

HIGH SCHOOL TEACHER PERCEPTIONS OF PROFESSIONAL LEARNING,
FOCUSED ON CLASSROOM INSTRUCTION, NEEDED DURING A ONE-TO-ONE
TECHNOLOGY INITIATIVE

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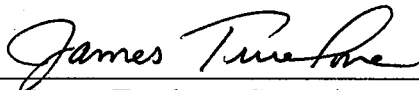
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FOCUSED ON CLASSROOM INSTRUCTION, NEEDED DURING A ONE-TO-ONE
TECHNOLOGY INITIATIVE

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HIGH SCHOOL TEACHER PERCEPTIONS OF PROFESSIONAL LEARNING,
FOCUSED ON CLASSROOM INSTRUCTION, NEEDED DURING A ONE-TO-ONE
TECHNOLOGY INITIATIVE

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By

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I would also like to dedicate this paper to teachers and students. Teachers, always remember to believe in your students because you never know the impact you may have on an individual. I was not a great student and when I made the decision to attend college my senior year of high school, I was excited to tell my history teacher that I planned to be a history teacher. He knew I was a bad student that did not apply myself in high school and he laughed at me because he did not think it was possible that I would be successful and become a history teacher. I wish he could see me now. I dedicate this paper to the hard working teachers that believe in their students, and I wish to remind those teachers that may doubt what a student is capable of that they may never know the impact a student may have on the world after high school. Finally, I want to dedicate this to all the high school students who have had teachers not believe in them in the past. My message to you is use it as fuel to prove them wrong and be the best you can be at whatever you are passionate about; go get 'em!

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ABSTRACT

School administrators are tasked with preparing students for their futures. To properly prepare students for their future, students will need to interact with technology when in school. This, coupled with the studies showing the positive effects technology has on student achievement, has spurred one-to-one technology programs across the country. The increase of technology in the classroom requires teacher training to ensure student achievement increases and teachers feel supported to make the change to use more technology. Teacher perceptions of professional learning needed during a one-to-one initiative could contribute to determining how school administrators should allocate professional learning funds. The problem is that if teacher perceptions of the type of professional learning needed during a one-to-one initiative are not taken into account, teachers may become frustrated and leave the teaching profession. Teachers leaving would have a negative effect on student achievement. This study assessed high school teacher perceptions of professional learning needed during a one-to-one initiative. Teachers were asked a series of questions to determine if they favored professional learning focused on whole class delivery or personalization of learning during a one-to-one initiative. The survey also included one demographic question to determine if the years a teacher had spent teaching had a significant effect on the survey responses. The hopes of this study were that school administrators who planned to go through a one-to-one initiative would know how to spend professional learning funds.

CHAPTER ONE

INTRODUCTION

The push to utilize and increase the amount of technology, specifically one-to-one technology, is a prevalent and widespread educational initiative (Horn & Staker, 2015). One-to-one technology initiatives are common because the increased technology has been shown to have a positive impact on student achievement (Ramsdell, 2014). When a superintendent decides to implement one-to-one technology in one of their schools or entire district, a considerable amount of change occurs (Horn & Staker, 2015). To help teachers cope with the change and ensure student success, focus needs to be on professional learning to support teachers through the change (Tackett, 2014). Teachers not only have a positive impact on student achievement, but also have been shown to have the biggest overall impact on student achievement (Kurt, 2013). This requires the superintendent to support teachers thorough this major change and make decisions with the goal of keeping teachers from leaving because most of the teachers leaving are good teachers (Darling-Hammond, 1997). High school teacher perceptions of professional learning, focused on classroom instruction, will determine the topic of training that is most important for a successful one-to-one technology implementation. The goal is to determine what professional learning topic, either whole class delivery or individual student personalization, using technology is most vital and should be the main focus during a one-to-one technology initiative.

The topic for this study came from personal experience working in a district implementing a one-to-one technology initiative. Teachers receive professional learning to help them use one-to-one technology in the classroom, but the training always varies

between whole group technology tools and technological tools to personalize learning such as adaptive software and a learning management system. The motivation behind this study was to find out if teachers valued one type of training over the other. These findings would help to determine professional learning opportunities based on teacher perceptions.

Problem Statement

Student achievement and success should be the number one priority driving all decisions in education (K.M. Brown & Wynn, 2009). The decision to implement one-to-one technology is made with the intent of increasing student achievement because studies have shown the positive effects technology has on student success (Mingus, 2014; Ramsdell, 2014; Reid, 2008; Sprenger, 2010; Tackett, 2014). However, technology is not the only factor that can increase student achievement. It has been shown that the teacher has an even bigger impact on increasing student achievement (Ally, Grimus, & Ebner, 2014). Therefore, teachers are more important than technology in regard to students' success (Steinke & Putnam, 2007). However, technology is the focus point for most superintendents (Sell, Cornelius-White, Chang, McLean, & Roworth, 2012).

The implementation of technology has forced teachers to change the way they teach, necessitating training to make this change effectively (Tackett, 2014). Additionally, failing to support teachers' professional learning initiatives may have an impact on teacher retention (Steinke & Putnam, 2007). Implementing a one-to-one program is an important step to increase student achievement, but it is just as important to keep teachers in their current teaching position after a one-to-one technology initiative because teachers have the biggest impact on student achievement (Ronfeldt, 2012). If

there is not a focus on professional learning during a one-to-one technology initiative, teachers may leave their current teaching position. If teachers decide to leave, this will have a negative effect on student achievement. If schools can retain and support teachers in using the new one-to-one technology effectively through professional learning, both the teachers and technology will have a positive impact on student achievement (Ally et al., 2014).

Professional learning time is precious and it is important to use the time, however small, allotted to professional learning on a topic that is most beneficial to teachers (Tackett, 2014). The problem is some administrators do not provide teachers with professional learning based on need. This lack of professional learning does not support teachers in staying in the classroom and using one-to-one technology effectively. This lack of professional learning focused on teacher need has a negative impact on student achievement and can cause teachers to be dissatisfied and possibly leave.

Purpose of the Study

The purpose of this study was to help superintendents planning to go through a one-to-one technology initiative determine the best topic on which to focus during teacher professional learning time: the use of technology during either whole class delivery or individual student instruction. Many studies have been completed to show the positive effect one-to-one technology has on student achievement (Ramsdell, 2014; Reid, 2008; Sprenger, 2010). Additionally, studies have shown that teachers need professional learning on how to use the technology effectively in the classroom (Mingus, 2014; Tackett, 2014). Tackett (2014) completed a study to determine if teachers need professional learning on software, hardware, or instructional strategies. While this study

was focused on professional learning needed during a one-to-one initiative, it did not go in depth with any of the three topics studied. The current study was needed because it focused more specifically on Tackett's topic, instructional strategies. Additionally, this study determined if professional learning should focus on helping teachers with the use of technology to deliver information to the whole class (delivery) or individual student (personalization). Knowing the answer to this question will help schools plan professional learning based on teacher need to support and keep teachers in their current profession during a change to one-to-one technology. This topic needed to be studied to add to the wealth of research about professional learning needed during a one-to-one technology initiative based on teacher perceptions.

Theoretical Framework

Education is changing at a rapid pace to keep up with the rest of society (DuFour & Marzano, 2011). Teachers are tasked with preparing students for participation in a future with jobs that may not even be created yet (Horn & Staker, 2015). According to Horn and Staker (2015), education needs to focus on preparing students for an unknown future that will, inevitably, involve technology. Technology is growing at a rapid pace both in number of users and ability, according to Horn and Staker, and superintendents have noticed this and decided to implement one-to-one technology initiatives.

Another reason to implement one-to-one technology is to increase student achievement (K.M. Brown & Wynn, 2009). For teachers to feel supported to stay and use the technology properly in the classroom, they need training both on the technology and how to use the technology in the classroom (Tackett, 2014). According to Ronfeldt (2012), one-to-one technology has been shown to increase student achievement, but the

teacher ultimately has the biggest effect on student achievement. Therefore, in order to have the greatest effect on increasing student achievement, teachers need professional learning training to feel supported both on the technology and how to use it (Tackett, 2014).

Technology can also have power. Lessons and activities that were never possible without technology become possible with technology and have been shown to increase student achievement exponentially (Puentedura, 2014). Technology becomes the great equalizer in the classroom, so despite socioeconomic differences and different past experiences, equity can be achieved (Horn & Staker, 2015). The focus of this study was to determine teacher perceptions of what topics, either delivery or personalization, were the most important to focus on for professional learning during a one-to-one technology initiative.

Research Questions

Three research questions drove this study. The research questions were as follows:

1. What are the perceptions of high school teachers in regard to professional learning related to delivery with one-to-one technology?
2. What are the perceptions of high school teachers in regard to professional learning related to personalization with one-to-one technology?
3. Are there differences in their perceptions related to years of experience teaching?

These questions were answered through survey data collected from high school teachers in districts with one-to-one technology.

Definition of Key Terms

1. Classroom Instruction- When a teacher provides students with content to increase learning in the classroom.
2. Delivery- This is when a teacher delivers content to a whole class. Teachers have many options when it comes to content, timing, and area(s) of emphasis, and the choice of what to use and when should be based on what is best for students. Delivery tools in a one-to-one classroom usually include technology tools that can help deliver content to the whole class.
3. One-to-One Technology- When every student has one device each day, seven days each week.
4. Personalization- This is when a teacher provides content to one student individually, based on need. This occurs during classroom instruction and is when a teacher provides students with activities on the students' level, which are to be completed in the classroom or at home. This can be done with the use of technology that makes personalization possible in a classroom with many students. Students will complete work at their grade level and at their own pace independently to increase achievement. Personalization tools are usually adaptive software and technology tools that can assign work to a single student, such as Google classroom or a Learning Management System (LMS).

Limitations/Delimitations

This study included the following limitations:

1. Schools' size, location, and demographics were not taken into account.
2. Participants were honest with their survey responses.

This study included the following delimitations:

1. This study was delimited to high school teachers in Southwest Missouri and Northwest Arkansas with one-to-one technology 24 hours each day.

Assumptions

This study included the following assumptions:

1. The participants in this sample represented the total population of teachers using one-to-one technology.
2. Teachers had constructive information to share on their survey about the most effective professional learning topic, either delivery or personalization, during a one-to-one technology initiative.

Design Controls

This study was a descriptive study based on quantitative data. High school teachers in districts with one-to-one technology were sent a survey to determine their perception on the most important topic for professional learning during the one-to-one technology initiative between delivery and personalization. Superintendents in Southwest Missouri and Northwest Arkansas were sent a questionnaire to determine districts that had already completed a one-to-one technology initiative. After the districts with one-to-one technology were determined to meet the necessary requirements of one-to-one technology 24 hours each day, superintendents were contacted to distribute a survey to their teachers about the professional learning training topic most needed during the one-to-one technology initiative between delivery and personalization. Teachers were not required to complete the survey and they could stop the survey at any time. All

responses were confidential and it is assumed that teachers response to the answers thoughtfully and honestly.

Summary

The push to implement one-to-one technology in schools is growing across the country because of the positive impact one-to-one technology has on student achievement (Horn & Staker, 2015). The lowered cost of purchasing one-to-one technology has made it possible for more and more schools to implement the new technology (Schaffhauser, 2015). However, teachers have the biggest overall impact on student achievement (Kurt, 2013). When one-to-one technology is implemented, teachers are left to cope with a significant amount of change (Sell et al., 2012). The entire school system needs to include teachers in the process to help solve possible barriers to change, both internal and external, to use the new technology effectively (Ryan & Bagley, 2015; Senge, 1990). To overcome these drastic changes and possible barriers, teachers need professional learning to use technology effectively in the classroom (Tackett, 2014). With professional learning focused on supporting teachers to stay and utilize the one-to-one technology effectively, there is even greater opportunity to increase student achievement (Ally et al., 2014). Professional learning needs to be focused on the topic teachers need most. Teacher perceptions about professional learning during a technology initiative were used to determine the training most needed during a one-to-one technology initiative. Teachers were sent a survey to determine the professional learning topic, either delivery or personalization, that was most important during a one-to-one technology initiative.

This chapter included an introduction about this study of the desired professional learning topic by teachers, either delivery or personalization, that was most important

during a one-to-one technology initiative. Chapter Two provides the background information on professional learning in secondary education related to one-to-one technology. Chapter Three includes the methodology for this study involving teacher perceptions of professional learning needed, either delivery or personalization, during a one-to-one technology initiative. It is also an overview of the quantitative approach for this study. Chapter Four includes the analysis of the data collected. Chapter Five provides an overview of the study including implications and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

When a change to use one-to-one technology is made, teachers need professional learning to be trained how to use the new technology and to cope with the change. To understand the need for professional learning during a one-to-one initiative, it is important to learn the history of one-to-one technology, starting with the first laptop initiative in 1989 (Sprenger, 2010). Since the first laptop initiative, society has made changes to use technology frequently, requiring schools to implement technology to properly prepare students for their future (Horn & Staker, 2015). Since technology was implemented in schools, studies have shown that one-to-one technology has a significant positive effect on student achievement (Ramsdell, 2014; Reid, 2008; Sprenger, 2010; Tackett, 2014). Mingus (2014) described factors such as 21st-century skills and how the teachers' use of technology in the classroom play a role in the positive effect one-to-one technology will have on student achievement. Technology can be a useful tool to help close the achievement gap and reach students on their level. For example, one-to-one technology does allow teachers to personalize learning by using technology to provide a prescribed lesson, an almost impossible task without technology (Horn & Staker, 2015). Students will gain information literacy skills while using technology and also have opportunities for new learning, such as project-based learning (PBL) that will provide students with a real-world learning experience (Sabzian, Gilakjani, & Sodouri, 2013). Sabzian et al. (2013) described how the process of using technology combined with real-world learning, through PBL, would help prepare students for their future. Other studies

found a few instances where one-to-one technology did not have an impact on student achievement (Muhammad, 2011). However, most results showed that one-to-one technology had a positive impact on student achievement (Mingus, 2014; Silvernail, 2009).

