A PHENOMENOLOGICAL STUDY OF THE EXPERIENCES OF ELEMENTARY TITLE I TEACHERS' USE OF DIGITAL TECHNOLOGY IN THE CLASSROOM

by

Rebecca S. Acosta

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

Liberty University

2019

A PHENOMENOLOGICAL STUDY OF THE EXPERIENCES OF ELEMENTARY TITLE I TEACHERS' USE OF DIGITAL TECHNOLOGY IN THE CLASSROOM

by Rebecca S. Acosta

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

Liberty University, Lynchburg, VA

2019

APPROVED BY:

Linda Holcomb, Ed.D., Committee Chair

Vonda S. Beavers, Ed.D., Committee Member

JoAnna Oster, Ed.D., Committee Member

ABSTRACT

If Title I elementary students are not given opportunities to learn how to utilize digital technology in their classrooms, a whole segment of the population will lack the knowledge and skills to become successful upon graduation and contribute to the betterment of society. The purpose of this transcendental phenomenological study was to describe the experiences of Central Texas elementary teachers' use of digital technology in their Title I classrooms. The central research question in this study was: how do Title I elementary teachers in Central Texas describe their experiences using digital technology in the classroom? Two theories framed this investigation. The first was the experiential learning theory which emphasizes the relationship experience plays in adult learning. The second theory was Social Constructivism, specifically Lev Vygotsky's zone of proximal development which describes how students move through three zones of development to master concepts. Findings from this research revealed how 11 Title I elementary teachers are preparing their students for life in the 21st century through technology integration. Data collection was conducted through interviews, focus groups, and writing prompts. All data was analyzed using Moustakas' steps for data analysis. This research revealed the depth of technology integration in Title I elementary schools and the dedication these participants had regardless of the barriers they had to overcome. Recommendations include further research with more Title I elementary schools and added student perspectives.

Keywords: Title I schools, digital technology, technology integration, elementary schools, transcendental phenomenology, experiential learning theory, zone of proximal development

Dedication

It is with a deep love and appreciation that I dedicate this work to my husband, Felix. Without your love and support, I would never have been able to accomplish this seemingly impossible task. Thank you for allowing me to dream and pushing me never to give up. I love you beyond words. Mom and Dad, I dedicate this to you as well because you both taught me to dream and instilled in me a love of learning. Your example has set the pace of my life. Finally, I dedicate this to my children, James and Miranda. I have appreciated and held your encouragement tightly over the last few years. Thank you for believing in me and being proud of your mother. I love you both to the moon and back.

Acknowledgments

First, I want to thank the Lord for calling me into a profession that touches the lives of the future. It is a great responsibility to teach young children and prepare them for their adult lives.

I want to say a special thank you to my sister. We have been on this journey together for several years. Your drive has pushed me to work harder. Your passion has ignited me. Finally, your clock always reminded me of my task. Thank you for doing this with me.

I also want to take the time to thank my colleagues at school, and especially my team for always encouraging me. Your positive words pushed me forward when I let doubt creep in.

Thank you to my committee. Your comments and responses have made this the best version it could be. I appreciate your help and encouragement along the way.

A special thank you to Dr. Holcomb, who understands my drive and dedication and reminded me on many occasions to slow down and reflect on my writing. Your positive attitude and comments helped me through this entire process.

Table of Contents

List of Tables

List of Figures

List of Abbreviations

Bring Your Own Device (BYOD)

Council for Accreditation of Educator Preparation (CAEP)

Classroom Instructional Coaches (CIC)

Every Student Succeeds Act (ESSA)

Experiential Learning Theory (ELT)

Information Communication Technology (ICT)

Instructional Technology Coach (ITC)

No Child Left Behind (NCLB)

Science Technology Engineering and Mathematics (STEM)

State of Texas Assessment of Academic Readiness (STAAR)

Technological Pedagogical Content Knowledge (TPACK)

Zone of Proximal Development (ZPD)

CHAPTER ONE: INTRODUCTION

Overview

Technology integration in the classroom is a favorite topic in public education. Parents, teachers, and administrators all want to know how students are being prepared to meet the demands of life after high school. This preparation begins as early as elementary school (Kermani & Aldemir, 2015). Patrick and Sturgis (2015) stated that schools across the country are working to provide a personalized instructional approach to improve each student's knowledge and skills. Digital technology enables this type of student-centered learning (McKnight, O'Malley, Ruzic, Horsley, Franey, & Bassett, 2016). At this stage of the research, any electronic device that is digitally based is considered digital technology (Dube & Scott, 2017).

In 2006 the Texas legislature passed regulations to incorporate technology application standards in K-12 classrooms (Davidson, Richardson, & Jones, 2014). These standards were created to enable educators to integrate technology in their classrooms in such a way as to improve student learning (Davidson et al., 2014). The Council for Accreditation of Educator Preparation (CAEP) updated previous standards written in 2008. These included technology standards meant to be implemented in the classroom as early as 2013 (CAEP, 2016). Today's teachers are expected to demonstrate an understanding of digital technology in their classrooms and pass that knowledge on to their students.

There has been little research completed on technology integration in Title I schools. Students attending these schools represent a unique population of students and educators (Adams, 2014). Many of the students in Title I schools are living at or below the poverty line and require government assistance to attain the necessary materials for survival. Title I schools generally have more students per classroom. Educators teaching in Title I schools find that the

students come to school lacking the prerequisite knowledge many of their same age peers have upon entering the classroom (Tirrell-Corbin & Cooper, 2014). Determining the manner in which this population of educators strives to integrate technology into the classroom to prepare students for the future is the focus of this research.

This study examines how Title I elementary teachers utilize digital technology in their classrooms to enhance student learning. This chapter includes essential background information on the research problem, the role of the researcher, and the purpose of the study. Finally, this chapter contains the significance of the study, the research questions, and definition of terms.

Background

Technology integration is vitally important in education. Because of its importance, there has been much research completed on technology integration in K-12 classrooms. It is used in educational settings from kindergarten through twelfth grade. The research focuses primarily on high school classrooms. Current research centers on technology implementation, barriers of technology integration, and 1:1 technology integration (Hsu, 2016; Keppler, Weiler, & Maas, 2014; Mitchell, Wohleb, & Skinner, 2016). Educators express a deep belief that technology integration is beneficial to the learning process for students in both high school and middle school (Alsaeed, 2017; Andrei, 2017; Doering, Koseoglu, Scharber, Henrickson, & Lanegran, 2014). There is less information concerning technology integration in elementary schools. Of the limited studies available, many are either quantitative studies, or the focus of the study is on other factors affecting digital technology integration. After conducting their quantitative study on barriers to technology integration in elementary schools, Pitman and Gaines (2015) stated the primary barriers to technology integration were access to hardware and educator training. Another study, completed by Harris, Al-Bataineh, and Al-Bataineh, (2016), focused on 1:1 technology usage in fourth-grade classrooms. This quantitative study focused on determining if

1:1 technology motivated fourth-grade students to perform better than they had before the implementation of the technology. My study focuses more closely on technology integration in elementary Title I schools and how educators are teaching their students to utilize technology for learning. The purpose of this transcendental phenomenological study was to describe the experiences elementary teachers in Title I schools have implementing digital technology in the classroom to identify ways in which practices can be built upon and improved.

Historical Contexts

Technology has changed education. As early as the 1980s, it influenced the way educators taught and the way students learned. During that time, educational leaders envisioned the change technology would make in the classroom (Gerola & Gomory, 1984). The microcomputer was becoming more prevalent in the classroom. Educators were becoming aware of its uses in differentiating instruction and reaching each of their students (Fitzpatrick, 1991). Computers were becoming customary in the classroom, and students and educators were becoming accustomed to having them available. Teachers understood it would be essential to keep pace with technological advancements to prepare students for life outside of the classroom (Gerola & Gomory, 1984). Computers in the classroom were changing the way educators were teaching their students. Classrooms were becoming less teacher directed, and there was more of a constructivist approach to education (Ringstaff & Sandholtz, 1994).

Today, the use of technology in the classroom is enabling educators to become more focused on the needs of individual students. Teaching is more student-centered than ever before (Kostaris, Sergis, Sampson, Giannakos, & Pelliccione, 2017). Technology in the classroom has moved from one computer in a classroom to many classrooms utilizing 1:1 technology applications and Bring Your Own Device (BYOD) options for students (Keane, Lang, & Pilgrim, 2012; Keengwe, Schnellert, & Mills, 2012; Koivisto, 2014; Sysło, 2014). By the time

they enter high school, students are expected to understand computer applications and navigate technology for learning (Alsaeed, 2017; Basilotta Gómez-Pablos, Martín del Pozo, & García-Valcárcel Muñoz-Repiso, 2017; Delvin, Feldhaus, & Bentrem, 2013).

Social Contexts

There have been many studies conducted on the use of technology in classrooms all over the world (Kayalar, 2016; Stieler-Hunt & Jones, 2015). Studies in Australia, New Zealand, and Turkey all demonstrate the importance of technology in the classroom (Fox-Turnbull, 2016; Keane et al., 2012; Kayalar, 2016). Most studies completed on technology integration have to do with educators and students at the high school level (Harnisch, Comstock, & Bruce, 2014; Murphy, Chang, & Suarey, 2016; Robinson, 2016). There have been several significant studies on technology integration at the middle or junior high school level (Alsaeed, 2017; Karchmer-Klein, Mouza, Harlow, & Park, 2017; Peled, Blau, & Grinberg, 2015; Sen & Ay, 2017). However, there is little data on elementary school technology integration. The perception is that students have more access to technology in high schools than they do in elementary schools (Keppler et al., 2014). In looking at technology integration in elementary schools, I did not find any studies investigating how teachers are integrating technology in Title I elementary schools. Because technology has globalized education for many students across the world, the studies investigated demonstrate the importance of technology in the classroom (Carver, 2016; Davidson et al., 2014; Delgado, Wardlow, McKnight, & O'Malley, 2015). Educators working in Title I schools are faced with a unique population of students (Desimone, Smith, & Phillips, 2013; Ostayan, 2016). These students may not have the same access to technology that students living above the poverty line have (Union, Union, and Green, 2015). Educators teaching at-risk students often have more challenges integrating technology into their instruction, while also working to improve the achievement gap their students begin school with (Suppes, Holland, Hu,

& Vu, 2013). These are a few of the reasons digital technology integration in elementary Title I schools should be researched.

Theoretical Contexts

The theories that provided the foundation for this study were the experiential learning theory (ELT) written by David Kolb (Kolb & Kolb, 2005) and Vygotsky's zone of proximal development (ZPD) (Vygotsky & Kozulin, 2011). Because technology is so pervasive, it is sometimes taken for granted that students understand how to apply it to their own learning. However, it is necessary for students to not only have access to digital technology equipment and software applications, but also be taught how to utilize it to enable their learning. Wang, Hsu, Campbell, Coster, and Longhurst (2014) demonstrated in their study that teachers who have less experience, and thus are newer to the teaching profession, tend to use computers more often in the classroom. These teachers have used technology more themselves and have more experience with the capabilities of the technology. David Kolb (Kolb & Kolb, 2005) in his explanation of the experiential learning theory, described this phenomenon. He stated that adults learn through their experiences (Kolb & Kolb, 2005). Once learned and integrated, educators have the task of imparting their knowledge to the students they teach. This transfer of knowledge is especially important in elementary education. Vygotsky's ZPD demonstrates how learning can be successful (Vygotsky & Kozulin, 2011). This theory can be used in implementing technology in the classroom. The ZPD is described as an adult assisting the student, beginning with much assistance and gradually fading that assistance (Clarà, 2017). By doing this, the student becomes more confident in the assigned task and can learn the new material. Understanding how Vygotsky's ZPD can enable educators to integrate technology in their classrooms for students to learn and use will extend the existing knowledge available.

Situation to Self

My role in this research study was both personal and professional. I have taught for over 20 years, and thus have many years of experience in education. I have been a classroom teacher at a variety of grade levels and settings including traditional brick and mortar schools, public and private schools, and online virtual schools. I am certified in bilingual education, special education, and elementary education and have held teaching certificates in multiple states. Because of the years I have taught and the variety of subjects and areas I have taught, I have a unique perspective on how education is changing given today's globalization. I believe technology is essential in education. I also believe students should be taught how to utilize its capabilities to aid their own learning and deepen their understanding of concepts they may find difficult.

During this study, I was an elementary classroom teacher in a Title I school. Serving in this position enabled me to have a new perspective on technology in the classroom. I was interested in hearing the stories of how teachers in Title I elementary schools were able to integrate technology in their classrooms successfully so that their students could utilize technology as a learning tool. Additionally, I was interested in giving a voice to those who were experiencing challenges as they tried to implement technology in their classrooms. It was important to understand these challenges to better understand how to utilize the resources available to enable students to receive a more productive, more in-depth, education. I believe this research can benefit both administrators and educators alike. It enables both groups to understand technology integration in elementary Title I schools and how to utilize the technology resources in the best way possible. I chose to complete a transcendental, phenomenological study to fill the gap in the literature of the experiences of Title I elementary teachers in their use of digital technology in the classroom (Moustakas, 1994). It was my desire to understand the

essence of the lived experiences of the teachers in this research and report on their individual perceptions and views (Patton, 2015).

I worked within a social constructivist framework. I sought to understand the research problem through the multiple perspectives of my participants (Patton, 2015). I did not try to separate their experiences from the environment in which they lived and worked (Patton, 2015). I determined to get as close as I could to the participants within the study to fully understand their experiences. Due to this closeness, I researched from an epistemological assumption (Creswell, 2013). Creswell (2013) explained that a researcher with an epistemological assumption would rely heavily on quotes from the participants to demonstrate evidence of the research completed. Additionally, I did not believe each of my participants to have the same experiences. I believed they would each have their own perspective on how digital technology impacted their teaching and their student's learning. Because of this belief, I also researched from an ontological assumption (Creswell, 2013). As a teacher in a Title I elementary school, I have an understanding of the challenges and opportunities this type of educational setting poses. Getting close to my participants and trying to understand each of their individual perspectives was the goal of this research project.

Problem Statement

Low-income families are less likely to have access to digital devices outside of the classroom (Warschauer, Zheng, Niiya, Cotten, & Farkas, 2014). In 2017, more than four billion people in the world had access to the Internet. In the United States alone, over 95% of the population has access to the Internet (Internet World Statistics, 2018). As a result of these statistics, lawmakers have made technology integration mandatory in all schools and classrooms (CAEP, 2016). There are benefits to technology integration in education across the world and in the United States (Keppler et al., 2014; Wang et al., 2014). Title I schools must be included in

training students for success in the 21st century work environment (Kayalar, 2016). For this integration to be successful, educators must have the technological skills and enthusiasm to teach these skills to their students (Kayalar, 2016; Stieler-Hunt & Jones, 2015). It is essential that learning through digital technology be established early to increase student engagement and preparation throughout school (Kermani & Aldemir, 2015). Using a phenomenological approach, my study focused on Central Texas teachers' experiences using digital technology in their Title I elementary classrooms. Urban and Falvo (2016) stated that future research needed to focus on educators learning technology to pass their knowledge on to their students, especially those students who do not have access to technology outside of school. The problem is if Title I elementary students are not given opportunities to learn how to utilize digital technology in their classrooms, a whole segment of the population will lack the knowledge and skills to become successful upon graduation and contribute to the betterment of society.

Purpose Statement

The purpose of this phenomenological study was to describe the experiences of Central Texas elementary teachers' use of digital technology in their Title I classrooms. Digital technologies are any electronic device that is digitally based (Dube & Scott, 2017). Urban and Falvo (2016) stated that for students in K-12 classrooms to be successful, they would need to know how to learn and create using technology. There are two theories that framed this research. The first was the experiential learning theory (Kolb, 1981) written by David Kolb. This theory emphasizes the relationship experience plays in adult learning (Kolb, 1981). The second theory was social constructivism, specifically Lev Vygotsky's zone of proximal development (Vygotsky, 1978). This theory states that students move through three primary zones of development to master concepts (Vygotsky, 1978). This study focused on how educators learn to use digital technology in the classroom and also on how they were able to move their students

through Vygotsky's three zones using technology. My study sought to describe the experiences of Central Texas teachers' use of digital technology in their Title I classrooms to increase student learning capacity.

Significance of the Study

This is an important study for many individuals. As the literature grows on technology integration in K-12 schools, this research adds awareness to Title I schools. Because elementary schools are beginning to see the importance of technology integration in the classroom, an in-depth look at the experiences of educators in the classroom lends valuable understanding to the topic of technology integration (Fox-Turnball, 2016).

Empirical

This study contributed to the literature on technology usage in K-12 schools by adding insight into the experiences of Title I elementary teachers' use of digital technology. There is much research on how technology is integrated into the curriculum effectively. For example, Keppler et al. (2014) studied how technology could increase effectiveness in language arts classes. The study demonstrated that, through the use of technology, educator pedagogy and student learning increased (Keppler et al., 2014). Additionally, Mitchell et al. (2016) studied the perceptions of educators in regard to technology accessibility and its importance in curriculum. They found as educators gained experience in the classroom, they became less willing to utilize technology in their teaching (Mitchell et al., 2016). Both of these studies focused on K-12 education in general; not specifically at the elementary level.

There are few studies whose focus is on technology usage at the elementary level. However, of the studies that have been completed, researchers are finding that using technology at the earliest stages of education is beneficial for student achievement (Fox-Turnbull, 2016). This investigation aimed to add to the current literature by giving voice to Title I elementary

teachers' experiences. This subgroup of educators was able to describe experiences that can lead to further development of technology instruction at the elementary level.

