use of online quiz-based games showed that over 90 percent of high school students were engaged and

enjoyed them more than traditional forms of education. This engagement and enjoyment also led to better test scores. The use of online games gave teachers the ability to gauge the understanding of a concept in real time. If students struggled with a certain question, the teacher could immediately pause the game and review. In addition, these exercises gave teachers a chance to review their questioning techniques. If students did not understand a certain type of question, teachers could make the necessary changes. Gamification led to multiple discoveries in the classroom and the real-time feedback was extremely beneficial (Dichev & Dicheva, 2017; Leung & Pluswik, 2018).

In addition to the immediate feedback, gamifying the classroom also increases motivation. Even using the word “game” can increase productivity and the desire for students to engage (Dichev and Dicheva, 2017). According to Dichev and Dicheva’s (2017) study, gamifying the classroom motivates students both intrinsically and extrinsically. In the study, Dichev and Dicheva (2017) dissected recent experiments done on gamification and categorized the data surrounding student motivation. The trends showed that students received a sense of belonging and mastery when they succeeded in a game and as a result their intrinsic motivations were fulfilled. The extrinsic motivations were stimulated because they saw points, levels and badges. These facets increased their confidence in the knowledge of the material. By gamifying the content via an online platform, students were motivated to earn a badge or other reward to prove to themselves that they could grasp the content (Dichev & Dicheva, 2017; Hansch, Newmann & Schildhauer, 2015).

In the English classroom, games have found their way both into the reading and writing portions of the class. Glover and Miller’s (2003) study on high school students in an ELA classroom utilized video games to assist in reading. Teachers assigned the *Neverwinter Nights*

video game to assist struggling students with reading since it was a text-based video game. The video game allowed students to lose themselves in the action and continue to build reading skills. In a similar study, Beavis (2014) explored the use of action video games in the English classroom. Students were given the chance to play *Secret Agent: Mission One*, a video game that included numerous literary themes. The students were able to play the game and dissect the themes all at the same time. Teaching provided the instructor with the opportunity to take the content of the course and apply it to the interests of the students (Beavis, 2014, p. 435).

Understanding technology's limitations, benefits and best practices is necessary for learning success. Students have developed multiple literacies that were not available 20 years ago. Students can analyze videos, listen to podcasts as well as read books. These are all necessary skills that should be emphasized in the classroom (Learner Variability Project, 2019). Technology in the classroom is inevitable and research is showing there are benefits to its use in the English Language Arts classroom as long as it is incorporated as a supplementary tool.

Incorporating technology in the classroom is no longer an option in many cases. With technology use on the rise, many schools are requiring its use in hopes of inspiring students to engage with the content on a deeper level. Technology allows teachers to further differentiate instruction, gamify material and provide a more individualized learning experience, but it also can be a distraction and lower classroom productivity. Schools and teachers are striving to experiment with different methods that capitalize on the usefulness of technology while keeping students driven to learn.

### **Methods**

The purpose of this study was to examine student's perceptions regarding the use of technology in an English Language Arts classroom. This study sought to answer the following questions:

- 1) According to the students, does the use of technology increase students' ability to meet learning targets?
- 2) What do students perceive as the benefits of technology in their ability to meet learning targets?
- 3) What do students perceive as the limitations or challenges of technology to meet learning targets?
- 4) What do students perceive as the most engaging strategies for the use of technology?

### **Participants**

The participants in the study were 33 freshman, 28 juniors and 15 seniors and two sophomores from a public school in Northwest Iowa. There were 46 females and 32 males who took the survey. No students received any special accommodations. Permission to conduct the survey was granted by cooperating teacher.

### **Research Design**

The study included an online survey offered on Google Survey. The survey consisted of 14 Likert scale and three open-ended questions (See Appendix A). The survey measured students' perceptions regarding the benefits and limitations of technology use in meeting

learning targets. It also focused on students' beliefs on the best use of technology for student engagement.