The cost of one-to-one technology has significantly decreased over the years. The decrease has occurred because the cost of devices has gone down as more and more people use technology and as technology companies compete with each other to lower prices and make more sales (Schaffhauser, 2015). It is also more economical to use technology than not use technology in the classroom because technology allows schools to use cheaper digital resources and not expensive paper kits and materials (Horn & Staker, 2015).

There are changes that may occur during a one-to-one technology initiative. For a change to be effective, such as a switch to one-to-one technology, a system-wide reform needs to take place. This means that change needs to happen through collaboration, where all departments in a system work together to help make the change and do no work against each other to cause a problem in another part of the system (Senge, 1990). For teachers to feel comfortable with this change that occurs in a system and ultimately carry out the changes in their classroom, they need to learn more about technology and how to manage it (Tackett, 2014). Additionally, teachers' role will change from content expert to facilitator of learning, a change that should be made in the professional learning part of the system with professional learning initiatives to support teachers and help them understand and carry out their new role (Horn & Staker, 2015). Technology is always changing and it is important for teachers in one-to-one schools to utilize technology to its

fullest potential, necessitating professional learning opportunities (Tackett, 2014).

Another way to push a system forward with change is to view the change through the lens of the four frames from Bolman and Deal (2008). These four frames of human resource, political, structural, and symbolic will shed new light on the change and how to manage the change to move forward in a positive way, and not stifle change or cause a problem in another part of the system.

Professional learning can help teachers overcome barriers to technology use in the classroom (Tackett, 2014). Barriers to one-to-one technology use and implementation can be categorized into two areas, internal and external (Ryan & Bagley, 2015). Ryan and Bagley (2015) stated that barriers to technology use in districts with one-to-one technology devices could be categorized into internal, including teacher perceptions and personal beliefs, and external, including the hardware and software. Teachers need professional learning training to overcome these barriers to technology use in the classroom (Tackett, 2014).

Superintendents decide to implement one-to-one technology in schools and districts because of the desire to increase student achievement (Mingus, 2014). However, the teacher has an even bigger impact on student achievement (Ronfeldt, 2012). Changes to a teacher's job including job satisfaction, retention, transfer, and turnover rates have a negative effect on student achievement. Teachers play a major role in increasing student achievement and efforts should be made by the school and district to retain good teachers (Kurt, 2013). In a time of change, teachers need to feel supported to stay in their position through professional learning opportunities focused on what they need to feel supported and increase student achievement with the new one-to-one technology (Tackett, 2014).

A shared vision during a one-to-one technology initiative is extremely important because all members of the system need to believe in the change to see it carried out. Senge (1990) stated that teachers and administrators should be on the same page with decisions and work together to implement the change and new vision/mission. Teachers need to feel included in the decision making and changes occurring to stay satisfied with their position (Tackett, 2014). Leaders impact whether a change, such as one-to-one, is effective or not, therefore they need to be cognizant of their actions and maintain effective leadership in their building and with the community (Reeves, 2009). Discovering and being aware of each person's mental models, or way of thinking based on past experiences, is important to understand the diversity of thought about the change to one-to-one technology and to develop a plan of action to help everyone have a shared vision, regardless of their personal mental model (Senge, 1990).

Superintendents in districts that decide to implement one-to-one technology and decide to support teachers with professional learning opportunities have options as to how those trainings will occur. Face-to-face and trainings using technology, such as a webinar, are professional learning options, each with their own pros and cons (Learning Forward, n.d.). Some superintendents may opt to have face-to-face trainings because it feels more personal to have a training in person. However, face-to-face trainings are more costly than training with technology, such as a webinar, and if a superintendent decides to train teachers by webinar, there may be more training options available because of the cheaper price. Regardless of the training format chosen, face-to-face or webinar, the format of the training should follow the professional learning standards established by Learning Forward (2011). Teachers have the biggest effect on student

learning and, in order to use the new technology to increase student achievement, they will need training in how to use the new technology (Kurt, 2013).

A Brief History of One-to-One Technology

As technology continues to advance, more and more businesses have become reliant on the use of technology to increase productivity and efficiency. Educators have implemented technology to increase results, just like the business world, to help prepare students for their roles in society. Teaching students to use and be comfortable with technology is a life skill necessary to function in society.

Using one-to-one technology in education is a relatively new idea. In 1989, the first laptop initiative occurred in the Methodist Ladies College in Australia for girls from ages 8-18 (Sprenger, 2010). Sprenger (2010) stated that because of the success of this first initiative, more and more schools and even states decided to implement one-to-one technology. The first state to adopt a laptop initiative was Maine, and Apple computers were the first to be used in the classroom (Dunleavy, Dexter, & Heinecke, 2007). Over the years technological advances occurred and technology companies created devices that could be used in the classroom. Sprenger (2010) explained that these advances and competition among technology companies led to lower prices for the devices and allowed for more student-centered and less teacher-centered instruction to transform education. Today, many schools have either shifted, or plan to shift, to using one-to-one technology because of the advantages it brings to the classroom students and teachers (Mingus, 2014). Technology can be used as a great equalizer, providing equity to all students, to open doors to new learning and opportunities (Horn & Staker, 2015). The history of one-

to-one technology is vital to understanding the relevance for using one-to-one technology and the teacher training necessary to increase student achievement.

To prepare students for their future in a global society, education needs to adapt to meet the 21st-century needs of students. In order for students to receive a 21st-century education, schools need to focus on critical thinking, communication, collaboration, creativity, and problem solving (Horn & Staker, 2015). This shift of focus needs to also include a shift in pedagogy and increased technology use (Mingus, 2014). Darling-Hammond (2010) agreed by stating that students need to be taught how to solve problems and be resourceful using technology tools. Additionally, technology allows for flexibility and adaptability in the classroom (Horn & Staker, 2015). The use of technology can be a powerful tool in the classroom as classrooms are growing to be more and more diverse with a wide spectrum of needs (Mingus, 2014). Recent studies have also focused on the positive impact technology has on student achievement and student engagement (Ryan & Bagley, 2015). Marcum (2010) stated that when a school decides to use one-to-one technology, students are more engaged and motivated to learn. Education needs to prepare students for their future, and in our current society that means preparation on how to use technology.

When district administrators decide to use one-to-one technology, the technology and the teachers' use of technology will increase student achievement. Teachers have the biggest effect on student achievement (Kurt, 2013). Technology allows students to learn at their own pace and skill level (Sabzian et al., 2013). Using technology enables schools to personalize learning for each student and schools now have the opportunity to increase student achievement because technology allows for a more prescribed learning

environment (Demski, 2012). Personalization of learning is also possible now more than ever because most students have access to technology (Horn & Staker, 2015).

Furthermore, students will be able to learn in the moment if they have technology because they can learn and explore the world around them (Ally et al., 2014).

Understanding the reasons for one-to-one technology will provide clarity as to why schools are implementing one-to-one technology and why teachers will need training to implement it effectively.

A benefit of one-to-one technology is personalized learning to increase student achievement and prescribe learning based on each individual student's needs. Horn and Staker (2015) stated that when each student has a device, they can now learn at their own level and pace to make differentiation even easier, therefore personalizing the learning to each student based on individual needs. A student's ability level, past experiences, and interests can be taken into account to develop a differentiated plan of instruction in the classroom (Demski, 2012). Students will have a more personalized learning environment with technology, necessitating teacher training on how to personalize content for students using technology.

Another reason a superintendent would decide to implement one-to-one technology is that students with one-to-one technology will gain information literacy skills. Information literacy is defined as the ability to have access to multiple sources and be able to decide what material is the best to use (Lee & So, 2014). Students will have access to more information than ever before by having a device with access to the Internet (Hignite, Margavio, & Margavio, 2009). Schools with one-to-one technology focusing on information literacy help their students analyze and use material found by

using technology and then make informed decisions about reliability (Hignite et al., 2009). In today's society students need to know how to determine reliable information, and being exposed to technology so early in life will help them sharpen those skills.

When a superintendent decides to implement one-to-one technology, students and teachers may have more opportunities in the classroom. For example, one-to-one technology can help students learn information faster, leading to more time to include inquiry in the classroom known as PBL (Sabzian et al., 2013). PBL is an instructional tool used by many districts with one-to-one technology because PBL and technology pair well together (Horn & Staker, 2015). In a PBL classroom, students pursue a challenging problem or question that needs to be answered for a real purpose to make a difference and help others, usually in their immediate community (Sabzian et al., 2013). Horn and Staker (2015) also stated that one-to-one technology programs work well with PBL because technology allows students to complete work faster and provide assessment feedback to teachers in a more timely fashion, freeing up more time for PBL projects. Providing students with more time, by using technology, for teacher delivery of content in the classroom will provide a richer learning environment for students and teachers.

Education needs to prepare students for their future, and in our current society that means preparation on how to use technology. To be as effective as possible, the preparation should be as close to real-world learning as possible. Teachers should create real-world learning experiences and projects in the classroom requiring students to use the new one-to-one technology and 21st-century skills to complete the task at hand (Marsh, 2012). In today's society, workers are expected to change and adapt as necessary to function effectively in society, a skill students will learn when

using one-to-one technology in schools (Hamtiaux & Houssemand, 2012). Students need to have practice in collaboration where they listen and learn from one another (Horn & Staker, 2015). Additionally, using this information to gain new ideas and come to new understandings is a key life lesson to ensure success as an adult (Notar & Padgett, 2010). With the increased use of one-to-one technology in schools, students have more information readily available than ever before (Horn & Staker, 2015). To ensure this information is used in a positive way, students need to be taught to use the discretion to discern quality information and judgment of content reliability (Partnership for 21st Century Learning, n.d.). Students using one-to-one technology in schools have more opportunities than those not using one-to-one technology (Horn & Staker, 2015). Students are able to collaborate online, allowing collaboration across the world; gain access to multiple viewpoints and opinions; and come to a common understanding to meet a common goal (Partnership for 21st Century Learning, n.d.). With one-to-one technology, many students are asked to manage their time and quality of work more than those students without technology (Horn & Staker, 2015). This level of accountability and quality productivity helps prepare students for their future success in society (Partnership for 21st Century Learning, n.d.).

To produce workers for the future, students need to be taught how to adapt, create, and innovate (Ruppert, 2010). Developing students to be independent and solve real-life problems is important within the education world and to be successful later in life (Tsui, 2002). For students to be successful in society, they will need to be able to think critically, work collaboratively, and communicate effectively (Horn &

Staker, 2015). Students will need these skills to function as an adult, in a globally connected world, necessitating a 21st-century education, including technology (Wagner, 2008). To properly prepare students for their future teachers need to be trained how to use technology to deliver a 21st-century education to all students.

Studies on one-to-one technology in the classroom have shown positive results. According to Silvernail (2009), one-to-one technology has a positive effect on student achievement. Additionally, Smith (2012) found that one-to-one technology has shown to close the achievement gap between male and female scores on end of course tests. However, Muhammad (2011) discussed that one-to-one technology used in dual credit classes showed no impact on student achievement. Overall, most studies have shown one-to-one technology to have either no effect to an overwhelmingly positive effect on student achievement when paired with the proper focus and instruction in the classroom.

Student achievement is positively impacted by one-to-one technology. Students gain 21st-century skills and teachers are able to use one-to-one technology to redefine learning in the classroom to improve student achievement. All students, those learning above, at, or below grade level, will benefit from the technology because they will be able to receive personalized learning based on their individual needs. Students will also gain information literacy skills as a byproduct of using technology, and have new opportunities such as PBL lessons, because technology will allow learning to occur faster and free up more time for inquiry in the classroom. Blending technology with real-world lessons will prepare students for their future in society. In order to help teachers blend technology with real-world learning, professional learning is needed.

The Cost of One-to-One Technology

In the past, many schools could not afford to implement one-to-one technology because of the high cost. However, technology is more widespread in society, and companies are able to make devices much cheaper than ever before, especially in the last decade. Furthermore, if a school is able to find extra money to purchase devices, they will be able to save money in the long run because access to free online resources is cheaper than paid for paper resources.

Over the years, many superintendents have decided to implement a one-to-one technology initiative. More schools are starting to consider implementing one-to-one technology because it is cheaper now, more than ever, to purchase and use technology (Ally et al., 2014). Additionally, schools can save money immediately if one-to-one technology is implemented correctly (Project RED Revolutionizing Education, n.d.). Schaffhauser (2015) explained that many schools have become Google schools, using free Google products, such as docs, slides, and sheets, alongside Google classroom with Google Chromebook devices, making a one-to-one technology initiative a possibility for many districts even with limited budgets. Some districts can even save money when using one-to-one technology if technology can cut costs in other areas such as replacing costly paper curriculum resources, leading to teachers needing training on how to deliver the digital content to their students.

One-to-one technology allows teachers to use updated and more current curriculum resources. With one-to-one technology, teachers and students have access to free information on the Internet, replacing expensive paper textbooks formerly used as a resource, saving districts money (Horn & Staker, 2015). Teachers tend to object to

changes in curriculum because of their lack of comfort with change and/or content (Gibson & Brooks, 2012). If teacher training on the new materials and delivery methods were available, more teachers would be comfortable with the change.