Theoretical

This study added additional applications to Kolb's experiential learning theory. By the educators learning to use the technology, through classroom experience or other methods, they were experiencing the learning first hand (Kolb, 1981). This ability to increase their knowledge demonstrated evidence of Kolb's experiential learning theory (Kolb, 1981). These same educators were then able to transfer their knowledge of technology into learning opportunities for their students. Through their lesson plans and student activities, educators were able to teach their students how to use the available technology to further their understanding of the concepts being taught. This enabled their students to utilize technology more effectively for the purpose of concept mastery. As students were learning new concepts, they were progressing through Vygotsky's ZPD addressed in his learning theory (Vygotsky, 1978).

Practical

This investigation provides valuable evidence to principals in elementary schools. It furthers the understanding of how technology can be used in the classroom by teachers and their students. Because of the location of this research, administrators in the district studied have a better understanding of how to serve their elementary Title I students to improve learning in the classroom. On a larger scale, this study gives administrators across the United States a deeper understanding of what is needed in terms of professional development training in technology for their staff. It also provides further evidence to support the purchase of digital technology for staff and classrooms. Technology is part of the 21st century learning platform and needs to be addressed at all levels of education. O'Neal, Gibson, and Cotten (2017) stated "students need

integrated technology skills in their early learning and those skills will play a key role in their future success," (p. 199).

Research Questions

There was one central research question and three sub-questions guiding this study. These questions were substantiated through the theoretical framework of David Kolb's experiential learning theory (Kolb, Boyatzis, & Mainemelis, 2001) and Vygotsky's social constructivism through the use of his zone of proximal development (Shabani, Khatib, & Ebadi, 2010). I sought to thoroughly describe the experiences of Title I elementary teachers' use of digital technology by asking the central question. I sought to describe how this technology was utilized in the classroom to further student learning and describe the barriers Title I elementary teachers face in implementing technology in the classroom by asking the other three sub-questions.

Central Research Question

How do Title I elementary teachers in Central Texas describe their experiences using digital technology in the classroom?

The central question framed the study. I wanted to provide the opportunity for Title I elementary teachers in Central Texas to describe their experiences using digital technology in the classroom. This question was intentionally open-ended and non-directional to allow for educator explanations to be genuine. I wanted to provide the opportunity to gain descriptions of personal experiences of the Title I educators being interviewed while also allowing myself to collect intense and accurate descriptions of those personal experiences (Moustakas, 1994; Patton, 2015). This question makes connections to the experiential learning theory proposed by David Kolb (1981). Because I sought to understand how adult educators are using technology in the classroom, it was essential to understand how these educators have learned the technology.

Kolb's (1981) theory speaks of adults using their experiences to learn new concepts. Many educators are learning to use technology at the same time as their students. Some of them are given professional development in technology applications and others are not. All are experiencing technology and its uses in the classroom to varying levels and using their knowledge to teach their students (Varier, Dumke, Abrams, Conklin, Barnes, & Hoover, 2017).

Sub-Question 1

How do Title I elementary teachers in Central Texas describe the strategies they use to help students learn how to use digital technology successfully?

This first sub-question built on the central question by enabling educators to describe how they were able to integrate the technology they learned in such a way that their students had the opportunity to learn how to use the technology as well. Wang et al. (2014) described student use of technology outside of school as being primarily used for social networking. This question provided an alternative view to technology. It provided for the educator's perceptions on teaching their students how to use the technology for learning. The teaching of technology as a tool for learning uses Vygotsky's ZPD (Vygotsky, 1978). In this part of his theory, he stated that students begin by not understanding a new concept to any degree (Vygotsky, 1978). This question will provide educators the opportunity to describe how they are able to introduce new technology into their lessons so students begin to understand the implications of its use for the purpose of learning. This is the beginning of scaffolding as initiated by Vygotsky (Shabani et al., 2010).

Sub-Question 2

How do Title I elementary teachers in Central Texas describe students' exploration of digital technology usage in the classroom?

The second sub-question continues to develop the ideas Vygotsky introduced in his social development theory (Shabani et al., 2010). This question sought to allow Title I elementary teachers

the opportunity to describe how their students used digital technology in their classrooms. This was a representation of Vygotsky's second and third levels in his ZPD (Vygotsky, 1978). Vygotsky (1978) stated through small steps initiated by the educator, students are able to understand the concepts being presented. As students are introduced to the technology in the classroom and begin to utilize it for the purpose of learning, they may begin to master the concepts (Vygotsky, 1978). This process may ultimately lead them through all three zones. Asking teachers to describe their experiences with this integration provided rich, deep, and accurate perceptions of their experiences in implementing this technology in the classroom (Moustakas, 1994).

Sub-Question 3

How do Title I elementary teachers in Central Texas describe the barriers they may encounter in implementing digital technology in the classroom?

This last sub-question built on the central question by seeking to understand any barriers Title I elementary teachers encountered that were unique to Title I schools and the population served. There are several research studies that document the wide range of barriers educators face when implementing a new technology in the classroom (Brasiel, Martin, Jeong, Yuan, & Society for Research on Educational Effectiveness, 2016; Doering et al., 2014; Pitman & Gaines, 2015). These barriers influence both the way teachers learn the technology and how they are able to then transfer their knowledge to their students in an authentic manner. Because this question addressed the barriers educators encounter while using digital technology, it can be determined it ties into Kolb's experiential learning theory (Kolb, 1981). This question provides the necessary steps educators must make to successfully teach their students about using digital technology. Additionally, by asking educators to describe the steps they must take in teaching their students about technology, it helped to prevent bias on the part of this researcher. By

bridging the gap between the educator and the student, this question is also influenced by Vygotsky's ZPD (Vygotsky, 1978).

Definitions

1. *1:1 Technology* – One digital device per student served. In the classroom, this would mean each student has his or her own digital device to use (Downes & Bishop, 2015)
2. *Achievement gap* - The lack of educational experiences some students may experience due to limited resources (Adams, 2014).
3. *Bring Your Own Device (BYOD)*- A term used when a school allows its students to bring their own technology for use in the classroom (McLean, 2016).
4. *Digital Technology* –Any electronic device that is digitally based (Wang, Hsu, Campbell, Coster, & Longhurst, 2014).
5. *Pedagogy* – The practice of teaching children (Fornaciari & Lund Dean, 2013).
6. *Phenomenology* – A Greek term, phaenesthai. meaning to flare up or to appear (Moustakas, 1994). Phenomenology is derived from this Greek term and is a form of qualitative study that "aims at gaining a deeper understanding of the nature or meaning of our everyday experiences (Patton, 2015)
7. *Scaffolding* – When the teacher and learner work together to enable understanding of a concept (Shabani et al., 2010).
8. *Student-Centered Learning* – A method of teaching in which the students are first in the teaching and learning process. This method of teaching usually takes students through a higher level of thinking and learning (Leinonen, Keune, Anna, Marjaana & Toikkanen, 2014).
9. *Teacher-Centered Learning* – Instruction in which the teacher is in full control of the teaching and student learning (Dole, Bloom, & Kowalske, 2016).

10. *Teacher Perceptions* – Educators' thought processes. These include their beliefs, insights, and understanding of how their educational practices are organized (McGraw-Hill, 2002)
11. *Technology Integration* – The use of technology in the classroom for the purposes of learning and teaching (Wang, Hsu, Campbell, Coster, & Longhurst, 2014).
12. *Title I Schools* – Schools in which at least 40% of its students qualify for a free and reduced lunch (Adams, 2014)
13. *Zone of Proximal Development (ZPD)* – "The distance between the child's actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under the adult guidance or in collaboration with more capable peers," (Vygotsky, 1978, p. 131)

Summary

The goal of this phenomenological study was to bring a voice to Title I elementary educators in Central Texas; allowing them to relate their experiences using digital technology in the classroom. Additionally, I brought awareness to how Title I educators were using their knowledge of technology to teach their students and create a more student-centered learning environment in the classroom. This study was necessary due to the lack of phenomenological research on technology integration in Title I elementary schools and the role the teacher plays in initiating technology instruction in the classroom. It is important that educational stakeholders are aware of these experiences and perceptions in order to identify ways in which practices can be built upon and improved.

Chapter Two will review the current research demonstrating the gap in the literature. David Kolb's (1981) experiential learning theory will be used to demonstrate how educators are learning to use technology in the classroom. The study then focused on how this knowledge is

used to teach students about technology usage for learning. The process of the educator teaching his or her students how to use technology successfully demonstrates Lev Vygotsky's (1978) ZPD. Perceptions of Title I teachers in relation to their technology usage as well as the manner in which they integrate this same technology in the classroom was researched (Kolb, 1981). Finally, barriers these teachers confronted when integrating technology were also researched (Brasiel et al., 2016).

CHAPTER TWO: LITERATURE REVIEW

Overview

There have been many studies concerning the implementation of technology into the classroom (Alsaeed, 2017; Andrei, 2017; Blau & Shamir-Inbal, 2016; Davidson et al., 2014; Delgado et al., 2015; Devlin et al., 2013; Dorfman, 2016; Gerola & Gomory, 1984; Grant, Tamim, Brown, Sweeney, Ferguson, & Jones, 2015; Heath, 2017). Many of these studies focus on how technology changes the dynamics of study for students and teachers (Edwards, Neill, & Faust, 2015; Hsu, 2016; Ravitch, 2014). Edwards et al. (2015) stated that making the technology change in a school takes the entire school community to develop and be committed to the change for the technology implementation to be successful.

This chapter focuses on the theories used in this study that support adult education in technology and student acquisition of technology usage for the purpose of learning. The experiential learning theory as written by David Kolb (1981) enables understanding of how teachers learn technology. Once the educator understands the technology and implements it in the classroom, the students have the opportunity to learn it and use this same technology to enhance their learning experience. This is demonstrated through Vygotsky's zone of proximal development (Vygotsky & Kozulin, 2011). These theories are demonstrated throughout the day in the school setting as teachers implement technology and students learn how to use it (Kolb, 1981; Vygotsky & Kozulin, 2011).

There is much research on technology integration in high schools around the world and across the country (Koivisto, 2014; Murphy et al., 2016; Robinson, 2016; Urban & Falvo, 2016). It is evident that technology integration is beneficial for students (Urban & Falvo, 2016). Doering et al. (2014) stated in their research one of the most frequently mentioned benefits of using technology in high schools is the ability it gives educators to immerse their students in

real-life problems. This, in turn, gives the students an ability to make real-life associations and understand how connected each of us are in the world (Doering et al., 2014). My hope, in completing this research, is to examine how teachers in Title I elementary schools are using this same principle to prepare their students for the changes occurring in the 21st century (Kermani & Aldemir, 2015).

In this chapter, I review the current literature published on multiple topics concerning digital technology integration in the classroom. I focus on the laws that have been written to push technology into the classroom and the laws concerning Title I education. There is current research establishing both the benefits and barriers to successful technology integration (Crompton, Olszewski, & Bielefeldt, 2016; Ruggiero & Mong, 2015; Yenmez, 2017). Though there is abundant research on technology integration in public and private education in general, there is little research on technology integration in elementary schools (Urban & Falvo, 2016). Most research has focused on high schools (Cho, 2017; George & Ogunniyi, 2016; Nowell, 2014; Robinson, 2016). Additionally, little research has been completed on Title I schools (Urban & Falvo, 2016). My review of the current literature will provide evidence of the gap in the literature concerning the experiences of elementary Title I educators' use of digital technology in the classroom.

Theoretical Framework

Two theories guided this study. The first was the experiential learning theory (ELT). This theory originated with David Kolb in 1984. The ELT is built on six propositions (Kolb & Kolb, 2013). These six propositions are shown below in Figure 2.1.

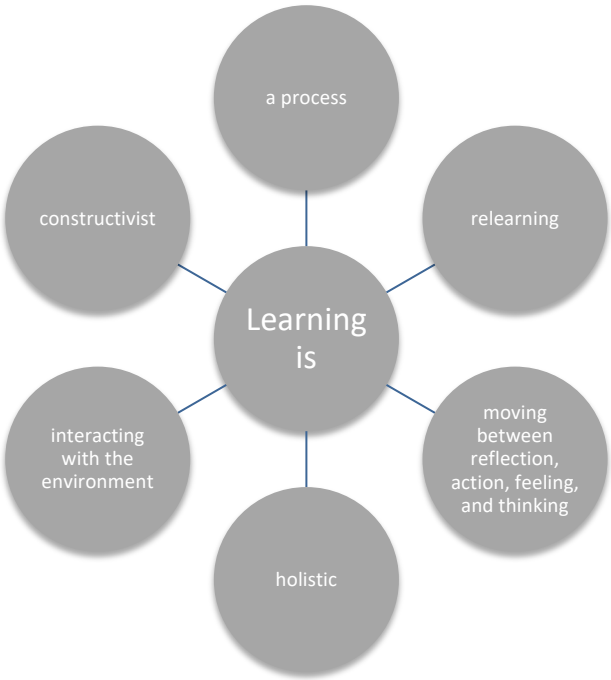

Figure 2.1. Kolb's six propositions (Kolb & Kolb, 2013).

These propositions were conceived by earlier theorists. The first proposition is that learning is an activity that takes time. To improve upon a person's learning, he or she must continue to have learning experiences. These experiences are what learning is built upon. The second proposition discussed within the ELT is that all learning is relearning. It is important to draw on a person's own ideas and beliefs on a topic to increase learning. This allows these ideas to be examined and tested to refine the building ideas. The third proposition is that learning is a progression that moves between reflection, action, feeling, and thinking. It is important to reflect on conflicts and differences. This process allows a learner to move between action and reflection and increases learning. The fourth proposition states that learning is holistic. This means learning is more than just sitting in a classroom and digesting a lecture. Learning is the act of going out in the world and experiencing the action and its effects in person. The fifth proposition is that learning interacts with the environment. A learner must find new experiences and assimilate his or her reactions into what he or she has already learned. The final proposition is

that learning is an act of creating new knowledge. This is a constructivist view of learning. Constructivists view the world as always changing and the process of learning never stopping (Patton, 2015). The ELT and its six propositions were built upon the ideas of William James, Kurt Lewin, Carl Rogers, Carl Jung, John Dewey, Jean Piaget, Lev Vygotsky, Paolo Feire, and Mary Parker Follett. These fundamental propositions, as listed above, combine to form David Kolb's theory of how adults learn through experience (Kolb & Kolb, 2013).

David Kolb (1981) defined learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (p. 41). Working together, Alice and David Kolb (2013), stated there are four phases of learning adults work through. These phases are concrete experiences, reflective observation, abstract conceptualization, and active experimentation and can be seen in Figure 2.2 below.

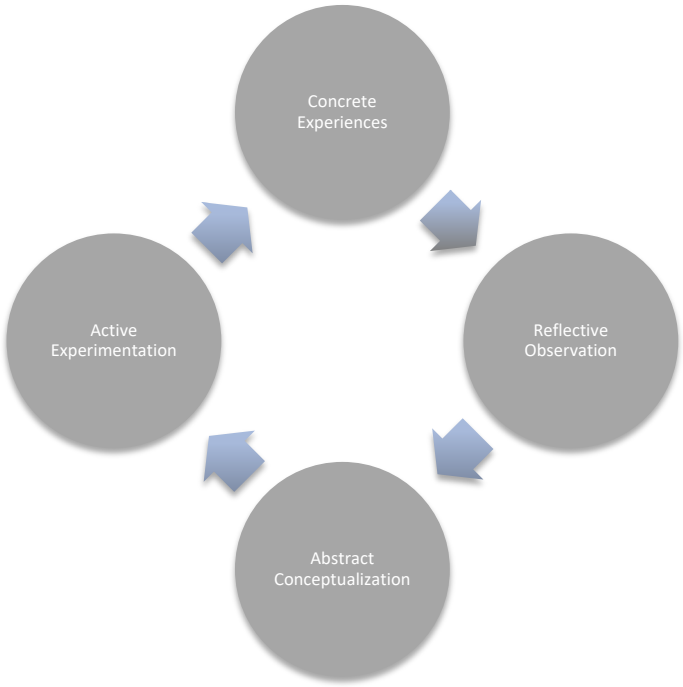

Figure 2.2. Experiential Learning Cycle (Kolb, 2013)

This theory provides the framework for the beginning of my research study. It has been used over the years to support educational learning in adults and in students. Jenkins and Clarke (2017) used this theory to demonstrate learning by use of journaling with students. Additionally, Dernova (2015) found in his study of learning theories that adults learn best through experiences and reflection as modeled in Kolb's ELT. Many educators are learning to use technology in their classrooms (Doering et al., 2014; Khosrow-Pour, 2014; Preble, 2015). Some have been using technology for years, while others are just learning the intricacies of the system itself (Heath, 2017). David Kolb's (1981) explanation of adult learning is well suited to my study. It demonstrates that teachers must experience their learning (Jose, Patrick, & Moseley, 2017). They can experience it in a variety of ways through professional development opportunities, self-teaching, or even through classes taken independently. Then, through educator's experiences, they are able to gain a deeper understanding of the concept (Jose, Patrick, & Moseley, 2017). As educators learn about technology and its usefulness in their classrooms, they are better able to integrate it into their lessons and everyday activities (Kolb, 1981). This, in turn, establishes a framework for the students to learn and master the use of technology as well (Vygotsky & Kozulin, 2011).