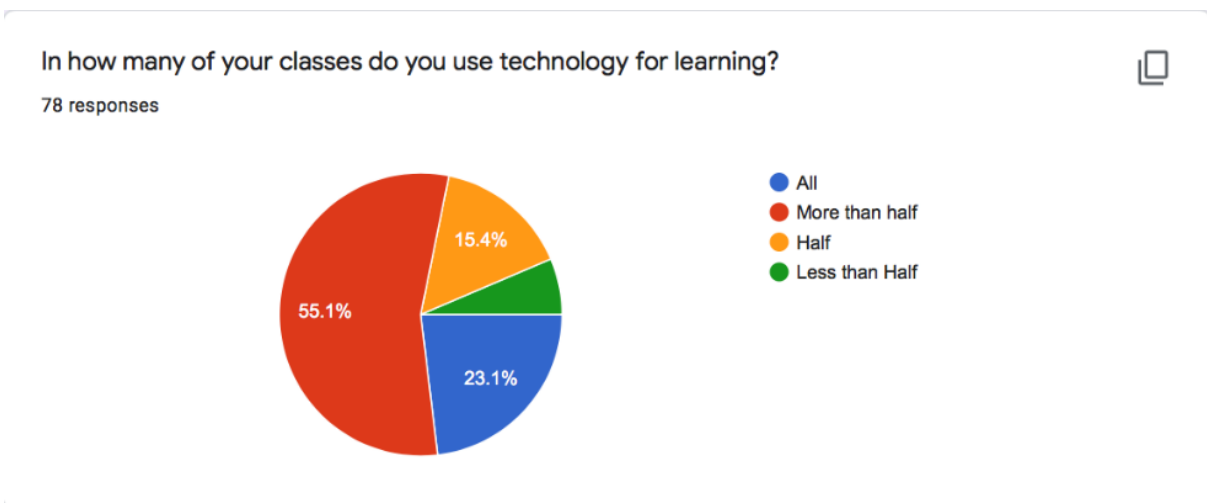
The study was made available to the students online for one week on Google Survey. The students received the invitation email on Thursday and a reminder email on Monday morning encouraging them to complete it if they had not already done so (See Appendix B). The survey was closed one week after the initial invitation. The data was analyzed to determine the perceptions regarding technology use in the classroom.

### Results

This study was completed to determine students' perceptions surrounding the use of technology in the classroom. The survey asked questions regarding students' ability to meet learning targets, the benefits and limitations/challenges technology presented and engagement strategies. The survey also gave students general baseline questions about their technology to gain a general understanding of technology use in their classrooms.