As the use of technology in society increases and competition continues among companies, more schools will be able to afford to implement one-to-one technology. This lower cost of technology will also enable schools to save money in other ways. Schools with technology can save even more money when they adopt digital resources and not paper resources. However, this change will be effective if teachers are trained, through professional learning, about how to make the change effectively. This will therefore encourage teachers to stay in their teaching positions, which may ultimately increase student achievement.

The Change Process During One-to-One Technology

More and more schools are changing to implement technology within the classroom. Deciding to use one-to-one technology is a major change. Superintendents will benefit from understanding the change process when implementing one-to-one technology. Additionally, this information will be beneficial to those that will be conducting the teacher training during a one-to-one initiative.

Students need to be trained for their future, and their future involves technology, requiring a change in the way teachers teach and the way students learn. A student's education should include training on how to use technology because society has already implemented technology (DuFour & Marzano, 2011). But first, it is vital to help teachers through the change (Bolman & Deal, 2008). To combat this enormous amount of change, professional learning and administrative leaders should help teachers make

connections between all initiatives in the past, current, and future to see how technology is connected to all aspects of their position (Sutton, 2011). Teachers need professional learning to manage the stress and new expectations during a change initiative.

Schools are tasked with teaching students to be successful citizens in a society that is changing much faster than schools, necessitating schools to make a change to catch up with society. With society changing at such a rapid rate, schools need to prepare students for a career that may not currently exist (Daggett, 2008). DuFour and Mazano (2011) stated that the increased use of technology in schools is important and that if schools in the United States do not change, they will be left behind. This makes it difficult for schools to focus on 21st-century skills or the skills students need later in life because the school is already behind (Daggett, 2008). Schools owe it to their students to prepare them for their future and to provide American students with the best education possible. This preparation can only be done by providing teachers with the training necessary to provide this quality education to their students.

Teachers may be scared with any change, but especially scared with a change to one-to-one technology because some may feel replaced or that their job is threatened. When a school implements one-to-one technology there are six changes that take place: (a) functions of student and teacher change, (b) communication changes, (c) classroom culture changes, (d) students enjoy learning, (e) student opportunities and advantages increase, and (f) technology makes it more difficult to maintain student engagement (Niles, 2006). Historically, teachers have been the content experts and a lot of the instruction occurred through direct and with one-to-one technology, the teacher moves to become a facilitator and the technology is the content expert (Horn & Staker, 2015). This

change in function is an adjustment for many teachers (Tackett, 2014). Communication between teachers and students changes with one-to-one technology because most of the communication will then occur digitally, not face-to-face (Niles, 2006). Students will have more opportunities with one-to-one technology because devices can be used as the great equalizer to provide equity to all students (Horn & Staker, 2015). However, teachers will need to be trained with the new technology because students can become distracted and use the technology in negative ways in the classroom.

When a change occurs, a change needs to happen in all areas to support the vision and ensure that problems are not created in other areas of the system (Senge, 1990). Reforms should be system wide and focused on the instruction students will receive, using technology, to improve achievement (Fullan, 2001). One-to-one technology is a major change to the entire school system. In order for a successful change of this magnitude to occur, the practices and structure need to change to have a positive effect on the culture of a school (Senge et al., 2000). During a one-to-one initiative, change will occur, but to last it needs to occur to the system and include professional learning training for teachers.

When a superintendent decides to make the change to using one-to-one technology, teachers are asked to increase their technology skills, teaching practices, and classroom management systems with the implementation of devices. When this type of change occurs, teachers could be resistant because they are afraid of the unknown (Tackett, 2014). Teacher resistance to change is a barrier to many technology initiatives, including one-to-one technology (Overbay, Patterson, & Grable, 2009). Leaving the comfort of routine and past experience can be hard and often meets with adversity

(Stanley, 2015). Inandi and Buyukozkan (2013) stated that individual teachers may be resistant to a change to one-to-one technology, but over time teachers may band together and create a group or pocket of resistance. These groups of negative opinions could have a negative effect on teachers because they will not have an individual opinion; they will have the same opinion of the group, which can lead to many teachers being resistant to the change to use one-to-one technology (Inandi & Buyukozkan, 2013). A way to combat this possible negativity is to have open communication between teachers and administration to help teachers make the change to use more technology in the classroom (Stanley, 2015). Resistance to change can be overcome if teachers are given the training necessary to make the change effectively.

With a one-to-one technology initiative, the role of a teacher changes from content expert to a facilitator of learning in the classroom. Teachers need time to adjust and become comfortable with this drastic change (Drayton, Falk, Stroud, Hobbs, & Hammerman, 2010). When a school decides to use one-to-one technology, a teacher's role becomes more of a facilitator as students navigate content and learn on their device, forcing teachers to change the structure of learning the classroom (Li, 2007). To further complicate matters, teachers are not only asked to change, but some teachers do not feel comfortable with technology, leading to discomfort when teaching students that have technology in the classroom (Ullman, 2007). One-to-one technology is relatively new and teachers are left to change very quickly, even when some do not feel confident with the new equipment or the new way of teaching (Irez & Han, 2011). For example, teachers may not know how to grade digital student work because they may be unfamiliar with the technology (Berry & Wintle, 2009). Teachers may also not be able to

communicate as well with students and colleagues while using digital tools even though digital communication and feedback may usually be expected when schools implement one-to-one technology (Donlevie, 2011). If teachers have a limited amount of knowledge and experience using technology, they will need to devote time and effort into learning technology to be able to implement the change in their classrooms (Irez & Han, 2011). Teachers need to learn how to make the change so their teaching and the increased technology will positively impact student achievement.

Students now have access to more information with technology. With one-to-one technology, students have access to more information that enables cheating and plagiarism because it is easier, now more than ever, to cheat (Keilman, 2012). One-to-one technology classroom teachers still need classroom management, but to properly monitor student work and behavior teachers will need to change their rules, expectations, and skills to deter students from cheating.

Teachers, the ones usually responsible for carrying out major change in the classroom, need to have buy-in if a major change is to occur in schools. Buy-in usually occurs if decisions are made in a more democratic way and teachers feel that their voice and opinion are heard (Tackett, 2014). If teachers are not told the importance and need to switch to using one-to-one technology, it can lead to issues in the classroom (Horn & Staker, 2015). Change is inevitable, especially in teaching, and teachers need to be able to adapt to meet the new teaching expectations (Overbay et al., 2009). If administration does not explicitly explain the reasoning for a change to use one-to-one technology to teachers so they understand and believe in the change, it will not be successful (Marcum,

2010). Part of teacher training on the new technology implementation also should include the relevance for why this change is occurring.

Some teachers have been in the teaching profession long enough to have taught without technology. This makes the shift to using technology more difficult because teachers will need to revise lessons taught previously without technology to incorporate technology (Horn & Staker, 2015). Changing lessons and teaching delivery can be tough on its own, but when teachers also report that planning lessons including technology takes longer than lessons without technology, teachers will be less likely to want to change (Sugar & Tryon, 2014). Additionally, teachers may feel threatened by adding technology to their lessons because they want to be the source delivering content to students (Horn & Staker, 2015). Sugar and Tryon (2014) discussed that many districts have combatted this hardship by purchasing a Learning Management System (LMS) because it will cut down on teacher planning time, help teachers to share resources, and provide more professional learning opportunities for teachers. An LMS helps teachers cope with the change to using technology by providing them and their students with more support (Stanley, 2015). A change to one-to-one technology does not mean that everything needs to change or be more difficult and through teacher training, teachers will see that some aspects have become easier once they are used to the change.

Teachers need to help students to use the new technology, find information, discern if the information is reliable, and use the device to create and collaborate with other. Teachers need to be familiar with and use technology before they can use technology with students (Horn & Staker, 2015). Ally et al. (2014) stated that teachers need to become the student, learning how to use and manage the new technology and

deciding how to develop expectations and norms when students are creating and sharing work. Lastly, Ally et al. (2014) stated that attention would need to be given to social learning, social media, and social skills to help students make the transition to using one-to-one technology in the classroom. Teacher and student skills, including how to assess content knowledge and collaboration, will increase because of the focus on technology and how to use the technology in an appropriate and productive way, leading to an increase in student achievement (Bebell & Kay, 2010). Some teachers may have these skills before a district's one-to-one technology initiative begins, but if teachers do not, they will need to take the steps necessary to master these skills before they enter their classroom with devices.

When district administrators decide one-to-one technology is necessary, strategies should be implemented to assist technology use in classrooms. Making the link between curriculum and content goals and technology and increased student mastery of standards during professional learning time will encourage teachers to use the technology (Ramsdell, 2014). Sutton (2011) stated that during teacher training, focus needs to be on the need for technology in the classroom because it will have a positive impact on increasing student achievement. Therefore technology should be utilized during all parts of a lesson to have the biggest impact on student achievement (Ramsdell, 2014). In addition to the rich content technology provides to students, students are expected to be more self-motivated in a classroom using technology, requiring students to be more active learners (Stephens, 2012). Teachers need to see the link between their past and current training to see the relevance and have buy-in to make the change successful.

When a major change occurs, such as a one-to-one technology initiative, professional learning needs to happen to ensure teachers are supported to stay in their profession and use the professional learning to increase student achievement. There are four frames through which any change can be viewed: (a) the structural frame, (b) the human resource frame, (c) the political frame, and (d) the symbolic frame (Bolman & Deal, 2008). Bolman and Deal (2008) discussed the structural frame and how organizations should create goals, achieve goals, overcome pressures, use technology, divide the workload and put the most talented people in the positions with the most leverage, and decide how everyone will work together to get the job done in the most effective and efficient way. Leaders, according to Bolman and Deal, can coordinate this by having vertical and lateral meetings to make sure that the goals and actions match during a time of change.

Bolman and Deal (2008), when discussing the human resource frame, stated that teachers could feel frustrated and/or not valued and they could exhibit the following behaviors: withdraw, become passive or indifferent, resist by not working hard or sabotage their work or others' work, apply for other jobs, form groups through unions or teacher groups, and tell their kids work is unrewarding. Peter Senge (1990) also stated that teachers could become withdrawn if they do not believe in the vision and mission the superintendent supports. To overcome these issues related to the human resource frame, Bolman and Deal (2008) suggested that administrators hire well and reward teachers, offer employment security, promote those working hard and doing a good job, offer more training, encourage participation, see and acknowledge the value in employees work,

hold employees accountable, provide constructive feedback, and create teams that will function well together.

Another frame discussed by Bolman and Deal (2008) was the political frame, which refers to the stakeholders, including all of their differences, varying interests, and beliefs that have an impact on decisions. Bolman and Deal stated that decisions made in this frame usually revolve around scarce resources, sometimes causing conflict, and set goals such as bargaining and/or negotiating. To help work effectively in this frame, Bolan and Deal suggested that leaders can create an agenda and networks, balance how resources are allocated, and work to have support and backing from the community, school board, and staff.

Bolman and Deal (2008) stated that school culture is deeply rooted in the symbolic frame. The history and comfort level of teachers and administrators, according to Bolman and Deal, lies in this frame, making change difficult because it will disrupt the culture and the comfort level of staff. Bolman and Deal suggested that leaders offer opportunities to celebrate the past to help people be ready to move on to the future. Understanding how to view change and help others through a change is vital during a one-to-one initiative.

The use of technology in society is changing at a faster rate than schools, leaving schools to go on fast forward to catch up and be able to prepare students for their future in society (DuFour & Marzano, 2011). When a district implements one-to-one technology, teachers will be asked to make a considerable amount of change and a change of this magnitude needs to be system-wide to have a positive and lasting impact (Senge, 1990). Teachers need to be trained to use and manage technology to adapt to

their new role as a facilitator of learning and to stop students from plagiarizing and cheating in the classroom (Keilman, 2012). Teachers need to be involved in the decision-making process to help them feel heard and be informed about the positive effect technology has on student achievement (Tackett, 2014). Providing the relevance, reason, and positive effects of one-to-one technology in all aspects of teaching and student learning to teachers at the start of a one-to-one technology initiative will encourage teachers to use the technology in their classrooms (Horn & Staker, 2015). Teachers will be asked to plan new lessons using the new technology, and this change will take a lot of time and effort from the teachers, requiring leaders to be proactive to help teachers make the adjustment (Sugar & Tryon, 2014). To have the biggest impact on student achievement, teachers need to be well versed in the new technology to establish new expectations of themselves and students (Ally et al., 2014). Teachers will also need help making connections between all initiatives to see how technology is connected to everything they have learned and will learn (Ramsdell, 2014). Finally, Bolman and Deal (2008) provided four frames of reference to help leaders categorize and deal with change, such as a change to one-to-one technology. To help teachers through a significant change and cater professional learning to their needs, it is important to understand the change process.

Internal and External Barriers to One-to-One Technology

Change can be difficult and met with barriers that will need to be overcome for change to be sustained. Barriers to technology use in districts with one-to-one technology devices can be categorized into internal and external. Teachers may believe that the use of technology is difficult because they are not used to using technology and

have not been properly trained on how to use the new technology. A way to help teachers is to provide professional learning, possible one-on-one coaching with teachers, and explain the important role teachers play to use technology to increase student achievement.

One-to-one technology has not been widespread until recently so many people did not receive an education while using one-to-one technology. In other words, most teachers were not trained using technology during their undergraduate degree programs (Ryan & Bagley, 2015). This lack of knowledge and training using technology leads to teachers feeling inadequate to use technology in their classrooms (Sutton, 2011). Teachers are expected to be the leader in the classroom, including knowledge of content and technology (Ryan & Bagley, 2015). This requires, according to Ryan and Bagley (2015), that teachers take time to learn about the hardware and software and how to use technology fluently in their classrooms before students arrive. Teachers excel with content knowledge, but not always with knowledge about technology, leading to a lack of transmission of teacher content and technology knowledge to student content and technology knowledge (Ross, Sinclair, Knox, Bayne, & Macleod, 2014). Teachers need to have the training and confidence regarding hardware and software to use the technology with their content knowledge to increase student achievement (Ryan & Bagley, 2015). Teacher training will increase teacher use of technology and overall student success.