The second theory that frames my research study is social constructivism. Lev Vygotsky is one of the authors of this theory. His work on child development and learning is best organized though a concept he created called the zone of proximal development (ZPD) (Vygotsky & Kozulin, 2011). Wass and Golding (2014) stated in a recent study on Vygotsky's ZPD that students should be given assignments they cannot complete on their own, but rather with the assistance of others. Macy (2016) , in her research on student learning through drama, stated "the best learning occurs in the ZPD," (p. 312). To understand the ZPD, one must first understand how it is reached. The level of achievement that is reached by a student

independently is called the child's level of actual development. This is different than the ZPD. Vygotsky (2011) stated that the ZPD of a student is "the distance between the level of his actual development and the level of possible development," (p. 7). While a child is learning within this zone, he may be working with his peers or with the help of an adult. This is critical when looking at how technology is integrated into classrooms for the purpose of learning (Vygotsky & Kozulin, 2011).

Vygotsky's ZPD frames the first two sub-questions in my research study. The first sub-question sought to determine how educators described the strategies they used to enable students to learn to use technology successfully. This is an alternative view of technology, providing for educator's perceptions of their experiences in the classroom teaching their students how to utilize technology for the purpose of learning. An example of this is having teachers explain the process they use in teaching their students how to format and utilize the different components of iMovie or Google Slides. This question will provide educators the opportunity to describe how they are able to introduce new technology into their lessons so that students begin to understand the implications of its use for the purpose of learning. This is the beginning of scaffolding as initiated by Vygotsky (Shabani et al., 2010).

My second sub-question was also reflected in Vygotsky's work on ZPD. It asked how elementary teachers describe their students' exploration of digital technology usage in the classroom. This question allowed my participants to describe how their students were using digital technology in their classrooms. This is a representation of Vygotsky's second and third levels in his ZPD (Vygotsky, 1978). Vygotsky (1978) stated that through small steps initiated by the educator, students are able to understand the concepts.

As a student develops and learns new material he passes through each of these zones. These zones are like circles laid on top of each other. The largest circle is what a student does

not know. The middle circle is an example of the student learning new material with the help of peers or the teacher (Vygotsky, 1978). This is the heart of learning and where educators spend the majority of their time. The smallest circle is where the student has mastered the concept. As students master the information in the lesson, or the concept being taught, they are able to utilize the technology independently and continue to deepen their understanding of the material and the technology. At this point, students are able to teach others in the classroom. They have become masters of the concept being demonstrated. In a recent study, Alabdulaziz and Higgins (2017) looked at students using technology to understand difficult math concepts. They based their study on Vygotsky's constructivist theory and his zone of proximal development. They found that students using technology were able to move through all three levels of the ZPD and fully understand the concepts presented (Alabdulaziz & Higgins, 2017). The figure below represents Vygotsky's zone of proximal development.

Figure 2.3. Vygotsky's zone of proximal development (Vygotsky & Kozulin, 2011)

Related Literature

Technology is everywhere. It is in homes, at workplaces, and in schools. In today's schools, students and teachers are demonstrating their understanding of new technologies and implementing this new knowledge in groundbreaking ways (Carver, 2016; Doering et al., 2014). In the last 20 years, technology has taken center stage in the classroom, enabling students to learn in new and exciting ways (Chung, Cartwright, & Cole, 2014; Gran et al., 2015). This movement towards the integration of technology in the classroom began with the 2001 No Child Left Behind Act, establishing technology standards in the classroom (Davidson et al., 2014).

Legislation

In 2001, the United States government signed into action the No Child Left Behind Act (NCLB) (U.S. Department of Education; 2010). This law was a major shift in educational policy. NCLB set out to create a system of standards and assessments that public schools across the country would be required to adhere to in order to receive federal money (Contino, 2013; Davidson et al., 2014; Devlin et al., 2013; Nepo, 2017; Ravich, 2014; Tutt, 2014; Wang, Gushta, & The Society for Research on Educational Effectiveness, 2013). One of the requirements instituted through this law was the implementation of technology into the classroom (Davidson et al., 2014).

NCLB requires that all schools implement technology in the classroom. This is established through educators mastering four targeted areas (Davidson et al., 2014; Wang et al., 2013). The four targeted areas are Teaching and Learning, Educator Preparation and Development, Administration and Support Services, and Infrastructure for Technology (Davidson et at., 2014). The hope was that by mastering these four goals, as seen in Figure 2.4, educators would be able to smoothly integrate technology into their classrooms (Devlin, et al., 2013).

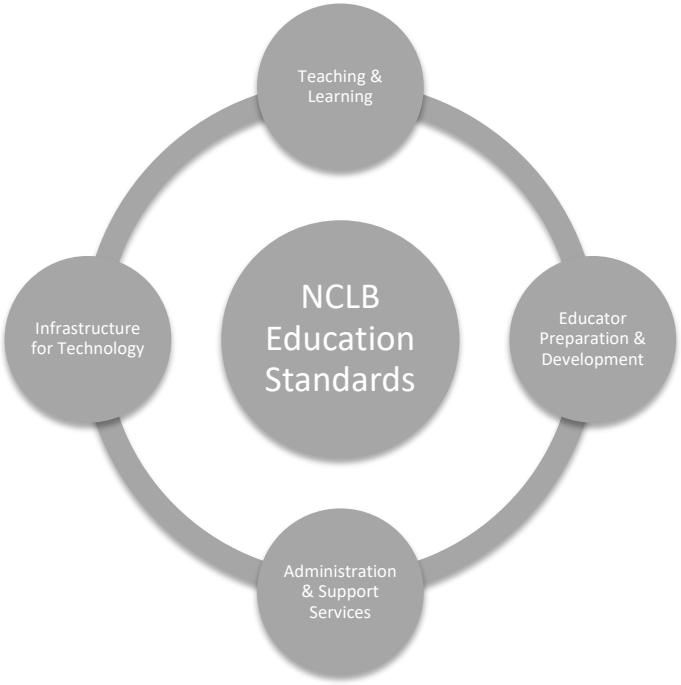

Figure 2.4 NCLB Technology Standards (Davidson et al., 2014)

Once technology was integrated into the classroom, it was believed that student achievement would increase. Through technology integration, students would learn to think outside of the box (Ravich, 2014). They would learn to not only understand what was being taught but begin to seek out opportunities to further their interests and make education more self-directed (Ravich, 2014). This would be evidenced by more student-centered learning activities where students were determining the depth of their research and the direction of the research. For example, though a teacher may assign students to research a particular topic within the American Revolution, she may only give students the skeleton of the learning constructs. As the students begin to complete their own research, they may become interested in particular aspects of the assignment and go further in the research to better understand what they are interested in. This is self-directed learning (Ravich, 2014). The student has taken ownership of the learning and is reaching out to understand information independently.

Since 2001, NCLB has undergone several changes. By 2015, it was changed to the Every Student Succeeds Act (ESSA) (Every Student Succeeds Act: Federal Elementary and Secondary Education Policy, 2017). There were only a few changes made to the new act and no changes were made in reference to technology implementation in the classroom. One change in ESSA that NCLB did not have is this revised education act allows individual states to modify, or change, academic standards for students who have severe cognitive disabilities (Nepo, 2017). This allows for differentiation for students who are severely disabled and do not have the cognitive ability to master the same academic standards as their same age peers (Nepo, 2017). Another change established with the revised education act allows states to determine the best way in which to conduct the yearly assessments necessary to prove academic achievement (Nepo, 2017). In Texas, this is the State of Texas Assessment of Academic Readiness (STAAR) (Texas Education Agency, 2018).

Title I Schools

In 1965 the United States government established the Elementary and Secondary Education Act (U.S. Department of Education, 2010). This piece of legislation laid out provisions for every student to receive a quality education. This was accomplished through the designation of Title I schools. Because public education is as diverse as the students it serves, this piece of legislation sets out to balance the scales in order for every student to receive the same valuable education regardless of their economic disposition (Adams, 2014).

There are students from affluent neighborhoods who attend public schools as well as students who are living below the poverty line. Sometimes these students attend the same school and other times they attend different schools. School populations are driven by zoning lines laid out by individual cities. These lines are drawn in neighborhoods in an effort to keep elementary schools close to its student population. Therefore, students can come to a single school from

diverse socioeconomic backgrounds. Title I schools are defined as those schools that serve a population of students who live at a low socioeconomic level (Adams, 2014). To be designated a Title I school, at least 40% of the student population attending the school must receive a free or reduced lunch (Adams, 2014; James 2014; Ostayan, 2016).

The purpose of the Title I designation is to allow federal dollars to help narrow the achievement gap (Adams, 2014; Butler & Votteler, 2016; James, 2016; James, 2014; Parker, Abel, & Denisove, 2015; Parsons, Malloy, Parsons, & Burrowbridge, 2015; Suppes et al., 2013). There are several ways schools can focus on closing this gap in education. James (2014) stated a student's ability to learn to read has a long-term effect on his ability to achieve academic and economic success in his lifetime. Technology integration in the classroom can aide in this process of learning to read and reading for understanding. James (2014) studied the integration of a computerized reading program in a third grade Title I classroom. Her research implied the use of technology had a positive effect on English Language Learners (ELL) average oral reading fluency scores (James, 2014). This example demonstrates the importance of technology integration in a Title I school. These programs can assist elementary schools in meeting literacy goals for all learners because of the individualized programs available due to the technology available (James, 2014).

Literacy coaches are noticing that when educators are training in technology instructional practices, they are able to utilize these skills to bridge the gap with which some of their students come to school (Edwards et al., 2015; James, 2014; Parker et al., 2015). Suppes et al. (2013) demonstrated in their research study the more students worked carefully and in a sustained manner on assignments that were technologically driven, the higher the students' scores were on their math assessment. They believed there were several reasons for this improvement. First, through the use of technology, students were given immediate feedback on their progress

(Suppes, 2013). Second, if a student gave an incorrect answer, the computer program provided concrete hints to help the student get to the correct answer without actually giving the student the correct answer (Suppes, 2013). Finally, students were given an individualized course (Suppes, 2013). The computer software developed a unique program for each student. This enabled students to work at their own cognitive level and increase understanding at their own learning rate (Suppes, 2013). This is particularly critical because students do not learn at the same rate on every concept. Utilizing this technology enables educators to create individualized learning goals for each of their students. This is just one example that demonstrates the importance of technology integration in the classroom.

Technology Integration in K-12 schools

Because of the NCLB Act, and more recently, the ESSA, educators are expected to integrate technology in their classrooms. Several questions arise because of this expectation. The most important questions that arise are how to integrate technology in the classroom and what resources are the most appropriate at each level. This is especially important when focusing technology integration in Title I schools (Urban & Falvo, 2016). There is much research demonstrating the benefits of technology integration in the classroom (Doering et al., 2014; Khosrow-Pour, 2014; Preble, 2015; Urban & Falvo, 2016). One of the most stated benefits of this integration is the access technology provides to real world activities for students across all grade levels (Doering et al., 2014; Preble, 2015; Urban & Falvo, 2016). Urban and Falvo (2016) stated in their research study that students need this exposure in elementary and middle school and not just at the high school level. These real-world activities provide students an opportunity to investigate issues as they are happening. They can watch video clips of the news in real time and gather updates around the clock because of the 24-hour news cycle. Because technology is global, students can connect with other students across the world to

investigate problems (Davis, Eickelmann, & Zaka, 2013; Jacobs, 2015). This opens up the ability to connect with cultures around the world and gain a deeper understanding of those in other climates and countries (Davis et al., 2013; Jacobs, 2015). Another benefit of technology integration is the fact that through technology, students are more engaged in their learning (Doering et al., 2014; Khosrow-Pour, 2014; Preble, 2015). This generation of students has grown up with technology in every aspect of their lives. Because students are using a learning tool they are comfortable with, they are more willing to work through their assignments and complete them. Students pay more attention to the assignments given and are more engaged in the learning process (Doering et al., 2014).

Technology benefits educators as well as students. Current research indicates that most educators believe technology integration enhances their students' learning experiences (Doering et al., 2014; Urban & Falvo, 2016). It is important for educators to believe that the tools they are using in the classroom are enabling their students to become more successful. One of the biggest benefits technology integration has given to educators is the ability to reach all of their students where they are performing (Braisel et al., 2016; Davis et al., 2013; Doering et al., 2014; Jacobs, 2015; Khosrow-Pour, 2014). Educators reported the ability to work in small groups more effectively, enabling students who were struggling to get the information they needed at a level they understood (Jacobs, 2015). This speaks directly to the new standards established in ESSA (Nepo, 2017). He goes on to say, "the law requires multiple measures of assessment that can be in a form of portfolios or projects. Thus, students' progress will be measured more accurately. Additionally, ESSA emphasizes evidence-based teaching strategies to promote better student outcomes..." (Nepo, p. 211, 2017). Technology integration could also enable those students who are working above grade level to remain challenged at school (Jacobs, 2015). In this manner, all

students are receiving an education at their level and are challenged. No one is bored or left behind (Jacobs, 2015).

Though both teachers and students have made some amazing strides in technology integration in the classroom, there are still some barriers that need to be faced and worked through. There are many educators in today's classrooms struggling with understanding technology and using it effectively to teach their students (Braisel et al., 2016; Davis et al., 2014; Doering et al., 2014; Khosrow-Pour, 2014). Urban and Falvo (2016) stated that classroom teachers may not be experts in computer technology and additionally, they may not have the free time to learn the various aspects of computer technology outside of the school environment. Teachers also report they do not receive enough training on new technologies and are not given the support they need when the technology breaks or is not working properly (Doering et al., 2014).

Though there is much research on technology integration, there is very little focusing specifically on elementary school students (Urban & Falvo, 2016). In concluding their study, they stated that future research needed to focus on how elementary and middle school students learn and become interested in technology. They go on to say, "these issues warrant further research in terms of how we envision teaching and learning, integrating STEM... as well as equipping students with 21st century skills," (Urban & Falvo, p. 18, 2016). This study will examine the current literature at all K-12 levels of education, narrowing its focus on the gap in the literature exposed at the elementary level.

Technology integration in high school. There has been a substantial amount of research on digital technology integration at the high school level. Many studies report positive outcomes when presented with technology integration in secondary classroom settings (Cho, 2017; George & Ogunniyi, 2016; Nowell, 2014; Robinson, 2016). Cho (2017) and Robinson (2016) both

report that technology integration improves student motivation. Additionally, Robinson (2016) stated that educators are feeling an increased demand to enable students to utilize technology in learning activities. This integration of technology is believed to increase student competency in their ability to analyze, interpret, and synthesize information they are learning (Robinson, 2016). Current research is showing that campuses utilizing 1:1 technology and Bring Your Own Device (BYOD) initiatives have had successful integration of digital technology on campuses (Cho, 2017). It is important to understand the use of the digital technology itself did not increase learning on the campus. Rather, it was the educators' ability to scaffold learning exercises so student achievement would be more individualized and increase learning (Robinson, 2016). Many of these same campuses reported in the research were previously using only classroom computers or computer labs (Cho, 2017). Cho (2017) went on to say in many cases, these campuses have had students develop a clearer and deeper understanding of the material being taught in the classroom because they had access to the digital devices. This again is related to the educators' ability to utilize technology to enhance student learning over just providing a digital device to complete tasks (Robinson, 2016).

It is much easier to begin technology implementation at the high school level. Students are older and are getting ready to graduate and move on to college or careers. They will need the 21st century skills technology has to offer to be successful (Nowell, 2014). There is, however, a slower uptake to teach with digital technology by the teachers who are in the classrooms with these secondary students (Cho, 2017; Rust, 2017). This is primarily due to the fact that many teachers are familiar with teaching in a more teacher-centered format and have not merged their pedagogy with the technology available in most schools today (Rust, 2017). Again, this fact addresses the enormous impact educators have in implementing technology effectively in the classroom.

Educators are the key to successful implementation of technology in the classroom (Cho, 2017; George & Ogunniyi, 2016; Rust, 2017; Nowell, 2014). There are many activities and learning opportunities that take place in high schools across the country when educators introduce digital technology into the classroom. Some examples of the learning activities that can be achieved through the use of digital technology are as simple as web searches and Google docs (Cho, 2017). Activities can become more complicated and developed with experience and include building online classroom communities and student designed websites (Cho, 2017). With the introduction of digital technology, the learning environment in the classroom becomes more student-centered and project based (Nowell, 2014; Robinson, 2016). This is a new way of looking at teaching that many educators are still working to achieve.

At the high school level, there is a positive correlation between technology integration and student achievement (Robinson, 2016). In a study conducted by Robinson (2016), e-books allowed students and teachers access to the curriculum regardless of where they were. This positively impacted student learning and engagement. Also, with the use of e-books, information could be modified and adjusted to the needs of the student. For example, if a student could not read the grade level material, he or she could receive the same text as an audio book. When students take an active role in their learning, they become more invested in the outcome and are more motivated to do their best work (Nowell, 2014). Both of these examples demonstrate the positive correlation between technology integration and student achievement. With technology advancements, students and teachers are able to work together to learn and create whether it be short-term assignments or longer-term projects (George & Ogunniyi, 2016). Working together, both teachers and high school students are learning and utilizing the strengths of all.