#### Figure 1

##### *General Technology Use*

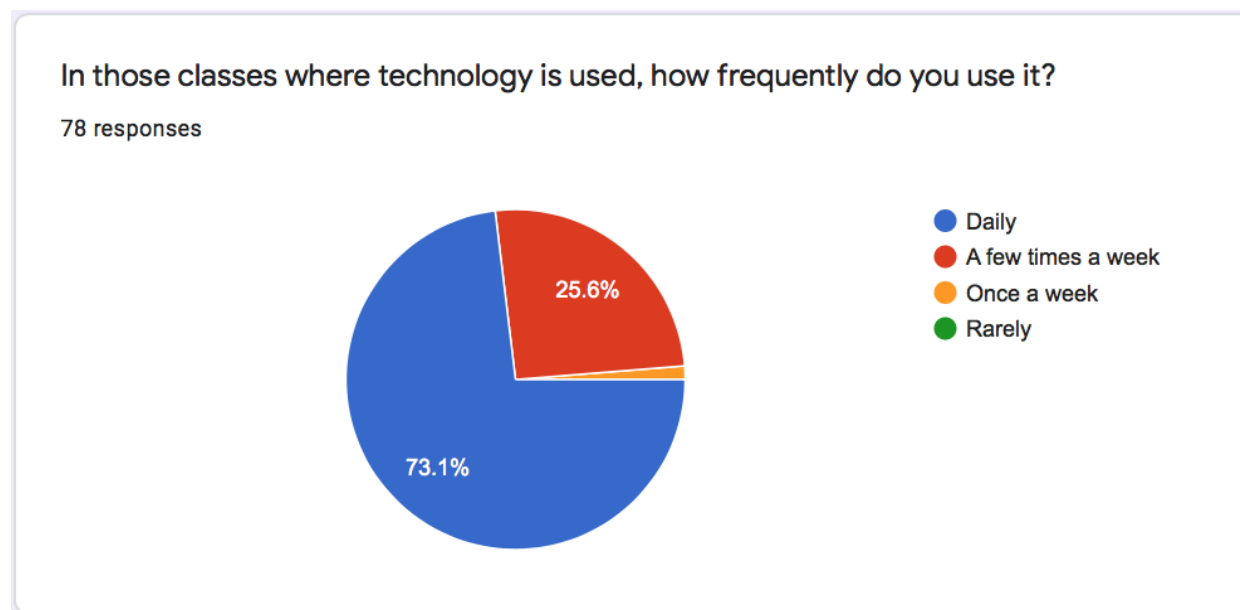


*Graph showing the amount of technology use in the classroom.*

Figure 1 provides information on the general use of technology in the classroom. Fifty-five of the 78 students said they use technology in more than half of their classes. Eighteen students said they used technology in the classroom on a daily basis, twelve said they used it in half of their classes and five used it in less than half.

## Figure 2

### *Frequency of Technology Use*



*Graph showing how often students use technology in the classroom.*

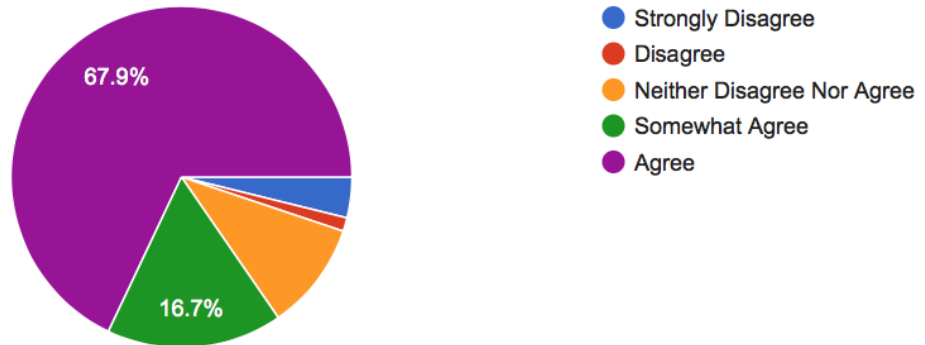
Further, as Figure 2 illustrates, when asked how frequently they used technology in the classes that regularly utilized it, 57 students reported that they use technology on a daily basis. Twenty students said they used it a few times a week and one student said they only used it once a week. Overall, the 98 percent of students use technology in the classroom on a daily basis.



**Figure 3***Technology Use*

My teachers use enough technology in the classroom.

78 responses



*Figure showing students thoughts on amount of technology use in the classroom.*

After students reported how often technology in the classroom was used, they had the opportunity to express their thoughts on how satisfied they were with frequency of technology. Fifty-three students said they agreed that their teachers used enough technology in the classroom. Thirteen students somewhat agreed with the statement and twelve students were neutral or disagreed. The data shows 83 percent of students were satisfied with how often their teachers use technology.

### **Research Question One**

The first research question examined student perceptions of whether technology use in the classroom helps students further meet learning targets. The survey included two Likert-scale questions about this topic. Further, in the open-ended questions, students had an opportunity to

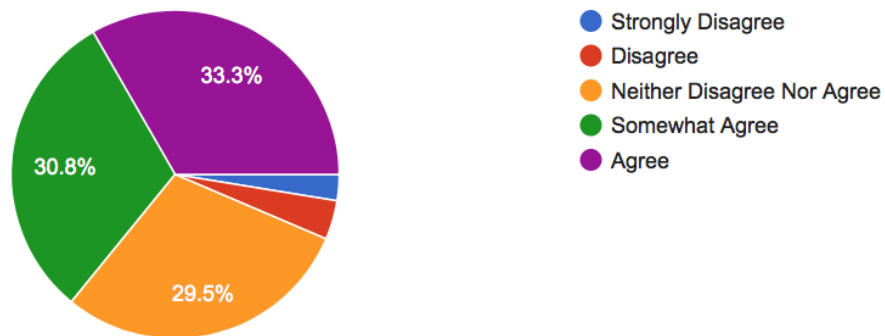
explain if technology use in the classroom helps them meet learning targets. Overall, students believe that technology further helps them meet learning targets.

#### Figure 4

##### *Technology and Learning Targets*

Technology use in the classroom helps me better understand my assignments. (i.e. grasp the concept, make sense of reading material, see how it applies to the bigger picture, etc).