Teachers need support when going through a major change. One way to help train teachers that has been proven to work is to hire a coach, in person or digital, to help with instruction and technology use in the classroom (Sugar & Tryon, 2014). Another

option mentioned by Sugar and Tryon was to have a virtual technology coach that could work with multiple teachers, cutting the cost because schools do not have to pay a coach to be a full-time employee and can save money on salary, benefits, and transportation (2014). Teacher support, even if it is not face-to-face and only virtual, can still help and provide teachers with training during a one-to-one initiative.

With the introduction of technology, teachers are worried that their role in the classroom as a teacher and with students as a leader may change. Some teachers are concerned that with the increased screen time students will have in the classroom that the meaningful relationships between student and teacher will be in jeopardy (Ross et al., 2014). Using technology in the classroom to teach students content is a change for teachers and will take some adjustment (Horn & Staker, 2015). Ross et al. (2014) stated that students will have more screen time and less face-to-face time with their teachers, causing teachers to worry if the increased opportunities with technology really outweigh the negative effects on teacher student relationships. To overcome this negative opinion about increased technology, teachers need to be taught about the positive impact technology has on student achievement (Mingus, 2014; Ramsdell, 2014; Reid, 2008; Sprenger, 2010; Tackett, 2014). Teachers will still have time to build relationships with students because the interaction teachers will have in the classroom will be more one-on-one with students instead of whole class interaction with direct instruction (Horn & Staker, 2015). Additionally, teachers will also need to be taught how to improve student learning by using technology to redefine learning (Twining, Raffaghelli, Albion, & Knezek, 2013). Redefinition is when teachers use technology to teach students in ways that could not have been done before the introduction of technology that further increases

student achievement (Puentedura, 2014). Teachers will need to be taught the reasons for technology and how it can be used to increase teacher and student relationships and student achievement by learning in new ways not possible before the introduction of one-to-one technology in the classroom.

One-to-one technology will help prepare students for their future and increase achievement, therefore barriers to technology use need to be overcome. Internal barriers, including teacher perceptions and personal beliefs, need to be addressed with a focus to help teachers pass through this barrier and untimely use technology in their classrooms. External barriers, including the hardware and software, also need to be used in the classroom because students will be expected to use these items when they participate in society as an adult.

Teacher Impact on Student Achievement

Teachers' impact on student achievement and new initiatives, such as a one-to-one technology initiative, may have a positive impact on student achievement. A teacher is the most important factor and needs support during a change to one-to-one. The superintendent needs to ensure that teachers are supported during a change to one-to-one technology because they have the greatest effect on student achievement.

Teachers have an effect on student achievement both in a positive and negative way. Teachers have been shown to have the biggest overall impact on student achievement (Kurt, 2013). There is a link between teacher turnover rates and student achievement (Bird, Wang, Watson, & Murray, 2012). Teacher turnover has an effect on building relationships, leading to a negative impact that could make reforms impossible (K.M. Brown & Wynn, 2009). Teacher turnover rates have a negative effect on student

achievement, but it also costs school districts a lot of money to replace a teacher that leaves their current teaching position (Reid, 2008). Both teacher migration and attrition cost a lot of money and have negative effects on the entire school (K.M. Brown & Wynn, 2009). Teachers need to feel supported through a change to one-to-one technology to encourage them to stay in the profession and not negatively impact student achievement.

Teachers have the biggest effect on student achievement (Kurt, 2013). When teachers make the decision to leave their current position, it has a negative effect on student performance. Student achievement is impacted by teacher turnover because when a teacher leaves his/her current position, the entire organization is disrupted. Teachers need training during a one-to-one initiative to support them through the change and decrease teacher turnover rates.

Teacher Satisfaction and Teacher Burnout

As previously discussed, teachers have the largest effect on student achievement. Therefore teachers need to have opportunities for professional learning to support them through a major change. This professional learning will also help increase teacher satisfaction and decrease teacher burnout because teachers will feel supported. Keeping teachers satisfied and eliminating teacher burnout will have a positive effect on teacher turnover rates and ultimately student achievement.

Change can have a negative effect on teacher confidence, leading to less teacher satisfaction (Day & Lee, 2011), and subsequently producing burnout and possible teacher turnover. People in human service organizations, such as teaching, are more likely to experience burnout (Cherniss, 1980). Change, such as implementing one-to-one technology, makes teachers feel overwhelmed by work conditions, leading to emotional

exhaustion (Oakes, Lane, Jenkins, & Booker, 2013). When a one-to-one technology initiative takes place, teachers have less autonomy in their classrooms and are being asked to change and utilize the new technology, resulting in teachers being less satisfied with their jobs (Kukla-Acevedo, 2009). If teachers do not have control, they become frustrated and feel less effective, leading to their exit from the teaching profession (Ingersoll, 2001). In addition, teachers are more likely to leave their jobs if policies, such as a one-to-one technology initiative, require them to teach in a way they do not agree with as being the best for students (Sannino, 2010). Teachers need training on the new technology, but also on the reason for the change so they believe it is what is best for students, therefore encouraging them to make the change themselves.

Preventing teachers from being stressed and burned out should be a priority because they impact student achievement. Stress impacts physical and mental health and stress leads to teacher burnout (C.G. Brown, 2012). Burnout occurs more often in public service jobs, including teaching (Maslach & Jackson, 1981). Additionally, teacher quality and effectiveness is negatively affected by teacher burnout (Inandi & Buyukozkan, 2013). There are three stages of teacher burnout: (a) teacher ability is less than the ability needed for the job, (b) teachers experience anxiety because of their lack of knowledge, and (c) focus shifts from work to a personal focus. One of the biggest contributors to burnout is problems with administrators (Kuntz, Naswall, & Bockett 2013). Teachers need to be happy to stay in the profession. Being happy does not always mean getting exactly what he/she wants, but can be promoted by having reasons for the change explained during professional learning.

Teachers have an effect on student achievement and need to have opportunities for professional learning to support them through a major change. Professional learning to support teachers will increase teacher satisfaction and decrease teacher burnout rates. Maintaining teacher satisfaction and eliminating teacher burnout will have a positive effect on teacher turnover rates that will directly have a positive impact on student achievement. Teacher satisfaction can be increased through professional learning during a one-to-one initiative.

Teacher Retention and Teacher Turnover

When a superintendent decides to make a change to use one-to-one technology, he/she needs to be aware of the current research about teacher turnover and transfer rates. Teachers want their voices to be heard to feel included when a change occurs and it can be very expensive to lose teachers. The superintendent needs to support teachers and be cognizant of the reasons for teacher turnover to make informed decisions to keep teachers and ultimately maintain a positive effect on student achievement with the new technology and by keeping teachers.

Educators going through a one-to-one initiative will ask teachers to change, which will lead some to question their profession. The superintendent needs to be aware of why teachers leave their jobs to ensure that new initiatives, such as one-to-one initiative, do not increase teacher turnover or transfer rates. A representation of the data present on teacher turnover and transfer rates below will show why teachers leave and what can be done to keep teachers in their profession and increase student achievement. A high percentage of teachers leaving the profession have superior teaching skills (Darling-Hammond, 1997). Within three years, 33% of teachers leave the teaching profession and

within the first five years, 40% of teachers leave teaching (Rodgers & Skelton, 2014). Rodgers and Skelton (2014) stated that every year, about 10% of teachers nationwide leave teaching. This equates to about 150,000 teachers per year (Overbay et al., 2009). If teachers are established in their teaching career, have more years built up toward retirement, they are more likely to stay in the teaching profession (Hughes, 2012). Overbay et al. (2009) agreed with Hughes and asserted that teachers with more experience are less likely to leave the teaching profession. Hughes (2012) also stated that men are more likely to leave the teaching profession than women and secondary teachers are more likely to stay in the teaching profession than elementary teachers. Math, science, and technology teachers are more likely to leave teaching because they can make more money with other careers in their area of expertise (Steinke & Putnam, 2007). Hughes (2012) claimed that there needs to be a reduction in teacher responsibilities, an increase in teacher salaries, and an increase in effort to get more parent and student participation in education. To assist with lowering teacher turnover rates, teachers need an orientation and induction program, including teacher mentoring and technology training, which will increase teacher retention by an average of 35% (Steinke & Putnam, 2007). Teacher training will decrease teacher turnover and therefore increase student achievement.

Many teachers feel that their voice and opinion should be heard and that they should have an impact on decisions. If teachers believe they have a lack of influence, he/she is more likely to leave the teaching profession (Hughes, 2012). Teacher salary, specifically the low pay, in the teaching profession is another reason teachers leave the profession (Steinke & Putnam, 2007). Dealing with difficult students and handling

discipline encourage some teachers to leave teaching (Hughes, 2012). If teachers do not feel supported because there is a lack of professional learning, they will also leave teaching (Steinke & Putnam, 2007). Finally, if teachers do not feel supported by their administration, they will not stay in the teaching profession (Hughes, 2012).

Superintendents need to be aware of the factors involved in teacher turnover and support teachers, especially in a time of change such as a one-to-one initiative.

When teachers transfer or leave the profession it is very expensive. It can cost taxpayers over II billion dollars each year to recruit, interview, and hire new teachers (Rodgers & Skelton, 2014). Districts should strive to retain teachers because it is more cost effective than recruiting and hiring new teachers (Steinke & Putnam, 2007).

Furthermore, students are affected negatively when good teachers leave the teaching profession because teachers are more effective after classroom teaching experience, usually more effective than teachers who just graduated (Rodgers & Skelton, 2014).

When a superintendent decides to implement a one-to-one initiative, cutting costs in other areas to pay for devices is a priority. Losing teachers can be expensive, therefore superintendents need to implement strategies to keep teachers during a one-to-one initiative, not lose them.

Teacher turnover rates are high, leading to negative effect on education. The superintendent needs to be aware of the current research about teacher turnover and transfer rates to not add to these rates when a one-to-one technology initiative occurs.

Teachers need to be heard when a change occurs to feel that they are valued.

Additionally, it is expensive to replace a teacher and with the cost associated with one-to-one, schools need to make efforts to save money. The superintendent needs to support

teachers and be mindful of the reasons for teacher turnover to make informed decisions. They will need to keep teachers to have a positive effect on student achievement with the new technology and by keeping teachers.

Teachers, Administrators, and a Shared Vision

A shared view of a vision for a school between teacher and administrator is vital for change to occur. Teachers carry out the change in the classroom; therefore, leaders need buy-in from teachers to effect change. Leaders also impact if a change is effective or not based on their actions and initiatives. Effective leadership is key to making a change and teachers are a main stakeholder to determine if leadership is effective or not.

Teachers need to be involved in the decision-making process about the one-to-one technology initiative. Teachers need to feel that their voice is heard and that there is an open line of communication between teacher and administrator (Tackett, 2014). Communication between teachers and administrators is important during a major change (Norman, 2004). With a one-to-one technology initiative, teachers are asked to not only change, but also to put time and effort into learning new technology and lesson planning (Horn & Staker, 2015). Teachers need support from administration when they are being asked to add to their workload (Liu, Lee, & Linn, 2010). According to Reeves (2009), building leaders need to pull the weeds, or lessen the amount of work on each teacher's plate, before planting flowers, or adding more work and expectations. One way to get feedback and allow time for collaboration is by having teachers meet in Professional Learning Communities (PLCs; Wilson, 2014). A recent study conducted by Wilson (2014) found that administrators believed that PLCs are a key factor to gaining feedback and improving student achievement. In regard to professional learning, Learning

Forward (2011) explained that determining professional learning should be a collaborative approach between teacher and administrator and that should not be determined solely by administration to have the biggest impact on student achievement. Teachers need to have a voice during the change and this voice can also be involved in determining training during a one-to-one initiative.

If administrators do not let teachers have a voice or value their opinions, frustration can set in and teachers may not want to keep their jobs. Teachers who have left the teaching profession often report their reason for leaving as being a lack of administrative support (Kukla-Acevedo, 2009). Additionally, administration needs to help teachers before and during challenges associated with teaching (Tackett, 2014). Teacher burnout occurs frequently and could also lead to higher teacher attrition rates that can be costly, both financially and in terms of student achievement (Lloyd & Sullivan, 2012). Administrators should make decisions based on what is best for students. Maintaining teachers will be less costly and ultimately have a positive effect on student achievement.

To help teachers make a change to using one-to-one technology, leaders need to be aware of their preconceived opinions and how that may vary among teachers. Each person has a mental model, which he/she uses to make decisions (Senge, 1990). Peter Senge (1990) described mental models as the makeup of past experiences, specific to each person, which determines viewpoint. Knowing that many individuals have different mental models, according to Senge, will help leaders deal with change and conflict because with different mental models, conflict is inevitable. Senge stated that helping teachers come together and believe in a shared vision, despite the different mental

models, should be the goal of administrators. This shared vision should also be the focus of teacher training during a change to one-to-one technology.

Teachers and administration should be on the same page with decisions because a shared vision is vital for change to occur. Teachers need to be heard and their input be valued during a major change to one-to-one technology. Administrators have a significant impact on the effectiveness of change and their vision needs to be seen in the professional learning provided to teachers.

Professional Learning During One-to-One Technology

When a superintendent decides to implement one-to-one technology, teachers need professional learning to meet the new requirements placed on them to use and teach with the new tools. Teacher training options for one-to-one technology can include face-to-face or digital options provided through internal or external experts. Superintendents should explore all their options and make a decision based on teacher need.