Technology integration in middle school. Many of the same advantages noted in the high school research are also being seen in middle school classroom. Much research has been

conducted on 1:1 classrooms and 1:1 schools (Peled et al., 2015; Wetzel & Marshall, 2012). A 1:1 school or classroom is defined as each student being provided their own digital device for learning (Downes & Bishop, 2015). This is usually provided to the students by the school district. However, each student is responsible for bringing this device to school each day. The educators and the students work together, in many cases, to incorporate technology into all daily lessons and homework (Peled et al., 2015; Wetzel & Marshall, 2012). There have also been significant studies conducted on technology integration in subject specific settings (Alsaeed, 2017; Sen & Ay, 2017). In analyzing these studies for commonalities several outcomes become significant. Alsaeed (2017) found in his study of nine middle school algebra teachers that teachers were willing to use technology, but it was mostly isolated to classroom activities. This was due to not all students having access to the Internet at home. Most of the teachers in this study agreed that having digital technology access in the algebra class allowed students to better understand the concepts being presented and let the students master concepts at their own pace (Alsaeed, 2017). In another study, completed by Sen and Ay (2017), the researchers found that middle school mathematics teachers wanted to include technology in their lessons, but lacked the necessary training to implement it effectively. The study looked at seven separate categories and found that educators believed technology integration would save them time and facilitate teaching (Sen & Ay, 2017). It was also believed it would enable better visualization of concepts being taught (Sen & Ay, 2017). Technology integration would allow students to utilize different materials than those used in a traditional classroom as well as provide students an opportunity to learn concepts outside of the traditional classroom model (Sen & Ay, 2017). One negative outcome of technology integration this research found was some schools and classrooms lacked the infrastructure to make technology integration successful (Sen & Ay, 2017). Ultimately, this research found, when the proper training was available, educators were able to transfer their

information to students. In turn, these same students were able to more fully grasp geometric concepts as well as integrate their learning in the classroom into real life scenarios (Sen & Ay, 2017).

Students are using technology to research and complete assignments and collaborate with each other (Alsaeed, 2017; Andrei, 2017; Sen & Ay, 2017; Wetzel & Marshall, 2012). These assignments may be independent assignments, group assignments, or homework assignments. Alsaeed (2017) stated the most important advantage of technology integration is access to the Internet, which enables students to work at their own pace and allows educators to differentiate instruction. Allowing students to work at their own pace enables those students who already know material to advance further than they might in a more traditional classroom. It also allows those students who need more reinforcement with difficult concepts to master the material before being asked to learn something new. This utilization of technology is seen as an overall advantage at the middle school level.

Educators, themselves, report many advantages to technology integration at the middle school level. They are able to incorporate technology into their lessons to be used as a tool for the students (Wetzel & Marshall, 2012). This can be accomplished through the use of word processing or presentation applications. Students can collaborate with each other, while on different devices, or at different times using many types of software. This frees students to work independently when they have the time, but still collaborate with classmates on the final product (Wetzel & Marshall, 2012). Educators are also able to utilize technology to teach lessons themselves and provide a deeper understanding and visual representation to more abstract ideas than they were before (Sen & Ay, 2017). Most specifically, educators are able to utilize video and presentation software to enable a more visual experience for the learners in their classrooms (Peled et al., 2015; Sen & Ay, 2017). For example, when introducing a new concept, educators

utilize video to enhance presentations. These videos provide both visual and auditory stimulus for students who are used to accessing information in the same way at home through gaming devices or tablets. Educators in one study reported technology integration has advanced students through Vygotsky's ZPD through the use of online learning tools initiated by the educator and/or more advanced peers (Peled et al., 2015). Online learning tools are those programs and websites that provide opportunities to better understand or review concepts introduced in the classroom. However, in order for technology integration to be successful, educators must be willing to establish using it as a routine in the classroom.

In synthesizing the research on middle school technology integration, one remark continues to surface. Technology cannot change the pedagogical beliefs of the teachers in and by itself (Alsaeed, 2017; Andrei, 2017; Peled et al, 2015; Sen & Ay, 2017; Wetzel & Marshall, 2012). Educators report they need support and community building in order to incorporate technology into the curriculum in such a way as to make education more student-centered and less teacher-centered (Kostaris et al., 2017; Wetzel & Marshall, 2012). Sen and Ay (2017) reported similar findings in their research when they reported that educators need to see the importance and value of integrating technology into their classrooms and not just be told it must be done. Finally, in their 1:1 computing study in a junior high school, Peled et al., (2015) noted that even after three years of using 1:1 technology in the classroom, only a small minority of the educators had changed their pedagogical stance and had embraced a more student-centered learning approach to teaching. Research indicates that more training and time must be spent on the focus of technology integration in the classroom, its purposes, and why it is a valuable tool to use.

Technology integration in the elementary school. There is very little research being conducted on elementary technology integration in the classroom. There has been research

conducted on the integration of e-books, tablets, and Information and Communication Technology (ICT) in the classroom (Blau & Shamir-Inbal, 2016; Karalar & Sidekli, 2017; Lai, 2016). Regardless of the type of technology integration being conducted, current research suggests today's students need to learn the skills necessary to access information quickly to stay up to date with the speed of technology (Blau & Shamir-Inbal, 2016; Karalar & Sidekli, 2017; McQuirter & Meeussen, 2017; Yenmez, 2017). Blau and Shamir-Inbal (2016) stated "Integration of new technologies is a complex process of cultural and behavioral adaptations." (p. 782). This is true at the elementary level where many technology skills are introduced for the first time and are beginning to be mastered by the students.

The focus of research on elementary technology integration seems to be determining what type of technology integration would work best for students and teachers at the elementary level. Karalar and Sidekli (2017) found students as young as second grade were ready to implement digital tablets into the school day. Many students utilize this same device at home and understand the basics of its operation (Karalar & Sidekli, 2017). The focus for educators would need to be to show their students how to use this same device they play with at home as a learning tool in the classroom (Karalar & Sidekli, 2017). For example, many students, even at the elementary level, have access to tablets or phones with Internet access. They may play games on these devices or utilize the Internet to search answers to questions they have. Educators can teach their students how to use search engines more intelligently, utilizing key words or smart search tools. Additionally, these same teachers can introduce apps to their students that look like games but are actually produced to enable students to review concepts already introduced. Other research studies have found technology integration of various types can be successfully implemented with training and classroom management (Blau & Shamir-Inbal, 2016; McQuirter & Meeussen, 2017; Yenmez, 2017). McQuirter and Meeussen (2017)

identified six steps educators can implement to integrate technology successfully into the elementary classroom. These steps are (1) to provide precise training in metacognitive approaches, (2) to provide positive student-teacher interactions, (3) to establish longer and sustained teacher interventions, (4) to allow teachers to have small group teaching sessions in classrooms, (5) create a strong motivation for learning in the classroom, and (6) for educators to have a high level of classroom organization (McQuirter and Meeussen, 2017). This process is not easy and takes a significant amount of initial classroom time (McQuirter & Meeussen, 2017). However, all of these steps lead to students becoming more successful with technology and teachers adapting their pedagogical beliefs to enable this success (McQuirter & Meeussen, 2017). This research study demonstrates the positive effects of digital technology integration at the elementary level.

Just as earlier research has indicated, elementary teachers also require extensive training and professional development to successfully implement digital technology into their classrooms (Blau & Shamir-Inbal, 2016; McQuirter & Meeussen, 2017). Before educators can be expected to teach their students about technology, they themselves need to know and understand how to manage the digital products. Research indicates educators do not need to master the technology, but instead must feel comfortable with the technology in order to use it in the classroom (Blau & Shamir-Inbal, 2016). This is significant. Many times, educators believe they must master new technologies themselves prior to introducing it to their classrooms (Blau & Shamir-Inbal, 2016). However, with training, educators can begin to let go of the notion of teacher-centered instruction and begin to change the focus of the classroom to a more student-centered learning environment (McQuirter & Meeussen, 2017). This is the goal of many educators as they seek to develop their students' skills and teach the concepts that must be mastered each year.

Unfortunately, many teachers that have great ideas and want to work with technology are faced with barriers that seem insurmountable at times.

Barriers to Technology Integration

There is much research on the barriers to technology integration in K-12 schools. It seems everyone has a reason why the school or the district is not able to integrate technology successfully. These barriers can be broken down into two types: first-order barriers and second-order barriers (Heath, 2017). First order-barriers are those that are school and district wide barriers. These include a lack of devices, a lack of professional development, technical support, and time to implement the technology (Cho, 2017; Crompton et al., 2016; George & Ogunniyi, 2016; Grant et al., 2015; Heath, 2017; Robinson, 2016; Rust, 2017; Topper & Lancaster, 2013).

For some schools, there are simply not enough computers for all students to have access when needed. They may need to share with other classrooms or grade levels. Additionally, the number of students in each classroom may hinder the access to technology for students, especially 1:1 technology. This can lead to teachers simply choosing not to utilize the technology because it is so difficult to schedule time for their use (Cho, 2017). Other educators find that though they have the technology available, they do not know how to utilize it in the classroom to benefit their students (Cho, 2017). They may have been given professional development at the beginning of the year on new software available but not had the time to develop the skills to utilize it. This barrier can also be manifested when educators are given so much information at one time they are not able to disseminate it effectively for their own use. Cho (2017) stated the main reason their 1:1 initiative was successful was because the teachers had unlimited access to technical support. They had personnel on their campuses that could address any issues as they arose. In many schools, this is not the case. The last barrier, the lack of time to implement technology is reflected in many research studies. Crompton et al. (2016)

stated, “The findings in this study indicate that technology was most effective when educators had access to technology, time, teacher technology training, effective curriculum, and supportive administrators,” (p. 484). They go on to say that educators must have time to process new information and practice the technology on their own before implementing this technology successfully in the classroom.

Schools and school districts have tried a variety of ways to decrease these barriers so teachers can be more successful in implementing and teaching technology in the classroom. Many districts have invested heavily in mobile devices to support 1:1 initiatives, while other districts are implementing BYOD procedures at the middle and high school levels (Crompton et al., 2016; Grant et al., 2015; Topper & Lancaster, 2013). It is evident from the research, schools are attempting to provide professional development for teachers (Crompton et al., 2016; Grant et al., 2015; Heath, 2017; Topper & Lancaster, 2013). However, it is also apparent from the literature that these efforts are not sufficient to increase technology integration successfully (Grant et al., 2015; Heath, 2017). Though professional development is being given to educators, they are not feeling as if they have the knowledge required to successfully implement the technology on a consistent basis. This leads to the second type of barrier teachers must overcome to successfully integrate technology in schools.

Besides equipment, professional development, and support educators also feel a need to have more time (Crompton et al., 2016; Grant et al., 2015; Heath, 2017; Topper & Lancaster, 2013). The time they need is for a variety of reasons. Educators want more time to learn the systems, to research ideas and implementation strategies, as well as time to plan lessons and prepare for their students (Crompton et al., 2016; Grant et al., 2015; Heath, 2017; Topper & Lancaster, 2013). Overall, the research has indicated educators feel they are not getting the support they need to be successful when attempting to integrate technology into their lessons and

student activities (Cho, 2017; Crompton et al., 2016; George & Ogunniyi, 2016; Grant et al., 2015; Heath, 2017; Robinson, 2016; Rust, 2017; Topper & Lancaster, 2013). This is specifically relevant when looking at the amount of time educators are given to integrate new technologies.

Second-order barriers are more focused on the educators themselves. Examples of these second-order barriers are pedagogical beliefs and negative experiences with first-order barriers (Heath, 2017). These barriers can hinder educators from stepping into new ideas with technology integration. Some educators believe the way they have been teaching has been successful, and so they do not see the need to change (George & Ogunniyi, 2016; Heath, 2017). This is especially true of veteran teachers who have been in their positions for more than five years (George & Ogunniyi, 2016; Heath, 2017). Other educators may have tried new ideas only to be unsuccessful, or have the technology fail at a critical moment (George & Ogunniyi, 2016; Heath, 2017; Robinson, 2016). This occurrence can be just as big a hindrance as a teacher's beliefs. Each of these barriers can slow the pace of technology integration in the classroom or impede educators from ever trying to implement it in the first place.

Ultimately, most educators desire to implement technology into their classrooms (Heath, 2017). They believe it is important and desire for their students to experience it. However, many still finally fall victim to just giving up on its integration. This is because they have reached what Heath (2017) calls a "barrier threshold". Heath (2017) stated, "barrier threshold refers to the point at which barriers prevent technology integration, despite deeply held beliefs about the power of technology in education," (p. 102). This happens when, after trying and implementing technology, these educators continue to come against walls stopping them.

A final classification of barriers to technology integration is bureaucratic and equipment barriers. These can derail even the most devoted educator. Some examples of bureaucratic and equipment barriers are having outdated devices, having no support in configuring devices, the

district not providing access to reliable Wi-Fi connections, the school's Wi-Fi not having the bandwidth to support the devices, school firewalls that block many sites educators feel are needed, and lack of content specific software (Heath, 2017; Topper & Lancaster, 2013). All of these barriers must be overcome in order for lasting technology integration to be successful and build a teacher's perception of the value of technology integration in the classroom.

Teacher Perception of Digital Technology

Teachers have many thoughts on the implementation of technology into their classrooms. In looking at the research, one idea stands out very clearly. Teachers want their students to be successful with new technology and are excited when their students experience positive outcomes to their hard work (Basilotta Gómez-Pablos et al., 2017; Beach, 2017; Ruggiero & Mong, 2015; Varier, Dumke, Abrams, Conklin, Barnes, & Hoover, 2017; Williams & Otrel-Cass, 2017). The heart of teaching is seeing students succeed. Teachers desire and anticipate those moments when their students finally grasp a new concept or understand something that was previously holding them back. When an educator is able to teach his students new concepts and then they, in turn, comprehend those same concepts, educators know they have been successful. Teachers are particularly excited when students are able to investigate ideas on their own and take ownership of their own learning (Ruggiero & Mong, 2015; Varier et al., 2017). Ruggiero and Mong (2015) stated in their research study the use of digital technology affects the atmosphere of the classroom and enables educators to restructure their lessons based on the students' needs. This is what education is all about.

Educators also perceive some benefits for themselves when integrating technology. Teachers reflecting on their own pedagogy and teaching styles stood out as big ideas in the research on teacher perceptions (Basilotta Gómez-Pablos et al., 2017; Dorfman, 2016; Ruggiero & Mong, 2015; Varier et al., 2017; Williams & Otrel-Cass, 2017). When teachers examined

reasons why they were hesitant to initiate change, they found it was primarily because they were holding on to their old teaching style and thus keeping themselves from embracing technology integration (Varier et al., 2017). For many teachers, changing to something new and letting go of methods they know work is very challenging (Varier et al., 2017). Teachers also notice as they allow technology integration into their classrooms, they become more of a facilitator in the classroom instead of standing at the front of the classroom lecturing to the students (Ruggiero & Mong, 2015; Varier et al., 2017). This is a change from a teacher-centered learning style to a more student-centered learning style. This can be very challenging for educators who have been in their positions for many years.

Technology should not be used to for its own sake. Ruggiero and Mong (2015) found after initiating technology in the classroom, educators found the technology itself should not be the lesson. Rather, educators believe the use of digital technology in the classroom should enhance the learning already taking place in the classroom (Ruggiero & Mong, 2015). It should enable the learning to become deeper and allow the students to take the concepts to a higher level of understanding, but it should not be the object of the lesson. If technology can enhance the lesson, it should be used. However, if it does not enhance the lesson, it should be left out (Ruggiero & Mong, 2015).

There are some concerns educators are sharing in the research. Teachers are concerned about the types of technology software and hardware that have been invested in by school district for their schools (Basilotta Gómez-Pablos et al., 2017; Beach, 2017; Dorfman, 2016; Ruggiero & Mong, 2015; Varier et al., 2017). This was reported in the above section on barriers. In some schools, educators do not have any control over the software purchased (Dorfman, 2016). This causes some teachers to be reticent to comply with the request to integrate technology into their curriculum. Because they feel they do not have any power to determine the software packages

purchased, they have no "buy in" for using it (Dorfman, 2016). The software package is just one more thing the district has available but is never used. This concern was repeated in several studies (Basilotta Gómez-Pablos et al., 2017; Beach, 2017; Dorfman, 2016; Ruggiero & Mong, 2015; Varier et al., 2017). It is difficult to integrate technology if educators are given limited software resources and have no voice in determining what software packages would work best for their specific classrooms and students.

Another concern is that technology implementation requires much time from the teachers (da Cunha, van Oers, & Kontopodis, 2016; Dorfman, 2016; Kladder, 2016; Varier et al., 2017). Time is required for the educators to learn the technology, plan the lesson, and finally time for the students to learn the skills necessary to successfully use the technology provided in the school. This is especially true of elementary school teachers who have students still working to learn fine motor skills. Even with all of these obstacles, overall teachers perceive technology integration as a positive tool to increase student learning in the classroom (da Cunha, van Oers, & Kontopodis, 2016; Dorfman, 2016; Kladder, 2016; Varier et al., 2017).