78 responses



*Figure showing students thoughts on amount of technology use in the classroom.*

Figure 4 shows 63 percent of students either agreed or somewhat agreed with the claim that technology helps them better understand the assignments. Thirty percent of students neither disagreed or agreed with the statement and only five students disagreed with it. The majority of students believe that technology adds to the learning experience and helps them further meet the learning targets. In addition to better understanding assignments, 87 percent of students surveyed claim that technology assists them in completing assignments.

In the open-ended responses, students commented on technology and its ability to help them understand concepts. One student said, “If I have a question, the internet can help me fully

understand the task at hand.” Students noted that they were able to use the internet in the midst of working on their assignment to make sense of the content and gain a further understanding. Another student said, “There are more tools to work with like databases and other places to access information to help understand the concept.”

### Research Question Two

The second research question asked students to determine the different benefits of technology in the classroom. The survey questions gave students the opportunity to answer five Likert-scale and one open ended question regarding benefits.

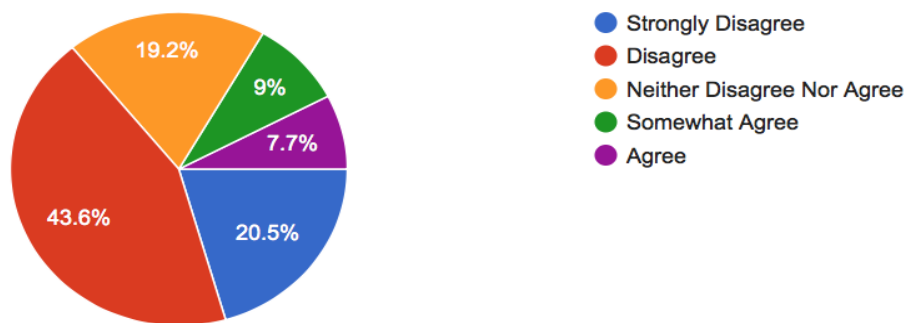
A benefit of technology students commonly identified was the speed at which technology helps them complete their assignments. Figure six shows their overall thoughts regarding the pace at which technology helps them work.

### Figure 5

#### *Benefit of Technology in the Classroom*

Using technology to complete assignments takes more time than traditional methods (i.e. paper, pen and book).

78 responses



*Figure showing students disagree with the statement that technology causes assignments to take more time than traditional methods.*

Sixty-three percent of students disagreed with the statement that technology causes assignments to take more time than they would with traditional methods. Students found that completing assignments with technology either takes the same amount or less time than they would with traditional methods.

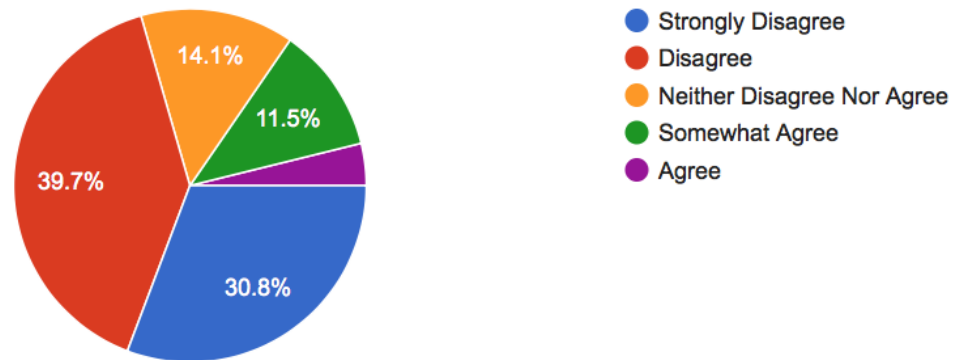
In the open-ended question regarding technology benefits, numerous students commented that technology helps them complete their assignments. Whether it is taking notes, researching or writing an essay, students claimed technology increases the speed, efficiency and thoroughness of their work. One student commented on how technology improved the speed of completion. “Technology is faster, more convenient, and I don’t have to carry as many things around. Plus, it’s easy to get information on the spot.” Another student specifically commented on technology’s efficiencies. “Technology helps me complete multiple assignments at once without worrying about losing papers or having to wait to ask questions. I can look up answers right away and get things done.” And one more student discussed how technology helps them be more thorough. “Technology doesn’t make doing assignments faster, but the time I spend on it is used in better ways. I tend to polish my answers a lot more when writing them online.”