Teachers need to be trained and expected to use one-to-one technology in the classroom. Training can be provided face-to-face or digitally. The following training partners are important for the superintendent to know about when planning to go through a one-to-one initiative to identify effective topics and ways to train teachers. The International Society for Technology in Education (ISTE) provides training, support, blogs, webinars, and information to help teachers use technology in the classroom (International Society for Technology in Education, n.d.). Another option for training is through Project RED, Revolutionizing Education, because they also provide training, support, blogs, webinars, and information to help teachers use technology (Project RED Revolutionizing Education, n.d.). Teachers need training either face-to-face or digitally

to understand and use technology to be able to use the tools to the fullest potential in the classroom (Park & Ertmer, 2007). Teachers may not use the one-to-one technology when they are not properly trained or confident in the use of technology (Hu, 2007). In order to change teachers and encourage them to back the change to one-to-one technology, it is important to provide professional learning opportunities to teachers (Sell et al., 2012). Teachers need to learn how to use technology before they can use technology with students, leading to a need in PLCs for teachers before a one-to-one technology initiative (Ally et al., 2014). Tackett (2014) concurred that a focus on technology during professional learning will be met with positivity by teachers because they believe that it is an important component for an effective one-to-one technology initiative.

If the curriculum resources are removed and the teachers are left with resources from the Internet, the teacher will need to have the knowledge level and technological skills to be able to determine resources students can use during class (Drayton et al., 2010). It would also be possible for students to learn even more in-depth information because with technology, teachers are no longer limited to the paper text, but they also have the information from the Internet from which to learn and use to make connections for students (Horn & Staker, 2015). To have the biggest effect on student achievement, professional learning for teachers is needed during a one-to-one technology initiative (Brown-Joseph, 2010). The superintendent needs to identify topics and procedures for the most effective professional learning to have the biggest impact on student achievement.

There are key aspects that should be included in quality professional learning. Professional learning standards include learning communities, leadership, resources, data, learning designs, implementation, and outcome driven (Learning Forward, n.d.). Learning communities, according to Learning Forward, should produce positive student achievement results because there is a commitment among its members to always improve. According to Learning Forward, effective leadership requires developing capacity among teachers and support teachers in their learning. Additionally, Learning Forward discussed the importance of professional learning that increases educator effectiveness and results for all students. This type of learning requires prioritizing, monitoring, and coordinating resources for educator learning. Resources should, according to Learning Forward, increase educator effectiveness and be available for students and teachers and also provide data to plan and evaluate learning opportunities. Learning Forward stated that theories should be based on research of the topic and how people learn best to achieve the best results and should apply research previously done on change and needed support for implementation. Finally, Learning Forward stated that professional learning should align the goals with standards, both educator and curriculum. The factors of quality professional learning, developed by Learning Forward (2011), have shown to be the most effective qualities to train teachers. Superintendents should ensure that these qualities are included in the training teachers receive when implementing one-to-one technology.

As previously noted, teachers have the biggest effect on improving student achievement. Therefore, focus during a one-to-one technology initiative needs to be on teacher professional learning (Devaney, 2012). Wooldridge (2009) recognized that

professional learning is a key to self-efficacy. For one-to-one initiatives to be successful, professional learning is a key component of developing teachers' self-efficacy related to technology. A key to the success of a one-to-one technology initiative is PLCs because they help teachers collaborate and grow with an ongoing structure (Stephens, 2012). Recent research shows that schools with PLCs are some of the highest performing in the country (Hattie & Reeves, 2011). Technology use in education requires teachers to change how information is delivered to students and the teachers' role in the classroom (Project RED Revolutionizing Education, n.d.). This change needs to be a focus of teacher professional learning. In order for one-to-one technology to be used effectively in schools, teachers need professional learning (Horn & Staker, 2015). Superintendents should determine if PLCs are the type of collaboration they would like to use during a one-to-one initiative.

District leaders have developed mentoring programs, linking a new teacher with an experienced teacher to provide further support to teachers. Preservice teachers usually need more training because many of the skills needed to be an effective teacher are not learned from a book, but through experience (Sutton, 2011). Rodgers and Skelton (2014) stated the importance of mentor programs to help new teachers become better teachers because they can learn from an experienced teacher in a nonthreatening one-on-one setting. In a one-on-one setting, working collaboratively, a mentor and mentee can create digital work for students and use the work in both classrooms and compare results (S. Liu, Tsai, & Huang, 2015). S. Liu et al. (2015) stated that the mentor can help with pedagogy and the mentee can help the mentor with technology; this provides a good working relationship where both the mentor and mentee can learn and grow from each

other. When a district participates in a one-to-one technology initiative, professional learning should focus on supporting and training teachers to flawlessly make the change.

Teachers need training when a school decides to make a change and use one-to-one technology. Options, such as face-to-face and digital training, should be provided for teachers. Professional learning should focus on the professional learning standards identified by the Learning Forward professional learning organization. As noted previously, teachers have the biggest impact on student learning; however, when teachers are properly trained to use one-to-one technology their impact increases. Professional learning can take many forms, but PLCs and mentoring program have been used with one-to-one technology initiatives and have been proven successful to support teachers to make the change effectively.

Conclusion

One-to-one technology is now more prevalent in schools than ever before (Horn & Staker, 2015). Student achievement has been shown to increase with the introduction of one-to-one technology because of the focus on 21st-century skills (Ryan & Bagley, 2015). Teachers have the biggest impact on student achievement and, if taught how to use the technology, there will be an even higher impact on student achievement (Kurt, 2013). One-to-one technology enables students to learn at their own pace and ability level (Demski, 2012). New opportunities will emerge for students using technology, such as information literacy skills (Lee & So, 2014). Because technology makes learning faster and more efficient, PBL is now a viable option to increase real-world learning in the classroom (Sabzian et al., 2013). Combining technology skills with real-world

learning, such as creativity, collaboration, communication, and critical thinking, will prepare students for their future in society (Horn & Staker, 2015).

The cost of one-to-one technology is now more affordable, even for school districts with limited funding. Ally et al. (2014) stated that when schools first started to use one-to-one technology, it was much more expensive to purchase the hardware and software. Furthermore, with technology, schools are able to purchase cheaper digital resources instead of the costly paper materials (Horn & Staker, 2015).

There are many changes that occur when a school decides to implement one-to-one technology (Tackett, 2014). Change needs to happen in schools to keep up with society (Daggett, 2008). System-wide reform provides the best, sustainable results and ensures that changes being made will not create a problem for another part of the system (Senge, 1990). To be the most effective teachers after a change to one-to-one technology, teachers need to learn more about technology and how to manage it in the classroom through professional learning opportunities (Tackett, 2014). Additionally, the teacher's role will change to that of a facilitator of learning rather than the content expert delivering direct instruction to students, necessitating professional learning on how to manage and cope with that change (Li, 2007). Teacher attitudes about one-to-one technology may be negative because they will be required to create new lessons using technology, which can take time, but professional learning support will help teachers to make and cope with the change (Sugar & Tryon, 2014). Administration needs to help teachers make connections between all previous professional learning initiatives and new one-to-one professional learning initiatives (Sutton, 2011). Change can be seen by administration through four frames, and all four frames together will provide a clearer

picture of the best action steps to achieve sustainable change (Bolman & Deal, 2008). When a school decides to use one-to-one technology, there will inevitably be some barriers that need to be dealt with to using the new technology including the internal, teacher perceptions and personal beliefs, and external, the hardware and software (Ryan & Bagley, 2015). However, professional learning initiatives can be targeted to help teachers cope with the barriers they feel are the greatest, to overcome the barriers, and use one-to-one technology with good teaching practices to increase student achievement (Tackett, 2014).

Teachers and their roles in increasing student achievement, job satisfaction, retention, and turnover rates will shed light on the important role a teacher plays in education (Kurt, 2013). Teachers have the biggest impact on increasing student achievement and efforts should be made by the school building and district to retain good teachers (Darling-Hammond, 1997). Teachers need to feel supported to stay in their position through professional learning opportunities when a major change is occurring such as a switch to one-to-one technology (Tackett, 2014).

Teachers and administrators need to have shared vision about one-to-one initiatives. Senge (1990) stated that this includes teachers and administrations being on the same page with decisions and needs during the change and that without a shared vision, teachers may leave their profession because they will feel overwhelmed and that their voice is not heard or valued. Therefore, leaders impact whether a change is effective based on their leadership skills (Reeves, 2009). Every person has their own set of mental models, a set of past experiences and personal values, and for a change to be

effective, everyone will need to believe in the change and overcome their own mental model to conform to the shared vision (Senge, 1990).

Teachers need professional learning when a school decides to use one-to-one technology (Tackett, 2014). Professional learning can be provided face-to-face or digitally, depending on teacher need and available funds (Learning Forward, n.d.). However, all training should follow the standards put in place by Learning Forward (2011). Teachers have the biggest effect on student learning (Kurt, 2013) so when a major change occurs, such as implementing one-to-one technology, teachers will need training to have a positive effect on student learning (Tackett, 2014).

Chapter Three includes the methodology for this study involving teacher perceptions of professional learning needed, either delivery or personalization, during a one-to-one technology initiative. It is also an overview of the quantitative approach for this study. Chapter Four includes the analysis of the data collected. Chapter Five provides an overview of the study including implications and recommendations.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

The research design elements include participants, survey, consent, selection/sample, reliability and validity of the pilot, and final survey. The purpose of this study was to help superintendents that plan to go through a one-to-one technology initiative determine the best topic on which to focus during teacher professional learning time: the use of technology during either whole class delivery or individual student instruction. The current problem is the lack of professional learning during a one-to-one initiative based on need. Without the professional learning focused on teacher need, teachers may not use the one-to-one technology effectively. This lack of professional learning focused on teacher need has a negative impact on student achievement and can cause teachers to be dissatisfied and possibly leave (Horn & Staker, 2015).

This study was needed because there was not a study that compared teacher perceptions of professional learning needed during one-to-one between whole class delivery or personalization. The study was completed by surveying high school teachers in Southwest Missouri and Northwest Arkansas. Survey questions focused on professional learning around classroom instruction including delivery and personalization. New survey questions were developed to determine teacher preference of professional learning topic between whole class delivery of content or personalization of learning. The Southwest Baptist University Research Review Board approved the study in March of 2017.

A new survey needed to be created for the purpose of this study. Survey questions were created and then tested for reliability and validity through a pilot survey.

Before the survey was distributed, a committee of experts evaluated the questions for content validity. After the pilot test, the questions were tested for construct validity through exploratory factor analysis. After the final survey the questions were checked again for validity with construct validity and confirmatory factor analysis. The pilot and final survey were both tested for reliability with Cronbach's Alpha. The survey included a demographic question and an analysis of variance (ANOVA) was used to determine if the years spent teaching had an effect on the participant perceptions.

Research Questions

There were three research questions drove this study. The research questions were as follows:

1. What are the perceptions of high school teachers in regard to professional learning related to delivery with one-to-one technology?
2. What are the perceptions of high school teachers in regard to professional learning related to personalization with one-to-one technology?
3. Are there differences in their perceptions related to years of experience teaching?

Research Design

The purpose of this study was to help superintendents that plan to go through a one-to-one technology initiative determine the best topic on which to focus during teacher professional learning time: the use of technology during either whole class delivery or individual student instruction. There was not a survey tool available to test these questions so the survey had to be created. The survey was created and tested for reliability and validity. A pilot test was conducted to further check the reliability and

validity of the survey tool. This study was a quantitative study, including 20 survey questions and one demographic question to see if years spent teaching had an effect on participant perceptions.

Teachers were surveyed to determine their perception of professional learning needed, either whole class delivery or personalization, during a one-to-one technology initiative. Teachers were asked to include demographic information in regard to the number of years they had been teaching. High schools in Southwest Missouri and Northwest Arkansas, as determined by congressional district lines, were contacted to be involved in this study. These congressional districts were chosen because they provided a diverse sample population. Having a diverse group involved in the study will help others to make more generalizations for all locations after the completion of this study.

To determine the schools that met the criteria to be in the study, each superintendent was sent a short questionnaire in April of 2017 to determine superintendent consent to participate in the study and the high schools with one-to-one technology that would be involved in the study (see Appendix A). After the high schools with one-to-one technology were determined, superintendents were sent a letter with a link to distribute to teachers or to building administrators who would then send the link to teachers (see Appendix B). Teachers were told in the letter and on QuestionPro survey software instrument used to get teacher feedback, before starting the survey, that they had the right to not to participate or to stop at any time and that their responses were confidential.

The timeline of this study was six weeks. After superintendents were sent an e-mail with the questionnaire, two weeks were allowed to receive results (see Appendix A).

After two weeks passed without a response, the e-mail was sent again to superintendents (see Appendix A). After another two weeks, a phone call was made to the district. After six weeks, superintendents that failed to return the survey were deemed to be uninterested, unqualified, or simply did not want to participate in the study. The superintendents that responded to the questionnaire were sent the information letter and survey link to forward to teachers, or to building administrators, who forwarded the survey to teachers (see Appendix B). Participants had two weeks to complete the survey. The total time between contacting superintendents to participants' completion of the survey was six weeks.

Data were not collected that could be used to identify a specific individual. Teacher responses were not connected to a class/group of people. Data were collected using QuestionPro online survey software, which provided password protected (secure) access to data. The researcher and QuestionPro administrator could access the data, but no one else had access. When the data were transferred from QuestionPro to Statistical Package for the Social Sciences (SPSS) it was downloaded to an Excel spreadsheet. The Excel document was opened on a secure laptop, but was not saved. Statistical analyses were run and printed to be used in this study. The printouts were used to get final data and were then shredded to keep the data confidential. The data were uploaded to SPSS, on a secured laptop. The output files were also opened on a secure laptop. The laptop stayed in one safe place and required a log-in to access the computer.