Teacher Training/Professional Development in Technology Integration

Within the research, one point continues to be brought to the surface. For technology integration to be successful, educators must be trained well in how to accomplish this integration (Bakir, 2016; Kim, Xie, & Cheng, 2017; Phu & Fade, 2014; Shih-Hsiung, Hsien-Chang, & Yu-Ting, 2015; Wright, 2017; Xie, Kim, Cheng, & Luthy, 2017). However, very little research has been conducted that demonstrates a positive impact on teacher training and technology integration. Most studies indicate if educators are getting training, it is not effective, or they are not getting training, but are still being asked to integrate available technology (Phu & Fade, 2014; Wright, 2017). Those studies that do demonstrate a positive relationship between the teacher training and technology integration mention that in order for the training to be effective,

teachers must have the time and opportunity to be hands-on with the technology (Bakir, 2016; Kim et al., 2017; Shih-Hsiung et al., 2015; Xie et al., 2017). This means in addition to the time needed for the training, educators need additional time to practice hands-on learning themselves in order to incorporate the technology effectively into their lessons and classrooms (Bakir, 2016; Kim et al., 2017; Shih-Hsiung et al., 2015; Xie et al., 2017). Another fundamental aspect of professional development with technology integration is the teacher's ability to collaborate with his or her peers (Bakir, 2016; Kim et al., 2017; Shih-Hsiung et al., 2015; Wright, 2017). Given time to work with other teachers seemed to really solidify the learning experience and enabled educators to see technology integration on a broader platform. Collaboration with other educators allowed for multiple application possibilities to unfold. Teachers were able to bounce ideas off of each other and discuss pros and cons of specific technology integration ideas (Bakir, 2016; Kim et al., 2017; Shih-Hsiung et al., 2015; Wright, 2017). A final thought expressed throughout the literature is educators begin to integrate technology more when they are given the time to practice what they learn and therefore utilize the information in the content area they are teaching (Bakir, 2016; Kim et al., 2017; Phu & Fade, 2014; Wright, 2017; Xie et al., 2017). Write (2017) stated in order for "teachers' technological expertise to grow, it must be in tandem with, not separate from, their pedagogical and subject content development" (p. 235). This application with technology seemed to make what the educators were learning in the training more concrete and gave them focused examples of how they could apply their information in the classroom on a daily basis.

One training model for teaching educators new technology concepts continued to be mentioned in the research. This training model was the Technological Pedagogical Content Knowledge (TPACK) model. The framework of this model provides a new way for educators to think and teach with technology (Wetzel & Marshall, 2012). Within the framework of this

model, technology is one component, but not the driving force (Wetzel & Marshall, 2012). Figure 2.5 below is a visual representation of the TPACK model. Pedagogical knowledge is all of the information an educator has learned including the doctrines and strategies learned for classroom management and organization (Wetzel & Marshall, 2012). Additionally, pedagogical knowledge encompasses the process of lesson planning and lesson implementation and an educator's teaching methods (Wetzel & Marshall, 2012). Content knowledge is another aspect of the TPACK model. This circle refers to all of the educator's knowledge of his or her subject matter including the curriculum (Wetzel & Marshall, 2012). Content knowledge and pedagogical knowledge intersect and allow for an educator to be successful in his or her teaching field (Wetzel & Marshall, 2012). The final circle of the TPACK model is technology. This circle includes information educators know and understand in the area of technology (Wetzel & Marshall, 2012). It also includes the skills educators must understand in order to teach their students how to use technology successfully in the classroom (Wetzel & Marshall, 2012).

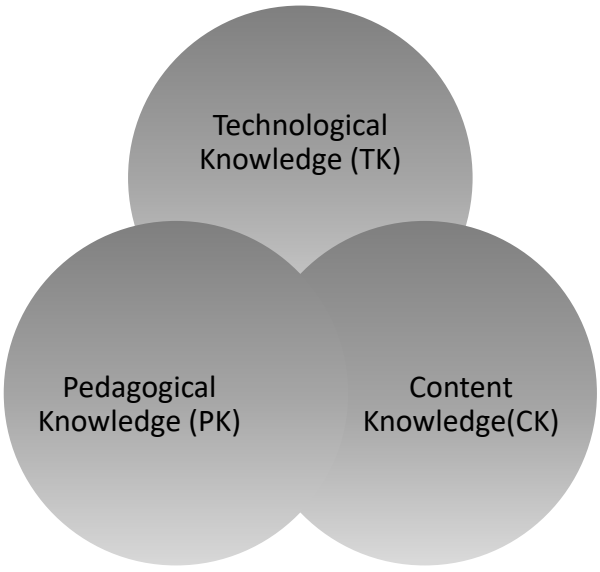

Figure 2.5. TPACK Model (Wetzel & Marshall, 2012).

Even though research has indicated that professional development is necessary for positive technology integration, several studies indicate educators are still not receiving the

training they need to be successful at technology integration (Phu & Fade, 2014; Xie et al., 2017). Some of the common phrases repeated in the literature are the training is not hands-on, it is not content appropriate, and the training that is provided emphasizes basic computer skills and not the necessary skills for technology integration (Phu & Fade, 2014; Shih-Hsiung et al., 2015; Wright, 2017). From this overall review, it is clear more research needs to be completed on training that is appropriate and produces positive results for technology integration in the classroom.

Teaching Students to Use Technology for the Purpose of Learning

Educators learning the technology applications and using them in the classroom is only the first step to technology integration. Technology is completely integrated when the students are accessing the technology and learning to use it to further their own understanding of concepts introduced in the classroom (Brahimi & Sarirete, 2015; Chung et al., 2014; Delgado et al., 2015; Gurung & Rutledge, 2014; Merchant, Goetz, Cifuentes, Keeney-Kennicutt, & Davis, 2014). This transfer of knowledge can be done in a variety of ways. Merchant et al. (2014) found students could use gaming to learn academic concepts. In fact, these same students demonstrated they learned material more thoroughly through the use of this type of structure (Merchant et al, 2014). The use of gaming in teaching and learning is used most often in a flipped classroom model (Brahimi & Sarirete, 2015). In a flipped classroom, students are allowed to navigate the instruction they need. Instruction is student-centered instead of teacher driven. Many times, they are able to build on initial concepts and learn concepts at a deeper level (Brahimi & Sarirete, 2015). This style encourages the students to explore and learn at their own pace and from their peers as well as their teacher (Brahimi & Sarirete, 2015). Another way that educators are transferring the information to students is through Science Technology Engineering and Mathematics (STEM) exercises and robotics competitions (Chung et al., 2014).

This form of technology integration allows students to learn formal concepts, but in a manner they can identify with and enjoy. Many times, this is through the use of robotics (Chung et al., 2014). Ultimately, educators are learning the most important part of technology integration is allowing their students opportunities to try it out and practice (Delgado et al., 2015; Gurung & Rutledge, 2014; Killeen, 2014; Merchant et al., 2014; Tate, Warschauer, & Abedi, 2016).

When students are given the time and practice to integrate technology into their lessons, their education becomes personal. They are learning skills needed not only for school, but also for the world awaiting them (Delgado et al., 2015; Gurung & Rutledge, 2014; Tate et al., 2016). In one study, technology integration was utilized fully by students to individualize their course of study (Gurung & Rutledge, 2014). Students were able to access classes online and complete work whether at school or at home. This autonomy enabled students to take ownership of their learning and it became more meaningful to each of them (Gurung & Rutledge, 2014). This process begins at the elementary level, where educators have the power to influence their students and guide their learning in a way they do not have as students mature (Karalar & Sidelki, 2017). It is important that educators seize this time, learn how to implement digital technology in the classroom, and enable their students to be successful as well (Brahimi & Sarirete, 2015). To not provide them the necessary skills needed, not only for later in school, but also for life, is setting these students up for disappointment later (Delgado et al., 2015; Gurung & Rutledge, 2014; Tate et al., 2016).

Summary

While reviewing the research for this study, it is evident there are many studies on technology in the K-12 schools. Numerous studies were found on technology integration in high schools as well as middle schools. However, as I began to search more specifically into elementary schools and specifically Title I elementary schools, much less became known. There

are few significant studies that focus on elementary technology integration or on Title I school technology integration.

This chapter focused on the theoretical framework for this study. The experiential learning theory, proposed by David Kolb (1981), and Vygotsky's zone of proximal development shaped the structure of this research (Vygotsky & Kozulin, 2011). These theories lend themselves to both the teachers learning to use technology through Kolb's (1981) experiential learning theory and the teaching of that same technology to the students. Educators must learn to use technology successfully to achieve their classroom goals in today's high-tech society. This last part, focusing on teaching technology to students, demonstrates Vygotsky's use of the zone of proximal development (Vygotsky & Kozulin, 2011). Students move through each zone as they become more comfortable with the technology integration being utilized in the classroom.

The literature focused on legislation involving technology integration. This included information on the No Child Left Behind Act, the Every Student Succeeds Act, and their significance in the development of technology integration in the K-12 school system. This was important because these pieces of legislation require schools to implement technology in all classrooms. Next, the literature synthesized the information on Title I schools in America. Because this research study focuses on Title I elementary schools, it is important to understand the components that make up this nationally funded program. These schools are set apart from the rest of public schools because of the specific indicators within the school that give them the distinction of a Title I school.

Within the literature, I began to focus more closely on technology integration in K-12 schools. I focused on the research studies completed on technology integration at the high school level and also at the middle school level. I then began to search for research studies providing information on technology integration at the elementary school level. It became

evident that less and less research had been completed in this area as I searched for information on elementary school technology integration. This study sought to fill the gap in the literature concerning the experiences of Title I elementary teachers use of digital technology in the classroom.

To successfully understand the literature available, it was important to look at technology integration on the large scale, throughout all K-12 schools. From this overall perspective, I then began to focus on specifically elementary schools. This information was reviewed to provide an understanding of the current status of technology integration in schools today. Next, the literature review discussed the barriers to technology integration. There were many barriers presented in the literature. These barriers were the training educators needed to learn new technology, the time these same educators needed to master the technology to utilize it in their classrooms, and individual teacher's pedagogical beliefs concerning the use of technology in the classroom. These barriers were presented across all K-12 grade levels. However, because this research focuses on elementary, these barriers will focus on the K-5 level.

The final sections of the literature review focused on the teacher's perceptions of technology integration in schools. Educators have the power to demonstrate positive relationships to technology integration in the classroom. However, throughout this literature review it was evident that educators needed to receive training to successfully integrate technology in the classroom. Lastly, this literature review focused on the students' learning and use of technology in the classroom. Educators must understand the importance of teaching their curriculum through the use of digital technology. Twenty-first century learners are moving quickly and need tools they can use throughout their education to enable comprehension and understanding of the material being presented. Teachers are at the heart of their students' understanding of technology and its use in their educational goals.

CHAPTER THREE: METHODS

Overview

According to the United States Department of Education (2010b), technology is at the very essence of everyday life. Students should be learning how to use technology to further their academics. In 2001, the United States government enacted the NCLB Act (U.S. Department of Education, 2010). This law included a provision for technology implementation in all public schools (Contino, 2013; Nepo, 2017; Tutt, 2014). Some of these requirements set out to improve academic achievement in students through the use of technology in all classrooms, to assist in eliminating the digital divide that seems to exist between various student groups, and to encourage effective technology integration through professional development opportunities for educators and curriculum development (Davidson et al., 2014).

This research aims to understand a subgroup of educators who have not yet been researched. Understanding the ways in which elementary Title I teachers learn to use technology and then teach their students how to use the same technology is valuable. Though not the only predictor of success, Harris et al. (2016) stated in their research this population of students usually scores in the bottom half of all standardized tests. However, in another study conducted by Butler and Votteler (2016), it can be understood that teachers working in these Title I schools were doing everything they could to reach their population of students and enable them to become successful. This group of teachers may have obstacles to technology integration that have not yet been researched or understood.

The purpose of this study is to describe the experiences of elementary Title I teachers use of digital technology in the classroom to increase student learning capacity. This chapter focuses on the design of the study, the research questions, the setting, and the participants in this investigation. The research procedures are reviewed as well as my role as the researcher.

Additionally, data collection procedures and how data is analyzed are reviewed. Data will be collected through teacher interviews, focus groups, and writing prompts. The collected data is analyzed following the steps Moustakas (1994) stated for completing a transcendental phenomenological research study. The final sections of this chapter discuss trustworthiness in the research as well as ethical considerations.

Design

In this study, I investigated elementary Title I teachers' perceptions of digital technology integration in the classroom through a transcendental phenomenological approach to qualitative research. A qualitative design is most appropriate to acquire deep, rich, and thick experiences of technology integration from elementary Title I teachers (Patton, 2015). Patton (2015) stated that qualitative inquiry analyzes how individuals construct meaning from their experiences. Because this research study sought to better understand the experiences educators have learning and using digital technology in the classroom, qualitative research was the most appropriate form of research.

In addition, Van Manen (1990) explained phenomenology as a reflective process that seeks to highlight the ideas and experiences of the participants. He goes on to say that the most basic aspect of a phenomenological approach is the reflection of the lived experiences of one's participants (Van Manen, 1990). It is the description of their experiences that manifests the purpose of everyday lived experiences of the participants and enables understanding of complex interactions (Van Manen, 1990).

A phenomenological study was the most appropriate form of qualitative study for this project because it seeks to understand the lived experiences of the participants. Patton explained the purpose of phenomenology when he stated that phenomenology seeks to explore how individuals make sense of their experiences (Patton, 2015). It is the lived experiences that set

this type of study apart from other forms of qualitative research (Patton, 2015). This research provides a deeper understanding of the lived experiences of these elementary Title I teachers as they learn and integrate technology into their classrooms.

I selected a transcendental phenomenological approach for this study because I knew I would need to bracket my own experiences of technology integration away from those experiences my participants shared. This is called epoche (Moustakas, 1994). Through epoche "we set aside our prejudgments, biases, and preconceived ideas about things" (Moustakas, 1994, p. 85). Moustakas (1994) further stated that "transcendental phenomenology aims to determine what an experience means for the persons who have had the experience and are able to provide a comprehensive description of it" (p. 13). By using a transcendental phenomenological design, I, as the researcher, was able to remain focused on the lived experiences of the teachers and not on my own interpretation of those experiences.

Transcendental phenomenology is supported by current research (Carver, 2016). Carver (2016) published a study on teacher perception of barriers to technology integration in K-12 schools. This investigation used data collection and analysis techniques aligned with a phenomenological research approach. The only way I was able to gather the data needed to answer my research questions and fill the gap in the research was to use a transcendental phenomenological approach.

Transcendental phenomenology involves the triangulation of multiple sources of data collection (Moustakas, 1994). It is the triangulation of this data that builds strong evidence to support a research problem. As I gathered my data and began to analyze it, themes became more apparent (Moustakas, 1994). These themes are a compilation of the data from multiple participants' experiences. In addition, to ensure that I used a transcendental approach, I kept a journal to bracket my own beliefs and opinions out of the study (Moustakas, 1994). This was an

important aspect of the transcendental phenomenological approach that was used to ensure it was the participant's beliefs and opinions that were being revealed in the research.

Research Questions

The following research questions guided this study:

Central Question: How do Title I elementary teachers in Central Texas describe their experiences using digital technology in the classroom?

Sub-Question 1: How do Title I elementary teachers in Central Texas describe the strategies they use to help students learn how to use digital technology successfully?

Sub-Question 2: How do Title I elementary teachers in Central Texas describe student's exploration of digital technology usage in the classroom?

Sub-Question 3: How do Title I elementary teachers in Central Texas describe the barriers they may encounter in implementing digital technology in the classroom?

Setting

This research was conducted at Clearview Independent School District (pseudonym), a large public school district in Central Texas. The district is situated between two large metropolitan areas in Central Texas. It covers 589 square miles and is one of the largest public school districts in Texas geographically, serving over 22,000 students each year (Graphiq, 2017). This site was chosen for the research study because of its size and location. Being a large district and covering a wide demographic area should provide deep, rich data on technology integration in multiple demographic areas throughout the district.

Clearview Independent School District is served by a superintendent of schools and a Board of Trustees. There are four high schools, seven middle schools, and 18 elementary schools. Of the 18 elementary schools, seven were designated as Title I schools within the district at the time of this research. These Title I elementary schools are spread throughout the

district and serve both urban and rural areas. The average size of these elementary schools was between 400 and 700 students at the time of this study. These seven elementary schools serve students in grades kindergarten through fifth grade (Graphiq, 2017). The student to teacher ratio in the Title I schools was between 14:1 and 18:1 with each school employing between 37 and 46 teachers (Graphiq, 2017). Information can be seen in the table below on specific demographics of each Title I elementary school.

Table 3.1

Title I Elementary School Demographics

Demographic	ES 1	ES 2	ES 3	ES 4	ES 5	ES 6	ES 7
Number of Students	516	422	551	729	698	594	437
Number of Teachers	34	30	40	46	46	34	27
Student to Teacher Ratio	15:1	14:1	14:1	16:1	15:1	18:1	16:1

Each elementary school was served by a principal and an assistant principal. Additionally, each school was aided by a Language Arts Classroom Instructional Coach (CIC) and a Math CIC. The CICs for each campus worked closely with the educators on campus to ensure all students were receiving the best instruction available. Finally, the district employed nine Instructional Technology Coaches (ITCs). The job of the ITC was to ensure that technology integration was happening at the district, school, and classroom level. These coaches provided training and technology related help to employees of the district when needed.