Another survey question regarding benefits of technology asked students if technology leads to more creativity in the classroom.

**Figure 6***Benefit of Technology in the Classroom*

Technology takes away from my ability to be creative in the classroom.

78 responses



*Figure showing students believe technology does not take away from their ability to be creative in the classroom.*

Seventy percent of students disagreed with the statement that technology takes away from their ability to be creative in the classroom. Fourteen percent neither agreed or disagreed and seventeen percent of students agreed. Overall, the opportunity to use technology in the classroom either adds or keeps students' creative abilities the same. No students specifically commented on technology and creativity in the open-ended questions.

### **Research Question Three**

The third research question revolved around the limitations technology has in the classroom. Students were asked in an open ended question to identify ways technology prevents them from learning. There were no potential limitations identified by the students within in their

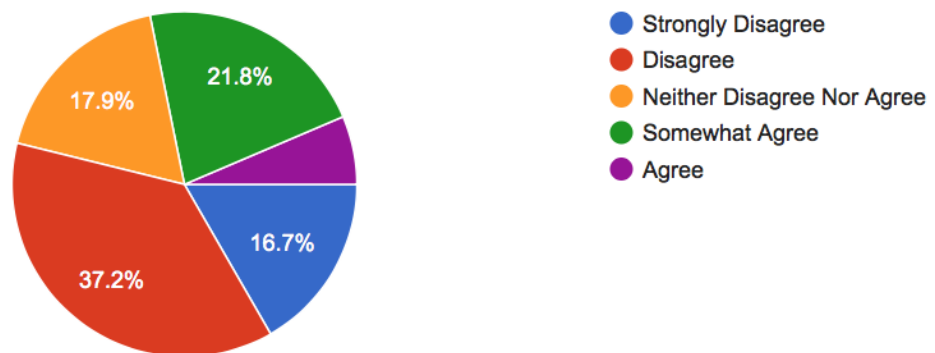
responses to the Likert-scale questions. The open-ended question did identify some potential limitations to be distraction and a lack of hands on learning.

### Figure 7

#### *Potential Limitation of technology*

It is hard to stay on task when technology is used in the classroom.

78 responses



*Chart showing students disagree with the idea that technology is distracting in the classroom.*

Interestingly, in contrast to the open-ended response that suggested that technology use could be distracting, in the Likert-scale questions pertaining to this potential limitation, fifty-three percent of students disagree with the idea that it is difficult to stay on task when technology is used in the classroom. Eighteen percent of students neither disagree nor agree and 29 percent agree with the statement. The overwhelming answer in the open-ended question was that technology is distracting. The distractions look different for many students. For some, it is games and others it is social media and email. One student commented, “Technology is a distraction because you can always be doing something else without the teacher catching you usually and it can make it hard to pay attention. Also, technology doesn’t help you remember what you are

typing as it does for writing it on paper.” Additionally, students who are distracted on their own laptops have to deal with their fellow classmates and the distractions they provide with their own personal devices. A student commented, “Other students mess around on their technology and be a distraction.”

Another limitation students noted was that technology may allow for less hands-on learning. By using a computer, students can watch videos or read articles on how to do something instead of trying it themselves. One student commented, “I enjoy hands-on learning and time that could be spent doing a hands-on project is often looked over because we’re able to watch a video on how it could be done.” Another student commented, “Sometimes we don’t get to practice what we’ve learned because we watch how others do it and don’t get the practice.”

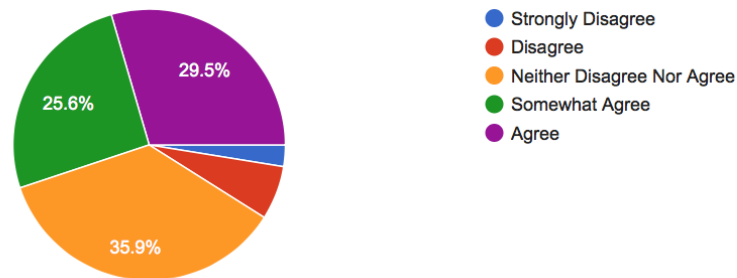
#### **Research Question Four**

The final research question dealt with different strategies involving technology that students found to be engaging. There was one Likert-scale, one selected-response question and one open-ended question that provided data on this research question. In general, students felt technology helped them feel more engaged in the learning process. Students mentioned Kahoot, Quizlet and YouTube to be some of the more engaging methods of using technology.