Participants

The participants in this study were high school teachers in schools with one-to-one technology that had Internet access 24 hours a day, seven days a week. The population of teachers came from the 46 school districts in the 3rd Congressional District of Northwest Arkansas and the 78 school districts from the 7th Congressional District of Southwest Missouri. These congressional districts were chosen because of the diversity represented in these areas. Superintendents from school districts that did not meet the criteria for inclusion in the study or who were not willing to consent to participate in the study were thanked for their time and teachers from that district were not included in the study (see Appendix A).

If the high school in the district met the requirements and the superintendent agreed to be involved in the study, the superintendent was asked to respond with the names of the high school building(s) in their district and the number of teachers (see Appendix A). Superintendents were requested to acknowledge consent when they sent the link to high school teachers or to building administrations, who would then send the link to teachers. At any time during the study, superintendents could choose to end participation in the study. Only one superintendent declined to allow teachers in his district participate in this study. The number of teachers who chose to complete the survey established the number of participants in the study. A total of 104 teachers completed the entire survey.

Consent

Consent for the study was requested from district superintendents via the questionnaire sent by e-mail. Superintendents who completed and returned the

questionnaire were acknowledging consent for the study to be conducted in their district with high school teachers employed by the district. This was the only information that could be used to identify districts participating in the study because individual teachers were not asked to provide their district and/or school location. High school teachers were notified in the informational letter sent with the survey link that if they clicked the link to take the survey, they would be providing their consent for their responses to be used in this study. All participants had the option to stop or not complete the survey (see Appendix B).

Selection/Sampling

A total of 124 school district superintendents was contacted and 22 superintendents responded. Of the 22 superintendents that responded, six determined that their school district met the requirements to be in the study. All except one of the superintendents agreed to consent to participate in the study and send the survey link to high school teachers in their district. A total of 428 teachers was sent survey; 114 teachers completed the survey and it was determined that 10 surveys were not completed.

Question Categories

The survey was sent to determine teacher preferences on training during a one-to-one initiative on either (a) whole class delivery or (b) personalization and to determine how long they have been teaching (see Table 1). Each section had questions that were designed, based on face validity, to ask the same thing in a different way to ensure reliable and valid survey results. Ten questions about delivery were asked, each worded in a slightly different way, and 10 questions were asked about personalization, each worded in a slightly different way. The survey also started with one demographic

question to determine if the number of years spent teaching had an effect on the survey responses.

Table 1

Table of Specifications

<u>Questions</u>	<u>Delivery</u>	<u>Personalization</u>
1. Professional learning focused on whole class delivery is a good use of my time.	X	
2. Professional learning focused on when to use tech tools during whole class instruction is an important use of my time.	X	
3. Professional learning focused on instructing the whole class is important.	X	
4. Professional learning focused on a tech tool to use during whole class instruction is important.	X	
5. I would like more training on how to match the correct tech tool to my goals for whole class instruction.	X	
6. I think using technology to instruct a whole class of students would be a good topic for professional learning training.	X	
7. Whole class instruction should include technology and therefore necessitates time spent on this topic during professional learning training.	X	
8. Training on how to manage students using technology during whole class instruction should be a focus for professional learning.	X	
9. I do not value training on whole class instruction using technology.	X	
10. I do not value training focused on using technology for whole class instruction.	X	
11. Professional learning focused on assigning work based on individual student need is an important use of my time.		X
12. Professional learning focused on how to determine individual student need is an important use of my time.		X
13. Professional learning focused on instructing individual students based on personal need is important.		X
14. Professional learning focused on how to use technology to determine individual student need is important.		X
15. I would like more training on how to use technology to provide instruction and assignments to students based on individual need.		X

16. I think using technology to instruct each individual student would be a good topic for professional learning training.	X
17. Individual instruction should include technology and therefore necessitates time spent on this topic during professional learning training.	X
18. Training on how to manage students using technology during individual instruction should be a focus for professional learning.	X
19. I do not value training on individual instruction using technology.	X
20. I do not value training focused on technology to determine and assign work based on individual student need.	X

Pilot Survey

A pilot survey was developed and conducted with content experts to check for reliability and validity (see Appendix C). The superintendent sent the pilot survey to teachers in four high school buildings in the same school district. To be involved in this study, high schools must have had students that had wireless computing devices for use in the classroom and at home for 24 hours a day, seven days a week (see Appendix A).

The pilot district's superintendent was sent an e-mail with the questionnaire to see if he/she would agree to participation in this study. This particular district also required a completed questionnaire before a survey could be conducted in the district. In the general informational letter, participants were notified that by taking the survey, they were granting consent to be involved in the study (see Appendix B).

The survey was tested for reliability and three types of validity during the pilot survey and final survey sent to high school teachers: Cronbach's Alpha, face validity,

content validity, and construct validity. A total of 223 people was sent the pilot survey and 66 people took the pilot survey.

Pilot survey reliability. The pilot survey was tested for reliability using Cronbach's Alpha. Cronbach's Alpha measures internal consistency, or how closely items in a group are related. This test determined if the results were always the same, regardless of the number of times testing a result. The closer the number is to one the more reliable the test is considered. For the section of the survey focused on professional learning for whole class delivery Cronbach's Alpha was .880, meaning it was very reliable. Cronbach's Alpha was used again for the second part of the test focused on professional learning for personalization of student instruction. It was found to be even more reliable at .935. Thus, both parts of the survey met the Cronbach's Alpha threshold for reliability.

Pilot survey validity. The pilot survey was tested for validity through a series of tests before distribution to participants. Face validity checks that the survey questions measured what they were intended to measure. Committee members were chosen based on their education and years spent working in education. All committee members had master's degrees and had been in professional education positions for at least five years. These five experts were involved in the survey question writing process. These experts also ensured that the questions, based solely on face value, were measuring what they were intended to measure. Additionally, committee members were involved to ensure that there was variety in questions assessing the same thing.

Content validity assesses whether the questions measure the desired content. The Index of Item Objective Congruence (Rovinelli & Hambleton 1977) was used to check the survey for content validity. The experts with master’s degrees in education reviewed the survey based on this scale for each question: (1) *matched*, (0) *neutral*, or (-1) *no match*. Scores were tallied and then divided by the number of responses to determine a percentage for each question. It was found that most questions were scored with 100% and only one question did not meet the score requirements of a 67% (see Table 2). After discussion with the content experts, it was determined to keep the question in the survey.

Table 2

Content Validity Expert Results

<u>Question #</u>	<u>Percentage</u>	<u>Question #</u>	<u>Percentage</u>
1	100%	11	100%
2	67%	12	100%
3	100%	13	100%
4	100%	14	83%
5	100%	15	100%
6	67%	16	50%
7	67%	17	67%
8	100%	18	83%
9	83%	19	100%
10	100%	20	100%

Note. Percentages of 67% or above means the question was reliable. A score of 100% would be a perfect score.

Construct validity (exploratory factor analysis) was used to determine whether questions measured what they were intended to measure and to uncover the underlying structure of the variables. After the pilot group took the pilot survey, exploratory factor analysis was used to determine the validity of the pilot survey. The survey was split into two parts and the participants answered each section of the survey in a similar way. The correlation analysis determined whether respondents answer similar questions in each section alike. Each question had two numbers that were determined and the test showed that the first 10 survey questions were all higher as the first section of the survey and the second 10 questions were all found to be higher with the second section. This showed the test is valid and had two distinct sections that matched the sections that were intended to be measured. There were two questions where the numbers in the first section could have been higher and less close to the number represented for the second section of the survey. Survey questions five and eight were changed, which resulted in an improvement of the validity. The questions were changed from (#5) I would like more training on how to match the correct tech tool to my goals for whole class instruction (DELIVERY) and (#8) Training on how to manage students using technology during whole class instruction should be a focus for professional learning (DELIVERY), to (#5) I would like professional learning focused on how to match the correct technology tool to the objective addressed during whole class instruction and (#8) I would like to receive professional learning focused on how to manage technology during whole class instruction. The construct validity test was satisfied after the final survey.

Final Survey

Teachers in high school buildings in Southwest Missouri and Northwest Arkansas were sent the final survey from their superintendent. Each district's superintendent was sent an e-mail with the questionnaire to see if he/she would agree to participation in this study and send their high school teachers a general information letter with the link to the survey. In the general informational letter, participants were notified that by taking the survey, they were granting consent to be involved in the study (see Appendix B).

The survey was tested for reliability and three types of validity during the pilot survey and final survey sent to high school teachers: face validity, content validity, and construct validity. A total of 428 people was sent the pilot survey and 104 people took the final survey (see Appendix D).

The survey had two sections to test whether participants valued professional learning on whole class delivery or individual personalization during a one-to-one initiative. The survey asked participants to provide information about the number of years they had been teaching. The questions were created using a team of experts and then tested for reliability and validity through a pilot survey. There were 10 questions to measure delivery and ten questions to measure personalization.

Final survey reliability. Cronbach's Alpha was used to check the final survey for reliability. Reliability for the first section of the survey on professional learning for whole class delivery was found to have a Cronbach's Alpha score of .889 The second section of the survey, about personalized instruction, was found to be even more reliable

with a Cronbach's Alpha score of .942. These scores show that the survey questions were reliable.

Final survey validity. Face validity checks that the survey questions measure what they were intended to measure. The face validity check was completed before the pilot survey and again before the final survey. Content validity ensures that experts agreed that the choice of questions measure the desired content. Before the pilot survey, a panel of experts was asked to review and rate whether the questions measured the content intended to check for validity. The content expert data (see Table 2) supported content validity because all questions, except one, had a percentage over 67%. This one question was not changed after a discussion with the content experts because it was determined to still be a good question to ask to survey participants.

Confirmatory factor analysis was used to assess whether questions measured what they were intended to measure and uncover the underlying structure of the variables. The survey was split into two parts and the participants answered each section of the survey in a like way. Each question had two numbers that were determined and the test showed that the first 10 survey questions were all higher as the first section of the survey and the second ten questions were all found to be higher with the second section (see Table 3). This showed the test was valid and has two distinct sections that matched the sections that were intended to be measured.

Teachers were favorable of both sections, professional learning focused on whole class and personalization of learning; however, teachers were more favorable toward professional learning focused on personalization of learning.

Table 3

Confirmatory Factor Analysis

<u>Question #</u>	<u>Percentage Component 1</u>	<u>Percentage Component 2</u>
1	-.056	.615
2	.278	.718
3	-.125	.781
4	.243	.749
5	.441	.497
6	.393	.696
7	.472	.614
8	.432	.529
9	.309	.756
10	.327	.763
11	.765	.084
12	.780	.047
13	.806	.057
14	.810	.276
15	.802	.319
16	.849	.200
17	.756	.294
18	.616	.387
19	.787	.213
20	.757	.314

Note: Principal Components Factor Analysis

ANOVA

Teachers were asked to include demographic data in regard to the number of years they had been teaching in both the pilot survey and the final survey. This was included in the survey to determine if the years a teacher has spent teaching had an effect on survey responses. This information would be important to know if all teachers value the same topic of professional learning or if professional learning should vary based on years spent teaching. Teachers had the option of picking between 1-5 years, 6-10 years, and 11+ years. An analysis of variance, otherwise known as an ANOVA test, was used to determine whether teachers' experience had an effect on the answer (see Tables 6 & 7).

Summary

This chapter included the methodology for this study involving teacher perceptions of professional learning needed, either personalization or delivery, during a one-to-one technology initiative. The study included a demographic question to determine whether the number of years each respondent had been in the teaching profession impacted their perceptions. Surveys were sent to high school teachers that met the requirements to be in the study and whose superintendents agreed to let their district be involved in the study. High school teachers were surveyed to determine their perceptions of what professional learning topics were most important during a one-to-one technology initiative, either personalization or delivery. The survey was tested for reliability and validity. The data was evaluated using QuestionPro to get the data and SPSS to evaluate the data. The pilot survey was completed in four high schools already using one-to-one technology in the classroom. The results of the pilot survey were used

to create the final survey. Chapter Three offered an overview of the quantitative approach for this study. Chapter Four offers the analysis of the data collected. Chapter Five gives an overview of the study including implications and recommendations.

CHAPTER FOUR

ANALYSIS OF THE DATA

The current problem was the lack of professional learning during a one-to-one initiative based on need. Without the professional learning focused on teacher need, teachers may not use the one-to-one technology effectively. This lack of professional learning focused on teacher need has a negative impact on student achievement and can cause teachers to be dissatisfied and possibly leave.

Research question 1 “What are the perceptions of high school teachers in regard to professional learning related to delivery with one-to-one technology?” was tested using a normal distribution table to determine if it was considered favorable by the participants. Research question 2, “What are the perceptions of high school teachers in regard to professional learning related to personalization with one-to-one technology?” was tested using the normal distribution table to see if participants valued training on personalization. After the data were run on these two research questions, a comparison was made between the two to determine what teachers valued more, professional learning on whole class delivery, or personalization of learning. The findings were compared to the years each respondent had spent teaching to see if the number of years spent teaching had an effect on the teacher perceptions of professional learning during a one-to-one initiative focused on either whole class delivery, or personalization of learning. Further analysis was done about each survey question to determine themes and make assumptions about why teachers responded the way they did on the survey.