Participants

Participants were drawn from six Title I elementary schools: Adams Elementary School, Baker Elementary School, Clark Elementary School, Duke Elementary School, Eagle Elementary School, and Frank Elementary School (all names are pseudonyms). This study used

purposeful sampling, heterogeneity sampling, and snowball sampling to gain participants who met the criteria for the study. Purposeful sampling, as stated by Patton (2015) is "strategically selecting information-rich cases to study" (p. 13). Patton goes on to say this type of sampling provides for a more in-depth study (Patton, 2015). To begin purposeful sampling at individual elementary schools, I spoke with the ITCs for each of the Title I elementary schools in the district. Because they have a firm understanding of each of the schools they serve and the teachers at those schools, they were in the best position to know which teachers were using digital technology well in their classrooms. It was important to choose those participants with a rich history of technology integration in the classroom. Within purposeful sampling, I used heterogeneity sampling to allow for a wide variation of participants (Patton, 2015). Understanding technology integration in Title I elementary schools was important to select educators who were both male and female, those who had much experience teaching and those who only had a few years of experience, as well as those who utilized a variety of teaching styles. This provided validity to the study and focused the inquiry on technology integration. Finally, I used snowball sampling. Patton (2015) stated this type of sampling is started with one or a few participants who then lead the researcher to others who have the same perspectives creating a chain of participants based on people who know people. I believe this type of sampling provided participants who were using technology in the classroom most advantageously for themselves and their students. This provided deep and rich data collection on the research topic.

The criterion for participants was teachers who were teaching in a Title I elementary school within the Clearview Independent School District. Additionally, these same teachers must have been teaching for a minimum of three years. This was to ensure the participants had enough teaching experience to have a firm understanding of the curriculum being taught and

were able to adapt to technology innovations as they were introduced. A short online survey was given to prospective participants to ensure all of the criteria were met. The questions focused on specific demographic information about the participants. The items surveyed in this study were age, gender, ethnicity, education, teaching experience, and number of years taught. These questions were field tested and evaluated by educators not associated with the study to ensure correct wording and interpretation of the survey. The questionnaire was conducted in such a way as to allow for confidentiality among the participants. The survey can be viewed below in Table 3.2.

Table 3.2

Online Demographic questionnaire

Question	Rational for Question
1. What is your age?	Purposeful Sampling
2. What is your gender?	Purposeful Sampling
3. What is your ethnicity?	Purposeful Sampling
4. What teaching credentials do you currently hold?	Purposeful Sampling
5. What educational degrees have you attained?	Purposeful Sampling
6. What grade level do you teach?	Purposeful Sampling
7. How long have you been teaching?	Purposeful Sampling
8. What types of digital technology devices are you currently using in your classroom?	Purposeful Sampling

The sample size of this research included a maximum of 15 participants. To achieve a quality participant pool, I spoke with ITCs, CICs, and administrators at the individual Title I elementary schools. These individuals had the most contact with educators using technology in the classroom and therefore provided validity to the purpose for selecting the individual teachers.

Procedures

A pilot study was conducted prior to beginning the research for this study. As the researcher, it was important to test interview questions and practice interviewing techniques to secure quality data for analysis later, when completing the research study. The pilot study was conducted at the elementary school where I teach. I spoke with the ITC assigned to my campus, the CICs, and the two administrators at this school to determine who would be the best participants in this pilot study. When I had between five and ten participants I sought out opportunities to interview them and discuss their technology integration in the classroom. This process enabled me to gain experience in the interviewing process as well as allow for discussion of the interview questions to ensure the questions were eliciting the necessary data.

To officially begin this research study, I needed to first obtain IRB approval through Liberty University (see Appendix A). Once IRB approval was obtained, I sought permission from the district to conduct the study. This was accomplished through a meeting with the assistant superintendent of curriculum and academic services and a letter of explanation (see Appendix B). Once permission from the district was obtained (see Appendix C), I contacted the ITCs who serve the Title I schools in the district. These individuals usually cover four or five schools and have an overall idea of who is utilizing technology and learning new ways to implement digital technology in the classroom. After speaking to the ITCs, I spoke with the administrators of the individual campuses and the CICs on campus. Upon meeting with the administrators, I sought out consent to speak with the educators at their schools (see Appendix D). The administrators and CICs understand what is happening in the classroom on a day-to-day basis and have information as to which teachers should be asked to participate. They added validity to the study because of the information they provided and the experience they have in the schools. After speaking with the administrators and CICs and gaining permission to conduct

my research on their campus, I asked them to introduce me to the possible participants. A letter of introduction/recruitment was given to possible participants explaining the research study (see Appendix E). This allowed me to discuss my research study and explain the purpose behind it. If administrators were not willing to give me access to any of their educators, I worked to understand any problems they perceived. I met with them individually to answer any questions they had about my study and the purpose behind it. I explained the benefits of obtaining the research and what the information would do for them. Additionally, I explained my willingness to work around their schedules and accommodate any requests they made for their staff.

As soon as I obtained consent from individuals who were interested in participating in the study (see Appendix F), I had them complete the online survey. Once this was completed by a participant, I scheduled an interview. These interviews were conducted to gain an understanding of the experiences the participants had in learning to use digital technology in the classroom to increase student learning capacity (see Appendix G). Interviews were conducted at a convenient place for the participant and recorded using at least two recording devices to ensure a quality transcript. The interview was then transcribed by Temi, a software transcription service and me. Once a transcript was available, it was sent to the participant for member checking. This provided an opportunity for participants to review the information on the transcript, make any corrections, and clarify any points that needed to be added to the discussion. This increased validity and reliability of the data (Patton, 2015).

In addition to interviews, I held focus group meetings. These groups met in person. Generally, it is believed that focus groups allow for an enjoyable time between participants (Patton, 2015). Patton (2015) discussed several other strengths of focus group discussions. He stated that focus groups have the ability to highlight diverse perspectives (Patton, 2015). Additionally, interactions between participants enhance the quality of the data received and

reveal topics that are seemingly taboo (Patton, 2015). Finally, as the focus group interview unfolds, data analysis is revealed (Patton, 2015). All of these strengths together demonstrate the abundance of quality data that can be retrieved during a focus group meeting.

Each of the interview participants was asked to participate in one focus group discussion. During the focus group meeting, we discussed technology integration within the classroom. Collaboration amongst participants, in the focus group setting, engendered additional insight into digital technology usage, the training the participants received, and the challenges they faced. Focus group questions can be viewed in Appendix H.

Additional data was collected through writing prompts. These were collected throughout the study as participants completed them and were able to return them to me. There will be no monetary compensation offered to participants for taking part in this research study. A thank you card was sent to each participant at the conclusion of the study.

During the data collection process, I kept a journal to reflect on my own attitudes and opinions of the research. This was done to ensure I was bracketing out my own feelings from the data analysis in an attempt to keep the participants' views the focus of the research (Moustakas, 1994). Additionally, all information was kept on a password protected computer or in a locked filing cabinet. The figure below represents the process of gathering and analyzing data throughout the research process.

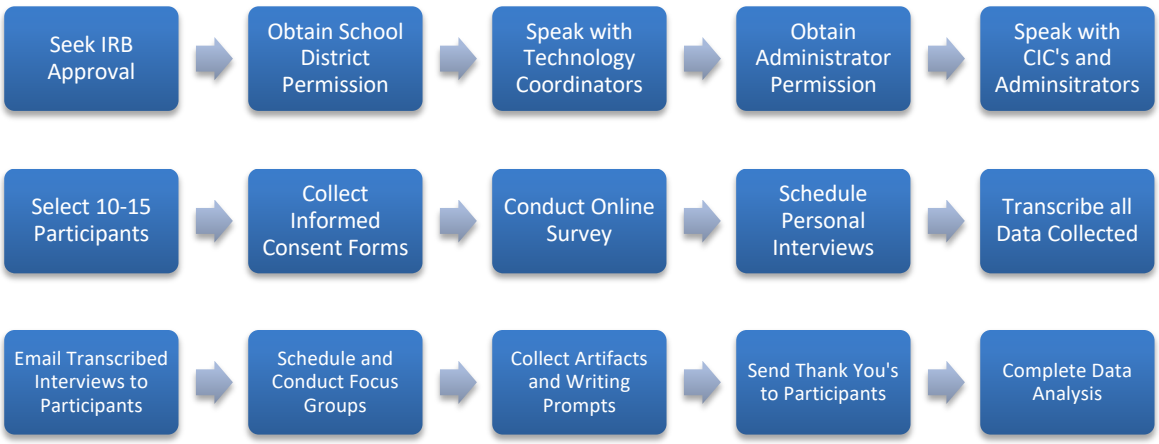

Figure 3.1. Phenomenological Research Procedures

The Researcher's Role

As the researcher, I hold an instrumental role in this research project. It is important to review my background experiences and understand what schema I already have on this subject because of my role as the researcher on this project. I received my bachelor's degree in elementary and special education from Sul Ross State University and my master's degree in curriculum and instruction from the University of Phoenix. I have taught over 20 years in many types of schools and at various levels from elementary to high school, public to private, and traditional to online.

My interest in technology integration has grown over the years. I have seen technology implemented well in classrooms and see the advantages to having technology accessible to all students. In my current position as an elementary teacher at a Title I school, I have seen how my colleagues integrate technology in their classrooms effectively. I understand the need for increased technology availability and understand that many of the students do not have access to technology at home. All of these factors contribute to my understanding of how technology is effectively used in Title I classrooms.

Patton (2015) stated that "a qualitative analyst owns and is reflective about her or his own voice and perspective" (p. 603). For this study, I consciously acknowledged my personal biases, values, and experiences. I kept a journal in which I was able to write down my own feelings throughout the research. This allowed me to bracket my feelings out of the research.

The school in which I am employed will not be a part of this research. I have no tie to the elementary Title I schools I used for this investigation other than they are in the same school district as the school in which I am employed. Even though this school district is quite large, I have no affiliation to any of the other Title I elementary schools and do not know anyone at any

of the other elementary schools. This step has been taken to prevent bias during the data collection stage of the research.

Data Collection

I used a transcendental phenomenological approach to research. I effectively described the perceptions of elementary Title I teachers' use of digital technology in the classroom because of the multiple data collection techniques. I collected data from an online survey, teacher interviews, focus groups, and writing prompts. The phenomenon that I examined was the use of digital technology in the classroom by both the teachers and the students for the purpose of learning.

I employed various data collection methods to ensure credibility and trustworthiness within this study. Personal interviews, focus groups, and writing prompts have been chosen to describe the phenomenon of interest. All of the data I collected was used together to describe the perceptions of elementary Title I teachers' use of digital technology in the classroom. By using these varied data collection methods, I gave credibility to the overall perception of the experience. I used triangulation of all data to confirm and verify the experiences of the participants.

Interviews

ITCs for the school district were asked to review the interview questions for credibility and validity. Additionally, a pilot study was done with a small sample of teachers not associated with the study to ensure the interview questions were clear and concise. A criterion for all participants of this research was to have some experience with the phenomenon of technology integration in the classroom. The interviews provided an informal atmosphere in which open-ended questions could be asked and answered in such a way as to bring clarity to the phenomenon being studied (Moustakas, 1994).

Patton (2015) suggested there are six kinds of questions that can be asked during an interview. He goes on to say, as the interviewer, distinguishing between the types of questions will allow me to be clearer about what I am asking (Patton, 2015). The interviews focused on four primary dimensions: the experiences of the teachers as they learned the technology, the process of implementing the digital technology into their classrooms, the process of teaching their students to utilize the technology themselves for the purpose of learning, and any barriers they encountered in learning the technology themselves and teaching the technology to their students. The interviews were conducted at a place the participants chose, to allow them to be as comfortable as possible. The resulting data was member checked for validity. Appropriate interview and recording procedures were used through the use of at least two recording devices (Creswell, 1991). The questions below, in Table 3.3, demonstrate I sought to gain a deep and rich understanding of the experiences of the interviewees.

Table 3.3

Interview Questions

Interview Questions	Res. Question
1. What led you into the field of education, specifically elementary education?	CQ
2. What are your personal interactions with digital technology outside of the classroom setting?	CQ
3. Has the use of digital technology in the classroom changed your beliefs about teaching?	CQ
4. How do you use digital technology in the classroom for yourself?	CQ
5. What kind of training have you received in order to implement digital technology in your classroom?	SQ1
6. How do you use digital technology in the classroom to help your students?	SQ1
7. How does the use of digital technology in your classroom impact your students' learning?	SQ1

8. How do your students use digital technology in the classroom for the purpose of learning?	SQ2
9. What are some of the advantages you see in your students using digital technology in your classroom?	SQ2
10. What are some of the disadvantages you see in your students using digital technology in your classroom?	SQ3
11. Why it is important for your students to have access to technology in your classroom?	SQ3
12. Have you encountered any barriers in the process of teaching your students to use digital technology? Is so, what are those barriers?	SQ3
13. How does being in a Title I school impact technology in your classroom?	SQ3

All of the interview questions focused on the experiences of the participants as this goes along with a phenomenological interview (Patton, 2015). The first question was meant as an ice breaker to get the participant thinking of education in general and his or her experiences as a teacher (Patton, 2015). Questions two through four focused on answering the central research question. Blau and Shamir-Inball (2016) and McQuirter and Meeussen (2017) stated that elementary educators require training and professional development to successfully implement digital technology into their classrooms. These interview questions sought to get a deeper understanding of the experiences the participants have both learning and using digital technology and help in building a rapport between myself and the participants.

Questions five through seven enabled the participants to explain their perceptions of digital technology use in their classrooms. Varier et al. (2017) stated educators see the benefits of technology in the classroom. After recognizing those benefits, educators realize their need to allow students to use technology and become successful at learning within the technology (Varier et al., 2017). This is in direct line with research sub-question one. These types of

questions provide a deeper understanding of how the educators are able to integrate digital technology in their classrooms for the purpose of student learning (Brahimi & Sarirete, 2015).

The next two questions, eight and nine, enabled the participants to share their views on the abilities of their students to utilize technology in the classroom for the purpose of learning. Brahimi and Sarirete (2015) stated educators are interested in encouraging their students to take more of an initiative in their learning; to learn at their own pace and from more than just direct instruction. These questions are the heart of the interview and the part most introspective for the participants. I chose to ask these questions within the middle of the interview for this reason. At this point in the interview, I had built a rapport with the participant and was able to gain valuable insights into how they were able to teach their students to use digital technology to gain a deeper understanding of the material being presented (Patton, 2015).

Questions 10 through 12 sought to give the interviewee an opportunity to discuss any problems encountered as the participant learned technology and also as it was implemented in the classroom to teach the students. Heath (2017) stated there were two distinct types of barriers educators face as they attempt to implement digital technology into their classrooms. These are first and second-order barriers (Heath, 2017). Examples of first order barriers are a lack of devices, lack of professional development, little to no technical support, and not having enough time to implement technology (Cho, 2017; Crompton et al., 2016; George & Ogunniyi, 2016; Grant et al., 2015; Heath, 2017; Robinson, 2016; Rust, 2017; Topper & Lancaster, 2013). Examples of second-order barriers are pedagogical beliefs and negative experiences with first-order barriers (Heath, 2017). These three interview questions sought to gain a deeper understanding to the last sub-question.

The final interview question sought to bridge the teacher's experiences to the fact that he was teaching in a Title I school. This interview question is tied to sub-question two. It is this

question that seeks to determine any differences that may be present because the school is a Title I school.

At the end of each interview, I downloaded the recording to Temi for initial transcription. I then reviewed and corrected the transcribed interview ensuring the recording and transcription matched. I listened to each interview at least three times to confirm the accuracy of the transcript and to gain a greater understanding of the experiences and perceptions of the participants.

Focus Group

Once the interviews were completed, I conducted focus groups. Participants who sat for a personal interview were also asked to meet once as a focus group. Each group contained five or more of the participants interviewed and met in person at a place the participants agreed on. Patton (2015) stated that focus groups can provide a social context that allow participants to not only answer the initial questions posed but also reflect and add responses based on what others may propose. I wanted to conduct focus groups in order to allow the participants to discuss their shared experiences using digital technology in their classrooms with the hope of gaining additional information and a deeper understanding of their experiences. The conversations were audio recorded by at least two devices and transcribed through Temi and me. The transcribed focus group discussions were emailed to all participants for validation and clarification as part of the member checking process. I listened to the recorded transcripts multiple times to gain a deeper understanding of the experiences of the participants in view of digital technology usage in the classroom. Digital recordings were stored on my computer which was password protected. Any hard copies were stored in a locked filing cabinet in my office. I made notes on my reflections about the focus group and the interview experience in my reflective journal to continue bracketing my own bias and ideas. This was also stored in the locked filing cabinet in my office. Focus group questions can be viewed in Table 3.4 below.

Table 3.4

Focus Group Questions

Question #	Question	Research Question
1.	What initially attracted you to the field of education and teaching? Probe: What were your hopes and dreams for your teaching career?	CQ
2.	How many years have you taught and at what grade level? Probe: What experiences have you had in different schools and/or grade levels?	CQ
3.	What are your thoughts and beliefs about teaching and how children learn?	CQ
4.	What are your thoughts and beliefs about technology and its potential impact on student learning in the classroom?	SQ1
5.	What types of digital technologies do you use in your classrooms?	SQ1
6.	Reflecting on when you first used digital technologies until now, describe any differences in your perceptions about project activities. Probe: What do you know now that you wish you had known then?	SQ1
7.	How do your students use digital technology in your classrooms for the purpose of learning?	SQ2
8.	Explain the advantages and/or disadvantages you see in students using digital technology in your classroom.	SQ2
9.	Thinking specifically of the fact that you teach in a Title I elementary school, explain any barriers you may face to integrating digital technology in your classroom.	SQ3
10.	How do you overcome any obstacles that might pose a problem in your classroom with technology integration?	SQ3
11.	What other information concerning classroom technology, or learning with technology, would you like to add?	CQ

Writing Prompts

Writing prompts provided another layer of documentation and validation for this research study. Creswell (2013) stated that including this method of data collection would encourage participants to share information in ways not included in the interview process. In this study, I provided two writing prompts for participants to complete. These were completed on their own and emailed or hand delivered to me. Once collected the writing prompts were analyzed to provide another dimension of understanding in the integration of technology in the classroom. The writing prompts can be viewed in Table 3.5 below.