**Figure 8***Technology and Engagement*

I feel more engaged in a class when the teacher uses some sort of technology versus classes when they don't.

78 responses



*Figure showing that technology leads to more engagement in the classroom.*

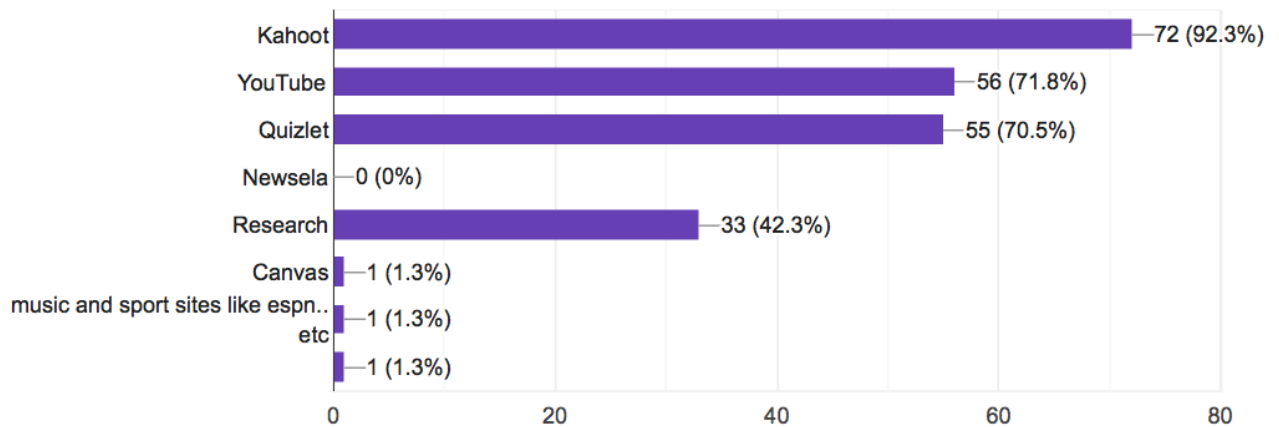
Fifty-four percent of students agreed that when technology is used in the classroom, they feel more engaged. Thirty-six percent of students neither agreed or disagreed with this statement and only 11 percent disagreed. In response to the open-ended question about how technology helps them enjoy learning, the majority of students mentioned assignments involving research. Technology helps them find information in a variety of ways. One student commented, “When we have to do research in books, it’s not as entertaining. The computer gives us the chance to watch videos, look at pictures and read articles.” Another student commented, “Technology allows for research and alternative ways of learning through programs or websites that wouldn’t otherwise be possible.”



**Figure 9***Engaging Technology Tools*

What ways do you enjoy using technology in the classroom? Check all that apply.

78 responses



*Figure showing what different technology students enjoy using in the classroom.*

A common response about student engagement and technology was its ability to gamify material. Kahoot, YouTube and Quizlet were identified to be the most engaging tools for students in the classroom. The gamification of materials gives students an added motivation to learn. According to the students, the more technology is incorporated into the daily routine of learning, the better. It automatically adds an element of “variety” and “fun” for the students. One student commented, “Games on our computers honestly help me better remember the material.”

## Discussion

### Overview of the Study

The purpose of this study was to examine student’s perceptions regarding the use of technology in an English Language Arts classroom. In this study, the use of technology in the classroom was examined via an online survey. Seventy-eight high school English Language Arts

students provided insight on whether technology helps them further meet learning targets, the benefits and limitations of technology as well as engaging strategies for technology use in the classroom.

### **Summary of the Findings**

Overall, the survey indicated students prefer to have technology in the classroom. The variety technology offers combined with the engagement it creates inspires students to complete homework well. According to the survey, 64 percent of students agreed that technology helped them meet the learning targets created by teachers. Glass and Kang's (2017) study showed there is no correlation between technology and its ability to help students achieve learning targets. In fact, students who were allowed to take notes and use their laptops struggled with their long-term retention and their grades suffered as a result. In this study, however, student perceptions were described, but actual experimental data was not collected. The survey answers were student perceptions and may or may not reflect in actual practice.