Research Question One

The survey was split into two sections (a professional learning on whole class instruction, questions 1-10, and (b) professional learning focused on personalized instruction, Questions 11-20. Survey data were run to see if the results fit within the normal distribution or if they were skewed to the left or right to determine if responses were significant or not significant. The first section of the survey, professional learning on whole class instruction, had a range of 20 because the minimum was 10 and the maximum was 30 based on participant responses. The range could have been 10 to 40 because there were four possible options on the survey Likert scale (1) *Strongly Agree*, (2) *Agree*, (3) *Disagree*, and (4) *Strongly Disagree*. The mean was 19.7 and the standard deviation was 4.4 (see Table 4). This meant the responses were significantly skewed to the right, which meant they were positively skewed. A skew to the right showed the responses from participants were favorable that they did value professional learning focused on whole class delivery.

Table 4

Normal Distribution Table Research Question 1

<u>M</u>	<u>SD</u>	<u>Range</u>
19.7	4.4	10-40

Research Question Two

The second set of survey questions, Questions 11-20 was analyzed to see if the results fit within the normal distribution or if they were skewed to the left or right, which would indicate a significant result from the survey data. The second section of the survey, focused on personalization of learning, had a range of 23 because the minimum

was 10 and the maximum was 33. The range could have been 10-40 because there were four possible options on the survey Likert scale (1) *Strongly Agree*, (2) *Agree*, (3) *Disagree*, and (4) *Strongly Disagree*. The mean was 17.6 and the standard deviation was 4.9 (see Table 5). The responses were skewed to the right, positively skewed, and favorable because teachers answered the questions showing they valued professional learning focused on personalization of learning. Additionally, based on survey results, teachers favored professional learning focused on personalization of learning more than professional learning focused on whole class instruction.

Table 5

Normal Distribution Table Research Question 2

<u>M</u>	<u>SD</u>	<u>Range</u>
17.6	4.9	10-40

Research Question Three

Participants identified the years they spent teaching within categorical ranges of 1-5 years, 6-10 years, and 11 or more years (see Tables 6 & 7). The years of service in the profession were used to evaluate the effect of experience on the outcomes of the research.

Table 6

ANOVA Demographic Results

	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	Sig
Between Groups	40.215	2	20.108	1.037	.358
Within Groups	2055.895	106	19.395		
Total	2096.110	108			

Table 7

ANOVA Demographic Results

	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	Sig
Between Groups	51.705	2	25.853	1.054	.352
Within Groups	2477.179	101	24.527		
Total	2528.885	103			

Both sections of the survey were tested to determine whether the number of years in the profession impacted participants' perspective. For section one professional learning focused on whole class delivery, teachers' years of experience did not have an effect on teachers' perception of the type of instruction desired. A significance level of .358 was determined from the ANOVA test, meaning it was not significant. For the second section of the survey, professional learning focused on personalization of learning, it was also determined that the response on the years of experience question had no significant effect on the survey response. The ANOVA test produced a probability level of .352 result, meaning not significant because it was not lower than a significance level of .05 (see Tables 6 & 7). A teachers' years of experience was not a factor in teachers' perception of the type of professional learning needed during a one-to-one initiative. Therefore, teachers with no experience and teachers with many years of experience desired the same type of professional learning during a one-to-one initiative. This was also due to the fact that the overall responses on the survey were favorable for both sections.

Analysis of the Survey Questions

To better understand the survey results, it was important to break down the specific survey questions to find themes based on participant responses. Survey questions with the lowest number were favored the most and the questions with the highest number were favored the least. Further analysis was done to determine why those questions stood out as the most and least favorable in the survey.

The first section was on professional learning and focused on whole class instruction. The most favorable question for section one was Question 8, “I would like to receive professional learning focused on how to manage technology during whole class instruction.” This question stood out because it was the only question that made reference to classroom management. Teachers seemed to feel that increased technology in the classroom increased distraction and discipline issues in the classroom. Teachers were aware of these issues. Training on classroom management issues that arise from increased technology was desired.

There were two questions that ranked similar as being the least favorable on the first section of the survey on whole class instruction (see Table 8). Those questions were Question 5, “I would like professional learning focused on how to match the correct technology tool to the objective addressed during whole class instruction,” and Question 7, “Whole class instruction should include technology and therefore necessitates time spent on this topic during professional learning training.” These two questions focused on the need for technology during whole class instruction and that technology should play a role during whole class instruction. The fact that these questions ranked the least

favorable showed that not all teachers felt that technology is a necessity during whole class instruction.

The most favorable question from section two, professional learning focused on whole class instruction, was Question 13, “Professional learning focused on instructing individual students based on personal need is important.” This question indicated that teachers thought that personalized instruction was important and worth professional learning time spent to determine personal student need. However, this question did not make reference to technology and could have been a possible reason this question was ranked so favorably when compared to the other survey questions in section two.

Table 8

Descriptive Statistics Analysis of Survey Questions

<u>Question #</u>	<u>N</u>	<u>SUM</u>	<u>Mean</u>	<u>Std. Deviation</u>
1	119	233.0	1.958	.5584
2	118	227.0	1.924	.5255
3	118	232.0	1.966	.5689
4	118	231.0	1.958	.5758
5	118	240.0	2.034	.7388
6	118	230.0	1.949	.6385
7	117	243.0	2.077	.6453
8	118	215.0	1.822	.6489
9	119	228.0	1.916	.6048
10	118	230.0	1.949	.6385
11	117	206.0	1.761	.5670
12	119	206.0	1.731	.5923
13	116	198.0	1.707	.5751
14	116	205.0	1.767	.6095
15	116	223.0	1.922	.6872
16	117	208.0	1.778	.5740
17	118	228.0	1.932	.6369
18	118	212.0	1.797	.6479
19	116	211.0	1.819	.6541
20	117	212.0	1.812	.6149

The two least favorable questions were ranked close to each other. The least favorable questions from section two, professional learning focused on personalization of learning were, Question 15, “I would like more training on how to use technology to provide individual instruction to students based on individual need,” and Question 17, “Individual instruction should include technology and therefore necessitates time spent on this topic during professional learning training.” These two questions not only focused on the importance of personalization of learning, but also on the importance of technology to instruct students on a personal level. The fact that these two questions were answered the least favorable alluded to the assumption that teachers did not feel that the technology was needed to provide students with personalized instruction.

New Survey Instrument

A new survey instrument was created for this study because there was not a survey available that had been developed for this purpose and tested for reliability and validity. The survey was created and tested through a pilot test, and then used as a final survey. After completing the pilot and final survey, the new survey instrument was found to be reliable and valid; therefore, adding to the wealth of knowledge about the topic and a new survey instrument that can be used by other researchers.

Conclusion

Teachers may not use the one-to-one technology effectively, leading to a negative impact on student achievement and possibly leading teachers to be dissatisfied and leave. The purpose of this study was to help districts know how to spend their professional learning time during a one-to-one technology initiative. Teachers were in favor of

professional learning focused on whole class instruction and personalized individual instruction.

It was found that teachers do value professional learning on whole class delivery and personalization of learning during a one-to-one initiative. It was also determined that more teachers valued professional learning on personalization of learning than on whole class delivery. It was found that the years each respondent had spent teaching did not have an effect on the teacher perceptions of professional learning during a one-to-one initiative focused on either whole class delivery, or personalization of learning. Further analysis was done about each survey question to determine themes and make assumptions about why teachers responded the way they did on the survey. Chapter Four offered the analysis of the data collected. Chapter Five gives an overview of the study including implications and recommendations.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

One-to-one is currently a common educational initiative (Horn & Staker, 2015) in secondary education. Recent studies support the concept that increased technology in the classroom has a positive impact on student achievement (Horn & Staker, 2015; Ramsdell, 2014; Ronfeldt, 2014; Silvernail, 2009). A considerable amount of change takes place with the implementation of one-to-one technology initiatives (Horn & Staker, 2015). Focus needs to be placed on professional learning to support teachers through the change to ensure student success (Tackett, 2014). Since teachers are known to have the greatest overall impact on student achievement, retention of experienced teachers is important (Kurt, 2013). The superintendent needs to support teachers through major change because the goal should be to keep teachers from leaving because most of the teachers leaving are good teachers (Darling-Hammond, 1997). The purpose of this study was to determine what professional learning topic, either whole class delivery or personalization of learning, using technology was most valued by teachers. These findings helped to determine the best topic to focus professional learning on during a one-to-one initiative.

High school teachers were sent a survey to determine their perceptions of how to spend professional learning time during a one-to-one initiative. Teachers responded favorably to survey questions on professional learning focused on whole class instruction and individualized personalization of learning. However, more teachers responded favorably to professional learning focused on individualized personalization of learning. Schools should focus on individualized personalization of learning when developing professional learning plans during a one-to-one initiative. It is important to take teacher

perceptions into account when planning professional learning during a one-to-one initiative because teachers need to feel supported through a major change (Tackett, 2014). If teachers feel supported and that their voices are heard, they are less likely to leave the profession (Kurt, 2013). Most teachers want to be good teachers and with a major change to using one-to-one technology, professional learning is needed to make a successful transition (Horn & Staker, 2015). This will ensure that the one-to-one technology and teacher in the classroom will both have a positive impact on student achievement.

Survey results indicated that a blended approach would be most favorable with high school teachers during a one-to-one initiative. Participants valued a blended approach, for technology and nontechnology, to one-to-one initiatives and professional learning. Future topics for further research include (a) effective professional learning during a one-to-one technology initiative and (b) specific instructional strategies teachers want to learn about within the context of whole class or personalized classroom instruction.

Research Question One

The first research question was “What are the perceptions of high school teachers in regard to professional learning related to delivery with one-to-one technology?” Teachers favored, based on their perceptions, professional learning focused on whole class delivery and individualized personalized instruction. Teachers valued professional learning focused on technological tools that would help during whole class instruction. Teachers want training not only on the technological tools that can be used during whole group, but their responses also indicated that they value professional learning on a

blended approach during a one-to-one initiative. : Teachers preferred a blended teaching and professional learning approach that includes best classroom practices concerning the use and non-use of the one-to-one technology. The training can focus on whole class instruction tools both using technology and also not using technology to allow for more variety in the classroom. Teachers do value training on technology during a one-to-one initiative, but an emphasis should not be placed on using technology during every minute of each class period.

Research Question Two

The second research question was “What are the perceptions of high school teachers in regard to professional learning related to personalization with one-to-one technology?” Teachers preferred professional learning focused on personalizing instruction to each student’s needs. Focus should be placed on personalizing instruction in the classroom based on individual student need during professional learning time. Teachers valued professional learning on personalization more than on whole class instruction. This means that if given the choice teachers would rather have professional learning on personalizing instruction rather than the technological tools used during whole group. Overall, teachers did value using technology during whole class and personalized instruction time in the classroom, but they recognized that technology is not always needed to instruct students. These findings indicate that a blended approach, technology and nontechnology, for both teaching and professional learning would be most valued by teachers.

Research Question Three

The third research question was “Are there differences in their perceptions related to years of experience teaching?” The number of years spent teaching did not have an impact on teachers’ perceptions of the desired instruction. Therefore professional learning during a one-to-one initiative can be the same for all teachers. Additionally, training for teachers during a one-to-one initiative does not need to vary based on years spent teaching. Participants valued professional learning that focused on whole class delivery and on individual personalization of learning, with more teachers favoring training on personalization of learning.

Overall Findings

The findings from the study were not only that teachers valued professional learning during a one-to-one initiative, but also that teachers preferred professional learning focused on personalizing instruction more than on whole class delivery using technological tools. The value of this study is that superintendents now have further direction and insight into teacher perceptions when planning professional learning during a one-to-one initiative. On the surface this study shows the importance of planning professional learning during a change to one-to-one technology. On a deeper level this study shows that the professional learning all teachers receive should focus on individualized personalized learning tools that can be used in the classroom. Most of the professional learning time during a one-to-one initiative should include training on personalized instruction. Too often the focus during one-to-one initiatives is on whole class tech tools, when the focus should be on the software and other technology resources that help teachers personalize instruction based on need. Additionally, teachers need

training not just on the personalization software and technology, but also on how to use it in the classroom to increase student achievement.

Providing teachers with professional learning support during a one-to-one initiative, based on teacher needs, may decrease teacher frustration and encourage teachers to stay in the teaching profession. If teachers do not have professional learning to cope with the changes that are necessary during a one-to-one initiative, they may leave the teaching profession. Teachers have the biggest impact on student achievement and if they are leaving the profession due to lack of professional learning focused on their needs, it will have a negative effect on student achievement. Retention of good teachers should be a goal for superintendents and in order for superintendents to keep that goal during a one-to-one initiative, professional learning focused on personalization of learning is needed. Teacher perceptions also indicated that a blended approach, teaching using technology and not using technology, was valued. When planning professional learning opportunities during a one-to-one initiative, focus should be placed on tools to personalize instruction and how to use them, but also on the importance of a blended approach in the classroom. Superintendents need to be aware of best practices for adult learning and focus their professional learning topics around individualized personalization of learning and a blended approach, technology and nontechnology, during a one-to-one initiative.

Recommendations for Future Research

As more and more districts decide to implement one-to-one technology, effective or preferred professional learning topics need to be evaluated to ensure that teachers have been properly prepared to make the change to use technology in the classroom. Future

topics for further research can be categorized into three main topics (a) effective professional learning during a one-to-one technology initiative, (b) specific instructional strategies teachers want to learn about within the context of whole class or personalized classroom instruction, and (c) student perceptions of engagement during a one-to-one initiative. This study analyzed school districts with one-to-one technology and teacher perceptions of professional learning during one-to-one on either whole class instruction or personalization of learning. However, attention was not given to effectiveness of professional learning and/or specific instructional strategies teachers want to learn about within whole class or personalized instruction. Additionally, this study only focused on high school teachers and future studies could be on other grade levels and how the data compare to this study on high school teachers and the student voice and perceptions of one-to-one technology initiatives.