Table 3.5

Writing Prompts

Writing Prompts
1. Write about a time when you were particularly frustrated with the technology integration in your classroom.
2. Write about a time when you felt particularly successful implementing digital technology in your classroom.

Data Analysis

This study used Moustakas' (1994) process for phenomenological reduction. There are seven steps in this process. The steps are (a) epoche, (b) open coding, (c) horizonalization, (d) clustering into themes, (e) textural descriptions of the phenomenon, (f) imaginative variation, and finally (g) synthesis (Moustakas, 1994). Below is a visual representation of these seven steps.

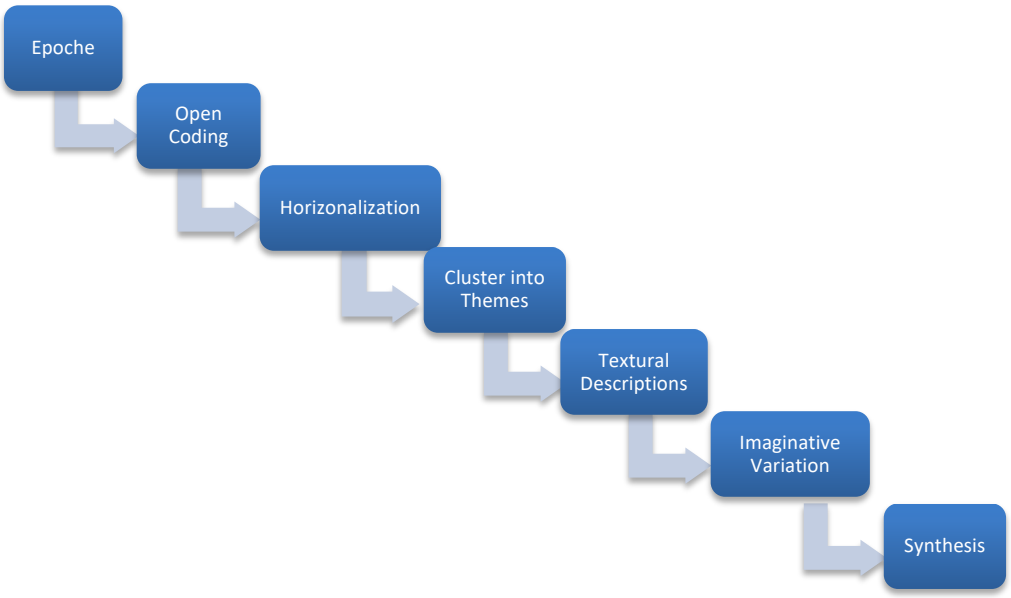

Figure 3.2. Phenomenological Data Analysis as described by Moustakas (1994)

Epoche

There are several formal steps in the phenomenological analysis of data. The first step is epoche (Patton, 2015). Epoche is a Greek word that means to "refrain from judgment, to abstain from or stay away from the everyday, ordinary ways of perceiving things" (Moustakas, 1994, p. 33). This process of dissecting and analyzing the participants' experiences apart from my own experiences produced a richer study (Patton, 2015). During this study, my own personal opinions and perceptions about digital technology and its integration into the elementary classroom were set aside. It was important to the study for my own ideas to not interfere with those of my participants. I wanted to have a clear picture of their ideas on digital technology integration within their classrooms. For this to be possible, I keep a reflective journal throughout the data collection and analysis portion of the study. I described my own personal feelings and opinions in the journal. In doing this, I was able to have a clear perspective on my participants' perceptions of the phenomenon.

Open Coding

The next step in the data analysis process was to complete open coding of the data. I completed this by analyzing the data for meaningful units and essential statements and then coding this information to later find themes in the data (Moustakas, 1994). I used Atlas.ti for Mac software to complete this. In using this software, I was able to gather common codes throughout the data. Atlas.ti does not do the coding for the researcher. It only allows the researcher to code material and then view the codes through various sorting techniques. These codes lead to themes in the research. Additionally, through the use of this software, I was able to analyze all forms of data collected. This led to a stronger triangulation of data.

Horizonalization

Once the coding was complete, I began the process of horizonalization. Both Patton (2015) and Moustakas (1994) describe this process as treating all of the data equally. To obtain horizonalization, I color-coded each participant's comments. The Atlas.ti software enabled me to review each of the participant's comments singularly and then group them all together according to codes within the data. The grouping allowed me to see commonality within the data, while the color-coding allowed me to identify each of the participants. In doing this, I was able to describe the lived experiences of each of my participants and their shared experiences satisfactorily (Moustakas, 1994).

Cluster into Themes

Following horizonalization, I began to organize the data into meaningful clusters or themes (Patton, 2015). I examined frequently used words and phrases to determine themes within the data (Moustakas, 1994). I kept an open mind to allow myself to discover and identify themes as they arose. It was important that I worked to eliminate data that was repetitive and irrelevant (Patton, 2015). All of this allowed me to continue my analysis of the given data and

create a deep, rich narrative.

Textural Descriptions

Through the process of coding and discovering themes in the data, I was able to build a narrative of the experiences of my participants (Moustakas, 1994). I also wanted to add textural descriptions. These descriptions are actual word-for-word experiences of my participants (Moustakas, 1994). Patton (2015) stated these descriptions are the "bones" of the experience (p. 576). These word-for-word experiences were integrated into the group descriptions (Moustakas, 1994). Each of the participant's comments and descriptions were considered equally in order to allow contributions that built understanding of the phenomenon and developed a deeper meaning to the experiences.

Imaginative Variation

Nearing the end of the data analysis, I used the process of imaginative variation. Patton (2015) stated this was looking at something from a different view. It was important to step back and look at the data being presented from various viewpoints to ensure analysis was complete. This also allowed me to view the same data from a different angle. In doing this additional step, I was able to expand the themes in the data.

Synthesis

The final step of the data analysis process was to synthesize the data. Moustakas (1994) stated this step would require me to integrate the data that had been analyzed, providing meaning to the experiences I gathered. This synthesis provided a clear picture of the evidence of the phenomenon being studied.

Trustworthiness

I wanted to ensure this research was trustworthy. Patton (2015) stated "the credibility of your findings and interpretation depends on your careful attention to establishing

trustworthiness" (p. 685). As the research was completed, careful attention to detail was made. Through the use of triangulation and member checking, data was analyzed to ensure trustworthiness. Additionally, during data transcription and analysis there were steps taken to ensure the integrity of the research was not sabotaged.

Methods for increasing trustworthiness included, but were not limited to, triangulation, member checks, prolonged engagement, negative case analysis, peer/expert review, external audit, etc. These methods were addressed throughout the research process to ensure increased trustworthiness in the final research product.

Credibility

One step towards trustworthiness is credibility. Credibility in research is vital to ensuring the participants' voices are heard. In my research study, triangulation of all data was used. Creswell (2013) stated that triangulation is a process requiring multiple methods of data. This process ensures the researcher uses these multiple methods to ensure evidence of the phenomenon is corroborated. The multiple methods of data used in this investigation were the interviews from the participants, the focus groups, and the written responses to the given questions. In addition to triangulation, member checking of data was utilized to ensure proper analysis of the data. After interviews and focus group meetings were transcribed, the transcripts were delivered to the participants for them to view and check for validity to ensure they agreed with what was stated. This provided for further accuracy of my research.

Dependability and Confirmability

Another way to increase trustworthiness is through dependability and confirmability. This was done through the development of rich, thick descriptions of the data that was collected (Moustakas, 1994). This was completed in this research study by spending time with the participants and getting to know and understand their feelings and perceptions on digital

technology integration in their classrooms. Time was spent with participants during the interviews and focus group meetings. Through listening to and spending time with the participants, I have a better understanding of their experiences and views of digital technology integration.

Transferability

Transferability refers to the generalization of the research so it can establish some degree of similarity between cases (Patton, 2015). The information in this research can be used for further research. It can be applied to studies on digital technology integration and further information on this subject. Though focusing on elementary Title I schools, it can provide another voice to the growing database of information needed to continue the integration of technology in American school systems.

Ethical Considerations

Ethical considerations of the research and the participants was vitally important to me. To protect the identities of the participants in this study, they were given pseudonyms. In all instances, these participants were referred to by these pseudonyms. In addition to the participants, the school district, and the elementary schools themselves, were given pseudonyms. This was to ensure the name of the school district, and the elementary schools, did not in any way influence the research, and also to ensure any research gathered did not reflect either positively or negatively on the school district itself. The final ethical consideration was the protection of data. To protect the data gathered it was locked away in a file cabinet when not in use. Additionally, all electronic data was kept on only one computer. It was password protected to ensure the highest security possible.

Summary

Technology integration is important in the classroom. There is very little known about the perceptions of Title I elementary teachers as a group of individuals. This research study can fill the gap in the literature. These teachers add an important dimension to technology integration in the classroom. They begin the process of teaching students how to use their devices for the purpose of learning. Their experiences are worthy of notice. The fact that these teachers also teach in Title I schools adds another layer of experience to the research. Teaching in a Title I school has its own set of restrictions that should be explored.

This research study adds to the present literature on technology integration in the classroom. More research is needed to better understand how best to reach students to prepare them for the world in which they will graduate. While this chapter focused on how the research was completed, the next chapter begins to look at the actual experiences of the participants and the information they shared.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this qualitative, transcendental phenomenological study is to describe the experiences of Central Texas teachers' use of digital technology in their Title I elementary classrooms. I want to understand how they use technology in their classrooms to teach and learn. I also want to reflect on the training the participants received to prepare themselves to teach using digital technology. I also want to understand how they teach their students to use digital technology to further their students' learning and prepare them for the future. Therefore, this investigation examines the perceptions of Title I teachers teaching at the elementary level and how they integrate technology into their lessons to further the education of their students and prepare them for life in the 21st century.

This study is grounded in one primary research question and three sub-questions. The primary research question is: How do Title I elementary teachers in Central Texas describe their experiences using digital technology in the classroom? The three sub-questions are: (a) How do Title I elementary teachers in Central Texas describe the strategies they use to help students learn how to use digital technology successfully? (b) How do Title I elementary teachers in Central Texas describe students' exploration of digital technology usage in the classroom? (c) How do Title I elementary teachers in Central Texas describe the barriers they may encounter in implementing digital technology in the classroom? The remainder of this chapter uses the voices of participants to explain their experiences using and teaching digital technology. I utilize a transcendental phenomenological design because it allows me to set aside my own opinions and still interpret the participants' lived experiences with digital technology both inside their classrooms and in their personal lives (Van Manen, 1990). In this chapter, I present the key findings obtained from audio recordings of personal one-on-one interviews, focus group

discussions, and writing prompts. I review the themes that surfaced when examining the data as well as information that directly answers the research questions posed to frame this investigation. Teachers who had at least three years of teaching experience and were recommended by their ITC or principal for the study were invited to participate.

Participants

Through purposeful sampling, a selection of 16 teachers were found that met the criteria of the study. After receiving permission from campus principals, I requested names of individuals who would be good candidates from both the principal and the campus assigned ITC. The names of 15 individuals were given to me in five different Title I elementary schools. Of the 15 invited to participate in this exploration, 10 teachers agreed to participate. One other participant was found through snowball sampling. When contacted, she met the minimum requirements and agreed to participate in the study. Pseudonyms have been used to maintain confidentiality among the participants. These 11 participants represent a variety of grade levels within five elementary Title I schools within the district. There are seven Title I elementary schools within the district studied. One Title I elementary school elected not to participate in the study, and I teach at the other Title I elementary school, making it ineligible for the study.

Participants of this study offered a wide range of classroom and digital technology experiences. Of the participants, the two newest teachers had five years of experience each while the teacher with the most experience had taught for 31 years. The average for all 11 participants was 15 years of teaching experience. The content areas and grade levels taught varied widely throughout the participants. Two participants taught first grade, one participant taught second grade, three taught third grade, two taught fourth grade, and three taught fifth grade. In the upper elementary grades, fourth and fifth, one participant taught reading and writing, two taught math, and two taught science.

Initial contact with the participants included a letter requesting they participate in the study. This was followed up with contacts to complete the survey and set up the interviews. Upon completion of the interviews, two focus group meetings were held to accommodate schedules. Sixteen teachers were invited to participate in this investigation. Of the 16 invited, 11 teachers agreed to participate. All 11 participants completed the duration of the study. Pseudonyms, rather than actual names, have been used to uphold confidentiality. Face-to-face interviews were held after school hours on the participants home campuses in all but one interview. One participant elected to meet at my home campus due to convenience for her. All of the teachers who participated had at least three years of teaching experience and used technology in their classrooms with their students. Table 4.1 provides some background information for this qualitative study.

Table 4.1
Participant Background Information

Participant	Grade Level	Content Area	Years of Experience
Amanda	5	Math	21
Bob	5	Science	21
Carla	2	Self-Contained	31
Donna	5	Science	5
Emily	3	Self-Contained	17
Faith	1	Self-Contained	18
Gina	1	Self-Contained	11
Hannah	3	Self-Contained	21
Isabel	4	Math	13
Jessica	4	ELA	7
Kim	3	Math	5

Amanda

Amanda is a fifth grade math teacher with 21 years of teaching experience. She loves working with children and knew from an early age she wanted to be a teacher. She is comfortable with digital technology and uses it regularly in her personal life. She listed using her phone, a tablet, and home pods as technology she interacts with personally on a daily basis.

As Amanda reflected on when she began teaching, she remembered there were no computers in the classroom or email that had to be checked twice daily in the first years she taught (personal communication, September 11, 2018). Amanda stated early in our interview, "I came from the age where you still wrote the note home and we used the carbon copies," (personal communication, September 11, 2018). Amanda regularly uses her Elmo, which is a digital document projector and camera, and her tablet for teaching. On her tablet, she utilizes the air server application so she can project what she has on her tablet onto her screen. The air server application allows people to project what is on their device to another place. In this case, Amanda projected math questions students were working on from her iPad through her projector to her white board. Other technology she regularly interacts with is digital lesson planning and the district's online gradebook. She uses a parent communication application and email to communicate with parents and regularly posts on her professional Twitter account the activities happening in her classroom. She sought out opportunities to learn new technology during the district's fall and spring professional development sessions and utilized her ITC when she had questions (personal communication, September 11, 2018).

Amanda's classroom is set up with the district's normal technology equipment for an upper elementary classroom. She has five laptops which stay in her classroom and a computer cart that is shared with her wing of the school. The computer cart holds 15 laptops. She admitted to not spending a lot of time teaching students how to use technology, but primarily

utilized technology as a tool for review and enrichment (personal communication, September 11, 2018).

Amanda listed several advantages to digital technology during our interview. Overall, she found when her students use technology in her lessons, they were more engaged and interested in what she was teaching. She also stated technology aided parent communication. She noted it is easy to send a quick email to parents when she needed to notify them of upcoming events. When recalling how the use of technology enabled parents to help their students at home Amanda stated, "I've had several parents that have gone on to do the Khan Academy lessons, so someone else is explaining it and then it takes that piece out of it and they get to use technology," (personal communication, September 11, 2018).

When asked about the disadvantages of digital technology, Amanda mentioned she works in a Title I school. She noted not all of her students have access to technology outside of the school and she therefore felt limited in the types of assignments she could give. Another disadvantage Amanda mentioned was the lack of technology resources. In order to ensure she has access to the computer cart she shares with two other grade levels, she is required to plan weeks in advance. Overall, she believes technology enriches the learning environment of her students and she wants to prepare them for life after fifth grade (personal communication, September 11, 2018).

Bob

Bob is a fifth grade science teacher with 21 years of teaching experience. He found his love of teaching while mentoring and tutoring at-risk elementary students in New Mexico. When he and his wife made the move to Texas, he sought out the opportunity to become certified and has been teaching ever since.

Bob is very comfortable with digital technology in his personal life. He utilizes social media platforms and online banking and shopping. He stated that he and his wife, "... pretty much turned our personal life to sort of a cloud base approach to storing documents, so pretty much paperless," (personal communication, September 12, 2018).

As we spoke, I asked him if his beliefs about teaching have changed with the implementation of digital technology in his classroom. He stated,

> I think it emphasizes or underscores for me, the economic and social gaps in education. I see that students from lower social economic backgrounds are less prepared for the technology, so there's a much greater learning curve in terms of building that comfort level with the technology and just the use of the Internet overall. (Bob, personal communication, September 12, 2018).

This is especially important when considering the population of students Bob teaches and the focus of this investigation.

Bob is a leader in technology integration at his school. Having piloted Google Classroom last year, and mastering the online textbook for his grade level, he leads training sessions for other teachers. Google Classroom allows students to access assignments from any device utilizing the application. Additionally, at this district, the primary science curriculum for elementary classrooms is web based. There are many components to the curriculum, and Bob understands what can be successfully completed online and what needs to be printed and utilized in a more traditional format.

In class, he regularly utilizes technology as a part of his instruction using Google Classroom, videos he creates, and his online textbook. He describes his classroom as more student-driven and less teacher-directed. Bob teaches his students how to log on to their Google Classroom accounts through whole group instruction. He also teaches students about digital

citizenship and conducting successful searches on the computer for research. Once he has given the instruction, students are allowed to explore and investigate at stations in his classroom. On a personal level, Bob completes lesson planning online, keeps up with his online gradebook, and is active on professional social media platforms (personal communication, September 12, 2018).