In the open-ended question portion of the survey, students noted several benefits of technology use including its speed or efficiency and its ability to increase collaboration. One student said, "We can work together in groups and our laptops give us all a chance to look at different information and easily compare notes. Multiple students also mentioned it helps "create relationships" and leads to more "thorough ideas." Similar results were found in Bakshaei et al's (2018) study where researchers found that technology use amongst groups not only increased efficiency, but they also added to the benefits of collaboration. Within the open-ended questions of this action research project's survey, multiple students commented on the preference of working with their peers on assignments while using technology.

Along with collaboration, technology provides students a chance to feel like they are participating in the “real world.” Mirra (2015), described the idea of “connected learning.” This happens when teachers bring aspects of the real world into the classroom. In the open-ended questions, students responded that using technology in the classroom made the content appear to “be more relevant” to their daily lives.” This result is affirmed by the fact that 75 percent of students surveyed preferred to use technology over traditional learning methods.

When students are able to understand the relevancy of content, their creative abilities are not hindered. Young & Bush’s (2014) study encouraged teachers to only use technology if it allowed students to be more creative. Young and Bush’s (2014) finding correlates with the findings in this study. According to the survey, 69 percent of students believe technology adds to their ability to be creative and as a result technology should be used in the classroom. Creativity is also expanded due to the opportunity it gives teachers to present information in multiple ways. In Figure 9, 56 students identified YouTube to be a useful technology tool. YouTube allows teachers to show videos on the content they are teaching. Studies prove that multiple methods of content presentation will lead to greater understanding (Chen et al, 2009, p. 478; Hicks, 2011, p. 189; McNabb, 2005).

Along with the benefits technology brings, students also described several technology use strategies that increased engagement. Dichev and Dicheva’s (2017) study proved that technology use in the class was an effective method to improve content knowledge and engage students. In Figure 8, 43 of 78 students answered that they feel more engaged in the class when technology is used. In a Figure 9, 72 of the 78 participants selected Kahoot as one of the ways they enjoyed technology use in the classroom. Fifty-five students selected Quizlet as another preferred way of using technology in the classroom. Both of these tools gamify material to help students study and

gain content knowledge (Baevis, 2014; Dichev & Dicheva, 2017; Glover & Miller, 2003, p. 22; Leung & Pluswik, 2018; Schmid, 2006).

While technology benefits the classroom in many areas, it has some limitations. The overarching limitation of technology is the distraction. Despite 53 percent of students claiming that technology does not take away from their ability to stay on task, the majority of the open-ended responses showed otherwise. Many students claimed technology was distracting in the classroom due to the access it provides to social media, games, etc. Neiterman and Zaza's (2019) study tested a group of over 400 students on their ability to focus with technology in the classroom. Results showed that retention rates were less when technology use was allowed.

Students mentioned in the open-ended portions that they check their devices when the teacher "loses their interest." They have easy access to a distraction tool that can stimulate their brains. When the students stop paying attention to the teacher, it leads to multitasking.

Multitasking results in lower scores and less focus on the required content (Lee et al, 2011, p. 99)

Another limitation of technology is the lower rate of retention compared to traditional learning. While 54 of the 78 students in the survey said they would prefer to use computers and tablets over paper and pen, studies show that retention rates are higher when students use traditional methods. Glass and Kang's (2017) study showed students were not scoring as high on exams when they were asked to type their notes. The students who handwrote their notes scored higher on exams.

### **Recommendations**

It is apparent through the research and survey that technology must serve a specific purpose in the classroom. If it is not used to add to the educational experience, it should not be used at all. Students are tempted to be distracted by their personal devices. If they deem the in-

class work to be irrelevant, they will take advantage of their personal device and find something more entertaining to do while the teacher leads the class. In an effort to dissuade the distractions, English educators should strive to use technology as a tool to encourage collaboration and to teach the content in multiple ways.

Collaboration amongst students is a valuable instructional strategy. Incorporating technology into these group projects can add an entirely new layer to it. Technology gives students a chance to showcase their teamwork and technology skills.