Conclusion

Teachers responded favorably to professional learning focused on whole class instruction and personalization of learning. They responded more favorably to professional learning focused on personalization of learning, leading to the conclusion that schools should focus on this topic when developing professional learning plans during a one-to-one initiative. A blended approach would be most favorable because teachers value a more blended approach, with technology and nontechnology, to one-to-one initiatives and professional learning.

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APPENDIX A

Letter to Superintendents

Pilot Survey Letter

To whom it may concern:

I am completing the doctoral program in Educational Leadership at Southwest Baptist University in Bolivar, Missouri. I am writing to request your help with my pilot survey for my dissertation. Your participation will take less than five minutes. To participate, click Reply, scroll to the bottom of this e-mail, and respond to the short questionnaire.

The focus of my dissertation is on high school teacher perceptions of professional learning, focused on classroom instruction, needed during a one-to-one technology initiative. Results will be used to provide schools planning to implement technology with teacher perceptions of how best to spend professional learning funds to have a successful one-to-one technology implementation.

I will need your confirmation that your district meets the criteria of a one-to-one technology program as set forth by the study, I am asking if you would please forward a survey to your high school teachers, or building administrators to then forward to their teachers. If you agree to forward the survey to your teachers, I will e-mail you a link to the teacher survey within 24 hours of your e-mail response.

The teacher survey is confidential, electronic, and will take less than ten minutes to complete. The teacher survey contains 20 questions and is separated into two categories. The categories include classroom instruction (a) whole class delivery and (b) personalization of learning. Survey questions are statements for which the respondent

shows their level of agreement and is scored using a four-category Likert scale (*Strongly Disagree, Disagree, Agree, Strongly Agree*). The survey will also collect demographic data to determine the number of years each respondent has been in the teaching profession.

Your response to this e-mail questionnaire will only be used to test the pilot survey for reliability and validity. Your participation is voluntary and you may withdraw at any time. This research study survey has been approved by the Southwest Baptist University Research Review Board (attached) and I have also cleared this study with the Analytics, Accountability, and Assessment department (attached).

Thank you, in advance, for your help in this study. Please feel free to contact me if you have further questions. I will be happy to provide you with the results of the pilot survey if requested.

Superintendent Questionnaire

Using this definition, click “Reply” to this e-mail and type your answers in the boxes provided below.

Definition of a One-to-One Technology Program - The definition of a one-to-one technology program as defined by this study is “any high school in which each student has an Internet-connected, wireless computing device for use in the classroom 24 hours a day, seven days a week.”

- 1) Do your high school building(s) meet the definition of a one-to-one technology program as stated above? Place an X in the appropriate box.

Yes	
No	

If your answer is No, thank you for participating in this questionnaire. Please click “Send” to return the questionnaire.

- 2) If your answer to Question 1 is yes, please confirm that the information in the chart below is accurate.

High School Building Name	# of Teachers

- 3) Will you please forward the survey to your teachers, or building administrators to then forward to the teachers? Place an X in the appropriate box.

Yes	
No	

Note: If you agree to forward the survey, you will receive a follow-up e-mail within 24 hours of this e-mail response. The e-mail will contain the survey link to forward to teachers, or building administrators at Central High School and Kickapoo High School.

Thank you for your participation in this Questionnaire! You are appreciated.

Final Survey Letter

To whom it may concern:

I am completing the doctoral program in Educational Leadership at Southwest Baptist University in Bolivar, Missouri. I am writing to request your help with my dissertation. Your participation will take less than five minutes. To participate, click Reply, scroll to the bottom of this e-mail, and respond to the short questionnaire.

The focus of my dissertation is on high school teacher perceptions of professional learning, focused on classroom instruction, needed during a one-to-one technology initiative. Results will be used to provide schools planning to implement technology with

teacher perceptions of how best to spend professional learning funds to have a successful one-to-one technology implementation.

First, I need to determine if the high school building(s) in your district have implemented a one-to-one technology program as defined in the questionnaire below. Second, if you confirm that your high school building(s) meet the criteria of a one-to-one technology program as set forth by the study, I am asking if you would forward a survey to your high school teachers, or to building administrator(s) to then forward to the teachers. If you agree to forward the survey to your teachers or building administrator(s), I will e-mail you a link to the teacher survey within the next two weeks.

The teacher survey is confidential, electronic, and will take less than ten minutes to complete. The teacher survey contains 20 questions and is separated into two categories. The categories include classroom instruction (a) whole class delivery and (b) personalization of learning. Survey questions are statements for which the respondent shows their level of agreement and is scored using a four-category Likert scale (*Strongly Disagree, Disagree, Agree, Strongly Agree*). The survey will also collect demographic data to determine the number of years each respondent has been in the teaching profession.

Your response to this e-mail questionnaire will only be used to determine the sample population for the study as well as determine what districts in Southwest Missouri and Northwest Arkansas meet the criteria. Your participation is voluntary and you may withdraw at any time. This research study survey has been approved by the Southwest Baptist University Research Review Board.

Thank you, in advance, for your help in this study. Please feel free to contact me if you have further questions. I will be happy to provide you with the results of the survey if requested.

Superintendent Questionnaire

Using this definition, click “Reply” to this e-mail and type your answers in the boxes provided below.

Definition of a One-to-One Technology Program - The definition of a one-to-one technology program as defined by this study is “any high school in which each student has an Internet-connected, wireless computing device for use in the classroom 24 hours a day, seven days a week.”

- 1) What is the name of your school district?

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- 2) Do your high school(s) in your district meet the definition of a one-to-one technology program as stated above? Place an X in the appropriate box.

Yes	
No	

If your answer is No, thank you for participating in this questionnaire. Please click “Send” to return the questionnaire.

- 3) If your answer to Question 2 is Yes, please type, in the table below, the high school building(s) names and the numbers of teachers in each building currently meeting the definition.

High School Building Name	# of Teachers

- 4) Will you please forward the survey to your teachers, or to your building administrators to then forward to their teachers, currently working in a high school with one-to-one technology? Place an X in the appropriate box.

Yes	
No	

Note: If you agree to forward the survey, you will receive a follow-up e-mail within two weeks. The e-mail will contain the survey link to forward to teachers, or building administrators to then forward to their teachers, within your identified school buildings.

Thank you for your participation in this Questionnaire! You are appreciated.

APPENDIX B

Letter to High School Teachers

To whom it may concern:

I am writing to ask if you would take just a few minutes to complete the survey that can be found by clicking the link below. I am a doctoral student at Southwest Baptist University in Bolivar, Missouri. As a final part of the doctoral program, I am completing my doctoral dissertation on high school teacher perceptions of professional learning, focused on classroom instruction, needed during a one-to-one technology initiative.

I am surveying high school teachers in Southwest Missouri and Northwest Arkansas high schools with a one-to-one technology program. Completing the survey should take less than ten minutes and I would really appreciate your input. This research study has been reviewed by the Southwest Baptist University Research Review Board. Results will be used to provide schools planning to implement technology with teacher perceptions of how best to spend professional learning funds to have a successful one-to-one technology implementation. The teacher survey is electronic and will take less than ten minutes to complete. The teacher survey is confidential. Your participation is voluntary and you may withdraw at any time.

To begin the brief survey, click on the link below. I thank you, in advance, for your valuable time and help with this research project. Your input is appreciated.

[Link to Survey](#)

APPENDIX C

Pilot Survey

Hello,

Thank you for taking the time to complete this survey. I am a doctoral student at Southwest Baptist University in Bolivar, Missouri. As a final part of the doctoral program, I am completing my doctoral dissertation on high school teacher perceptions of professional learning, focused on classroom instruction, needed during a one-to-one technology initiative. Your participation is voluntary and you may withdraw at any time. Please refer to the following definitions when answering the survey questions.

Delivery- This is when a teacher delivers content to a whole class. Teachers have many options when it comes to content, timing, area(s) of emphasis, and the choice of what to use and when should be based on what is best for students. Delivery tools in a one-to-one classroom usually include technology tools that can help deliver content to the whole class.

Personalization- This is when a teacher provides content to one student individually, based on need. This occurs during classroom instruction and is when a teacher provides students with activities on the students' level, which are to be completed in the classroom or at home. This can be done with the use of technology that makes personalization possible in a classroom with many students. Students will complete work at their grade level and at their own pace independently to increase achievement. Personalization tools are usually adaptive software and technology tools that can assign work to a single student, such as Google classroom or a Learning Management System (LMS).

Pilot Survey Questions

Please mark how long you have been teaching:

- 0-5 years
 - 6-10 years
 - 11+ years
-

1. Professional learning focused on whole class delivery is a good use of my time.	SA A D SD
2. Professional learning focused on when to use tech tools during whole class instruction is an important use of my time.	SA A D SD
3. Professional learning focused on instructing the whole class is important.	SA A D SD
4. Professional learning focused on a tech tool to use during whole class instruction is important.	SA A D SD
5. I would like more training on how to match the correct tech tool to my goals for whole class instruction.	SA A D SD
6. I think using technology to instruct a whole class of students would be a good topic for professional learning training.	SA A D SD
7. Whole class instruction should include technology and therefore necessitates time spent on this topic during professional learning training.	SA A D SD
8. Training on how to manage students using technology during whole class instruction should be a focus for professional learning.	SA A D SD
9. I do not value training on whole class instruction using technology.	SA A D SD
10. I do not value training focused on using technology for whole class instruction.	SA A D SD
11. Professional learning focused on assigning work based on individual student need is an important use of my time.	SA A D SD

- | | |
|---|-----------|
| 12. Professional learning focused on how to determine individual student need is an important use of my time. | SA A D SD |
| 13. Professional learning focused on instructing individual students based on personal need is important. | SA A D SD |
| 14. Professional learning focused on how to use technology to determine individual student need is important. | SA A D SD |
| 15. I would like more training on how to use technology to provide instruction and assignments to students based on individual need. | SA A D SD |
| 16. I think using technology to instruct each individual student would be a good topic for professional learning training. | SA A D SD |
| 17. Individual instruction should include technology and therefore necessitates time spent on this topic during professional learning training. | SA A D SD |
| 18. Training on how to manage students using technology during individual instruction should be a focus for professional learning. | SA A D SD |
| 19. I do not value training on individual instruction using technology. | SA A D SD |
| 20. I do not value training focused on technology to determine and assign work based on individual student need. | SA A D SD |

APPENDIX D

Final Survey

Hello,

Thank you for taking the time to complete this survey. I am a doctoral student at Southwest Baptist University in Bolivar, Missouri. As a final part of the doctoral program, I am completing my doctoral dissertation on high school teacher perceptions of professional learning, focused on classroom instruction, needed during a one-to-one technology initiative. Your participation is voluntary and you may withdraw at any time. Please refer to the following definitions when answering the survey questions:

Delivery- This is when a teacher delivers content to a whole class. Teachers have many options when it comes to content, timing, area(s) of emphasis, and the choice of what to use and when should be based on what is best for students. Delivery tools in a one-to-one classroom usually include technology tools that can help deliver content to the whole class.

Personalization- This is when a teacher provides content to one student individually, based on need. This occurs during classroom instruction and is when a teacher provides students with activities on the students' level, which are to be completed in the classroom or at home. This can be done with the use of technology that makes personalization possible in a classroom with many students. Students will complete work at their grade level and at their own pace independently to increase achievement. Personalization tools are usually adaptive software and technology tools that can assign work to a single student, such as Google classroom or a Learning Management System (LMS).

Final Survey Questions

Please mark how long you have been teaching:

- 0-5 years
 - 6-10 years
 - 11+ years
-

- | | |
|--|-----------|
| 1. Professional learning focused on whole class delivery is a good use of my time. | SA A D SD |
| 2. Professional learning focused on when to use tech tools during whole class instruction is an important use of my time. | SA A D SD |
| 3. Professional learning focused on instructing the whole class is important. | SA A D SD |
| 4. Professional learning focused on a tech tool to use during whole class instruction is important. | SA A D SD |
| 5. I would like professional learning focused on how to match the correct technology tool to the objective addressed during whole class instruction. | SA A D SD |
| 6. I think using technology to instruct a whole class of students would be a good topic for professional learning training. | SA A D SD |
| 7. Whole class instruction should include technology and therefore necessitates time spent on this topic during professional learning training. | SA A D SD |
| 8. I would like to receive professional learning focused on how to manage technology during whole class instruction. | SA A D SD |
| 9. I do not value training on whole class instruction using technology. | SA A D SD |
| 10. I do not value training focused on using technology for whole class instruction. | SA A D SD |

- | | |
|---|-----------|
| 11. Professional learning focused on assigning work based on individual student need is an important use of my time. | SA A D SD |
| 12. Professional learning focused on how to determine individual student need is an important use of my time. | SA A D SD |
| 13. Professional learning focused on instructing individual students based on personal need is important. | SA A D SD |
| 14. Professional learning focused on how to use technology to determine individual student need is important. | SA A D SD |
| 15. I would like more training on how to use technology to provide instruction and assignments to students based on individual need. | SA A D SD |
| 16. I think using technology to instruct each individual student would be a good topic for professional learning training. | SA A D SD |
| 17. Individual instruction should include technology and therefore necessitates time spent on this topic during professional learning training. | SA A D SD |
| 18. Training on how to manage students using technology during individual instruction should be a focus for professional learning. | SA A D SD |
| 19. I do not value training on individual instruction using technology. | SA A D SD |
| 20. I do not value training focused on technology to determine and assign work based on individual student need. | SA A D SD |