Technology provides teachers with a chance to showcase content in a variety of ways. For ELA teachers, showing clips from a movie or having the students create a memoir via iMovie gives students a chance to complete the necessary ELA projects, but to do so in a way that utilizes technology. This use of technology motivates students and shows that their teachers are willing to embrace technology and utilize it to improve the classroom experience.

### **Limitations**

Due to the COVID-19 situation, the researcher was not able to conduct in-person interviews with students to discuss their responses to the survey. This would have allowed for more thorough data collection (Reit, Berg, Hiddema & Sol, 2001). It also would have allowed the researcher to ask follow-up questions to students to gain a further understanding of the few sentences they provided in the open-ended questions. Finally, in-person interviews would have provided the opportunity to clarify a few of the discrepancies in the survey answers.

Another limitation came in the form of participation. While there were 78 students who participated, the number could have been higher if students were present in school and had an opportunity to discuss the survey. The participating school was not requiring students to

complete remote learning work so every assignment, including the survey, was optional. The more student responses, the larger the sample size and complete data would be available.

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**Appendix A****Survey:**

1. What is your gender?
2. What grade level are you currently?
3. In how many of your classes do you use technology for learning?
  - a. All
  - b. More than half
  - c. Half
  - d. Less than half
4. In those classes where technology is used, how frequently do you use it?
  - a. Daily
  - b. A few times a week
  - c. Once a week
  - d. Rarely
5. My teachers use enough technology in the classroom.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Disagree Nor Agree
  - d. Somewhat Agree
  - e. Agree
6. Using technology to complete assignments takes more time than traditional methods (i.e. paper, pen and book).
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Disagree Nor Agree
  - d. Somewhat Agree
  - e. Agree
7. It is hard to stay on task when technology is used in the classroom.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Disagree Nor Agree
  - d. Somewhat Agree
  - e. Agree
8. Technology takes away from my ability to be creative in the classroom.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Disagree Nor Agree
  - d. Somewhat Agree
  - e. Agree
9. Technology use in the classroom benefits and adds to learning.
  - a. Strongly Disagree
  - b. Disagree
  - c. Neither Disagree Nor Agree

- d. Somewhat Agree
  - e. Agree
10. I feel more engaged in a class when the teacher uses some sort of technology versus classes when they don't.
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Disagree Nor Agree
  - d. Somewhat Agree
  - e. Agree
11. Technology use in the classroom helps me better understand my assignments. (I.e. grasp the concept, make sense of reading material, see how it applies to the bigger picture, etc.)
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Disagree Nor Agree
  - d. Somewhat Agree
  - e. Agree
12. Technology helps me complete my assignments (i.e. faster, easier to complete answers).
- a. Strongly Disagree
  - b. Disagree
  - c. Neither Disagree Nor Agree
  - d. Somewhat Agree
  - e. Agree
13. If you had to choose one: would you prefer to use physical books, paper and pen or computers and tablets?
- a. Physical books, paper and pen
  - b. Computers and Tablets
14. What ways do you enjoy using technology in the classroom? Check all that apply.
- a. Kahoot
  - b. YouTube
  - c. Quizlet
  - d. Newsela
  - e. Research
  - f. Other
15. In what types of assignments does technology help you enjoy learning?
16. How does technology prevent you from learning in the classroom?
17. How does technology help you better complete your assignments?



## Appendix B

Hello Everyone!

I hope you're doing well and making the most of your time at home! I miss being in class with all of you and would have liked more time to get to know each one of you.

I'm sending you this email to ask for a favor. I'm asking if you would be willing to complete a survey for me. It is for my graduate school action research project and your responses will greatly help in gathering accurate data.

The survey includes questions about technology use in the classroom. It should only take you **5-10 minutes** to complete. If you would please do your best to answer openly and honestly, I would appreciate it.

Here is the link for the survey: <https://forms.gle/sy2kFsvyKyns9Mj36>

The survey is anonymous and will not record your name or email address. Your individual responses will be kept confidential and will not be shared with anyone.

I will use only the data collectively as a whole, to determine trends and averages. This research can greatly assist educators to better understand the desires and opinions of our students.

If you have any questions, please talk to me about the research study. I really appreciate your willingness to complete the survey.

The survey is live and you can go in and answer at any time! I am leaving it open until **Tuesday**. I will be sending out a reminder email at some point.

Thank you very much!

Mr. Mooers