Bob's classroom is set up with student stations. At some stations, students complete lab activities, while at others, students are solving problems, researching, or completing online activities. He very rarely has his whole class on computers at the same time because of a lack of resources. He has five laptop computers that are permanently housed in his classroom. Additionally, he has access to a computer cart with 15 computers that are shared with two other grade levels. With the implementation of stations, Bob is able to allow students to work independently while overseeing students who struggle and need more help from him (personal communication, September 12, 2018).

When asked about the advantages of digital technology integration, Bob mentions several. He believes technology integration at the elementary level prepares his students for middle school and high school. It also prepares them for the future and the world they will live in. He believes it is important to teach students about digital citizenship and how to be responsible while utilizing digital technology (personal communication, September 12, 2018).

Among the disadvantages he listed were the Internet's distractibility and the idea that students do not take online work as seriously as they do pencil and paper work. He stated, "...I'll use the term click and go. They look at it, and there's something different about clicking on an answer as opposed to reading an answer and committing to circling it," (personal communication, September 12, 2018). He also stated, for some students, using digital technology can be overstimulating. Because of this, Bob's classroom, though student-driven, is

very structured. Students know what to expect when they enter (personal communication, September 12, 2018).

Carla

Carla is a first grade bilingual teacher with 31 years of teaching experience. She has the most teaching experience of all the teachers I interviewed. Both of her parents were teachers and she knew from a young age she wanted to follow in their footsteps to become a teacher herself. When asked why she wanted to be an elementary teacher, she stated she has always known she wanted to work with young children. She has taught at a variety of grade levels in her career but enjoys the lower elementary grades most (personal communication, September 19, 2018).

When asked about her personal use of digital technology, Carla stated she would be lost without her phone. She replied jokingly "I don't know what I would do because I have my life on my phone," (personal communication, September 19, 2018). She uses her phone for keeping records, her banking, and for researching resources to use in her classroom. Additionally, she uses her tablet and a home pod. In her classroom, she utilizes her tablet, projector, and her computers. She completes lessons online and grades are input into the digital gradebook. Finally, all of her digital materials are stored on her Google drive. She organizes all of her data folders in her drive by teaching week so she and her teammates can retrieve information from year to year. She has sought out opportunities to learn new technology during the district's fall and spring professional development sessions, utilizes her ITC when she has questions, and learns much of her information through her own investigations (personal communication, September 19, 2018).

When reflecting on her beliefs about teaching, she stated technology has changed the way she teaches. Because students have more access to technology in schools, they can watch videos or use tools that were not available to her students in the past. She stated she has had to change

the way she teaches so she can reach all of her students. One strategy Carla utilizes to teach technology is through the use of Symbaloo. Symbaloo is the platform she uses to gather websites for her students to use. She is able to add specific websites and videos to the platform so they only have one place to go to for initial instruction. She teaches her students how to log on to the computers and access this platform. From Symbaloo, students only interface with websites she has loaded, knows are successful, and have the information she wants her students to find. As a second grade teacher, Carla feels this allows for safe Internet searches and provides boundaries for her students (personal communication, September 19, 2018).

Her students are on computers at least once every day, and some days for every subject. She utilizes technology stations where students can complete practice activities or enrichment activities for reading and math. She stated using technology has enabled her to meet her students where they were and challenge them to become better. Like other teachers, Carla is concerned about student use of computers and ensuring they are being safe and responsible (personal communication, September 19, 2018).

Carla mentioned several advantages to digital technology integration. What stood out most to her was technology could not be optional. She stated, “It's the way our kids are going to grow up,” (personal communication, September 19, 2018). She believes it is the responsibility of educators to prepare them for life after school. Carla also stated, “I feel like it really extends our learning further than what I can do because it helps. It's like another teacher,” (personal communication, September 19, 2018).

When asked about disadvantages to digital technology integration she could not think of any. Her only warning was there must be a balance. She believes it is important to find time for technology, but also important to ensure students are using paper and pencil to complete activities (personal communication, September 19, 2018).

Donna

Donna is a fifth grade science teacher. She has five years teaching experience and is the youngest teacher I interviewed. She believes there is a false understanding that teachers her age know and use technology innately (personal communication, December 20, 2018). Though Donna did discuss how she integrates technology in her classroom, she also stated her belief of sharing the same struggles and obstacles veteran teachers have. The obstacles she mentioned were a lack of time and student understanding of technology as a tool.

As a young child she loved school and had great relationships with her teachers. Donna stated, "My parents really valued education, so it was our focus growing up and I now know that's a gift because I didn't really have anything else to worry about except being a student and learning in school," (personal communication, December 20, 2018). After changing her major a few times, she settled on elementary education and knew she had found her home. When I asked her why she wanted to teach at the elementary level she stated, "I like that my job allows an intellectual and creative outlet that is really challenging," (personal communication, December 20, 2018).

Donna has integrated technology into her life more than she realized. She uses her phone as her base for everything; communication, notes, and her alarm clock to name a few. She is dependent upon her laptop and utilizes the Internet at home to stream television. While at school she feels like she is more traditional. She understands that technology integration is important to reach her students and stimulate their learning. As she sought to gain new understanding of technology applications, she usually learned through trial and error on her own. She has found the technology trainings offered by this district to be too generic or simple and not applicable to what she needs in her classroom (personal communication, December 20, 2018).

Though a Title I campus, her school is new to the district and was built as a project-based learning campus. She utilizes technology for the actions listed by other participants; lesson planning, her gradebook, and research. She also participates in social media through a professional Twitter account. In her classroom, she utilizes technology as an extension of the learning for her students. Because she teaches science, as students have questions, they are encouraged to write them down and research the answers when time allows. She teaches her students how to perform successful Internet searches. This is done through whole group instruction and practiced in small group projects and individually as students have questions. Technology in her classroom is not looked on as an afterthought, or as something special that only happens occasionally, but more like a normal part of the learning taking place on a day-to-day basis. It is a tool for gaining information, not the subject of learning (personal communication, December 20, 2018).

Some of the advantages Donna listed to technology integration are learning how to search properly and preparing her students for middle and high school. She spends time teaching her students about proper search techniques so they arrive at better answers to their questions. She also wants to make sure they are prepared to use technology when they leave her classroom and move on to middle school (personal communication, December 20, 2018).

The primary disadvantage Donna spoke about during our interview was a lack of time. She remembers while she was in school, students spent time learning how to use the computer in a dedicated class. At her campus, that is not the case. Therefore, teaching computer skills falls to the classroom teacher. Donna states this was the number one reason she sometimes hesitated to use technology whole group in her classroom (personal communication, December 20, 2018).

Emily

Emily is a first grade teacher with 17 years of teaching experience. Most of her experience is in kindergarten. She stated she has always enjoyed working with the younger students. Emily believes she is a product of her education. Early on, she remembered having great teachers who showed her love and valued her as a student. She learned through their example how to be firm but compassionate (personal communication, October 16, 2018).

Personally, Emily uses technology like many adults today. It has infiltrated most aspects of her daily life. She is working on her master's degree and is going to school online. With a family and full time job, she is thankful for the opportunities online schools are offering. In the classroom, Emily uses technology to collaborate with other teachers, plan, communicate with parents, and establish grade reports. In addition, she is the only teacher that mentioned she uses her computer during small group time for documentation purposes (personal communication, October 16, 2018).

Emily has attended many of the district's technology professional development offerings. She received training for Google Classroom and Google drive. Additionally, she went through training on how to decipher data collected from universal screeners her students must complete three times a year. She knows if she has a question or wants training on a specific idea, she can call her ITC. One type of training Emily's administration is encouraging this year is having teachers at her campus provide technology training on ideas they are using in their classrooms to help other teachers on campus. Other types of technology integration she has learned through her own personal research (personal communication, October 16, 2018).

Students in Emily's class interact with technology through center work, brain breaks, and research. During center time, students are able to review math facts or practice reading using applications Emily has on her tablets. Those students who may be working at a higher level are

provided enrichment opportunities as well. She teaches her students how to access specific programs on the iPad like Prodigy, Khan Academy, and Istation. This is accomplished through whole group instruction. These programs allow students to review and enrich their learning experiences in the classroom. Because Emily's students are in first grade, their attention spans are not very long. She provides stimulating brain breaks through the use of technology for her students so they can refocus their minds and prepare for upcoming lessons (personal communication, October 16, 2018).

Some advantages Emily lists for technology integration are the creative aspect of technology as well as the ability technology provides to differentiate her lessons. Using some of the applications Emily has downloaded, her students are able to create projects with guidance and demonstrate their understanding of concepts in ways they would not have been able to before. Also, because her class covers a variety of ability levels, she is able to construct activities to meet the needs of all of her students (personal communication, October 16, 2018).

Emily sees some disadvantages to technology integration as well. She notes for some students, technology is too stimulating. She also mentions dependability of the technology source is a big factor. If she planned on using the computers or tablets, and the Internet was down, she needed to have a backup plan. If the Internet is down much of the time it becomes easier to just not use the computers because she never knows if they will work or not (personal communication, October 16, 2018).

Faith

Faith is a veteran teacher at her school with 18 years of teaching experience. She has taught in several districts and has a unique perspective on technology integration because of that. She spends much of her free time developing and researching lessons for her classroom. Before she began her teaching career, she worked with inner city children tutoring them after school.

She always enjoyed working with children and once she received her certification, began teaching in a first grade classroom. Her experience led her to teach at various levels in several states. She ultimately found she missed Texas and teaching younger elementary students and, when the opportunity came to move, she and her husband moved back to Texas (personal communication, September 20, 2018).

Faith uses technology in her daily life through her phone and her laptop. She enjoys digital scrapbooking and is on social media and email. Her phone is her one piece of technology she could not live without because she uses it for everything (personal communication, September 20, 2018). In class, she admitted to being hesitant to initiate technology integration in the beginning. However, she states, "It is so hands on and just amazes me. They can do so much on the computer and so easily manipulate it compared to me," (personal communication, September 20, 2018). One interesting piece of technology integration Faith spoke about was how she took her students on discovery field trips. She sets up these online field trips and then her students are able to interact with the people leading the online field trip and ask question in real time. Faith said using technology this way has opened up the world for her students in a way she would not have been able to before (personal communication, September 20, 2018).

For Faith, the advantages of technology integration definitely outweigh the disadvantages. She sees technology integration as a way to enable her students to learn more. She states it also provides another avenue for teaching to reach students who may be struggling. She uses technology to help her students socially as well as academically. Socially, they become more familiar with the use of tablets and laptops. This makes them more confident with their peers when technology is present. Academically, technology lessons in first grade prepare them for the next grade level's use of technology. Hopefully, as they continue to grow and learn, they are prepared for the digital age they will live in.

The disadvantages Faith mentioned have to do with hardware and training. She sees a need for more devices in her classroom and throughout the school. She did not have a class set of tablets or laptops and did not have access to them in other grades. Being a first grade teacher, she only has five laptops in her classroom and the one tablet the district issued to her personally. She also sees a need for more in depth training on integrating technology throughout the classroom.

Gina

Gina is an elementary teacher with eight years of teaching experience. She found her calling to teach later in life, after pursuing a civil engineering degree. While helping a neighborhood family through a tough time, Gina realized what she wanted was to help children and teach them. She changed career paths, earned her degree and began teaching. She began teaching in kindergarten, but now teaches first grade (personal communication, October 30, 2018).

Gina admits to trying to disconnect from technology when she is not at work. She uses her phone primarily for personal use. Her family also streams their television through their Internet connection. When not working, she prefers to spend time with her family or reading a good book. She uses an application for communication with her students' parents and spends some time on social media. In class, Gina uses her computer. She and her team collaborate when writing lesson plans, and Gina uses the districts digital grade book. She also researches information and video content for her lessons and keeps files on her computer so she has access to her materials when she needs them (personal communication, October 30, 2018).

Gina seeks out training opportunities when available. She takes part in the technology professional development courses offered by the district in the fall and spring when school is not in session. She seeks out the advice of her campus ITC when she wants to try something new.

She also conducts personal research on information when she does not understand something (personal communication, October 30, 2018).

In class, Gina's students are on the computer every day. Sometimes they are on for math and other times for reading or science. She has taught her students how to use the district's adopted computer application software. This is completed at the beginning of year, through whole group instruction. There is a technology aspect at least once a day for each of her students. Most of the time, a computer is used in her centers as a review or enrichment activity. This allows Gina to differentiate her lessons and let her students work at their own levels (personal communication, October 30, 2018).

When I asked Gina if technology had changed her belief in teaching, she said it had not. She believes technology enhances student learning, but it is the teacher who must provide the backbone and structure in lessons for learning to occur. Ultimately, Gina believes technology is a good way to support students in their learning, but she does not rely on it for her day-to-day teaching (personal communication, October 30, 2018).

Some advantages Gina found to technology integration were the ability it gave her to differentiate her instruction. She also stated she believed using it in her classroom prepared her students to understand technology better as they moved through grade levels. Though she was not dependent upon technology, she understood the importance technology plays in the lives of her students. She understands technology keeps her students more engaged in their lessons. Gina also likes how she is able to send parent communications quickly throughout the day using her communication application (personal communication, October 30, 2018).

When I asked Gina about the disadvantages of technology, she was concerned about how much time students were spending on technology in general, not just at school. Because it is relatively new, she is concerned there will be a direct correlation to time on technology and

attention spans. She also mentioned teaching her young students how to log on to the computer and manipulate a mouse pad as very time consuming at the beginning of the year (personal communication, October 30, 2018).

Hannah

Hannah is a third grade science and social studies teacher with 21 years of teaching experience. She believes she became a teacher accidentally. She began going to school to become a nurse and then switched to personal training. While she was working on her master's degree, she began substitute teaching in a physical education (PE) class at an elementary school. Before she knew it, she was teaching PE. Eventually she received her certification and began teaching in the bilingual program. Though she laughs when I ask her about all of her schooling, she stated she never looked back. She replied, "And then here I am still teaching. Nothing else. Nothing. My public health degree, nothing. Athletic training. I'm still here," (personal communication, October 3, 2018).

Hannah uses her phone and computer for personal use when not at school. She also uses these for research when she is planning lessons. She is on social media and keeps up with communication through email. She sometimes orders her groceries online and uses technology to do other types of shopping. In class, Hannah uses technology to support her students. She creates her lesson plans, communicates with parents, and inputs grades to the digital gradebook. She also spends time researching lesson ideas and videos to support student learning in her classroom. Overall, Hannah does not think technology has changed her beliefs about teaching. She understands the advantages of using it in class, but her core beliefs remain the same (personal communication, October 3, 2018).

Hannah has received much training through her school district. She has attended all of the Google trainings offered and has attended some trainings on using her tablet to mirror what

she has on it to the rest of the class through an air server. She admits to attending the trainings, but then not using the information very often. For the most part, if she is interested in using technology in a specific way, she would either contact her ITC for help or investigate and figure it out for herself (personal communication, October 3, 2018).

Hannah has her students do a lot of research on her computers. She spent time at the beginning of the year teaching students the differences between Internet sites. She discusses with them what makes a site not reputable and what distinguishes a site as providing quality facts and information. This is completed whole group, as a class, as well as during small group instruction. She also teaches her students how to make stop motion videos. When I asked her to elaborate she stated, "they're motivated to do their presentations when they can do it on slides or they have a motion picture they are doing," (Hannah, personal communication, October 3, 2018). She goes on to discuss how her students collect pictures of their subjects and put them together to create the stop motion video. Hannah mentions, when discussing this project, how engaged her students are on the project.

The process of teaching her students how to manipulate the stop motion videos took time to teach. She introduced the concept whole group to the class, and then allowed student experts to help her when others were struggling. This is one of the main advantages Hannah sees to using technology in her classroom. Other advantages she mentions are the creativity technology sparks as well as the excitement she sees in her students. She also finds that by using technology her students are motivated, engaged, and find a sense of independence in their learning (personal communication, October 3, 2018).

We also spoke about the disadvantages of digital technology integration. Right from the beginning, she stated one of the primary disadvantages was a lack of equipment. To supplement her existing technology resources, Hannah found several friends to donate technology equipment

to her classroom because they wanted to help, and it was one more way to obtain digital devices for her students. Other disadvantages Hannah mentions are the lack of time to teach technology and computer programs that are not working, or are offline because of Internet outages (personal communication, October 3, 2018).

Isabel

Isabel is a highly energetic fourth grade math teacher. She has 13 years of teaching experience and a master's degree in technology integration. When I asked her why she became a teacher she stated, "I had an amazing kindergarten teacher, and knew from then," (personal communication, December 7, 2018). She has taught kindergarten through fourth grade throughout her teaching career (personal communication, December 7, 2018).

When I asked Isabel about her personal use of technology, she laughed and admitted to being completely technology dependent. Her spouse is a software developer, and she declared they always have the latest technology gadgets at their home. Isabel has her home wired for a home pod, uses her computer to order groceries online, has packages shipped directly to her house and completes all of her banking online. She is on all social media platforms so she is able to communicate with friends and family (personal communication, December 7, 2018).

In class, Isabel uses her tablet daily to access the air server. She states she enjoyed teaching this way because it allows her to move around the classroom instead of standing at the front of the classroom to teach. She feels this mode of lesson delivery keeps her students more engaged in the lessons she teaches. She uses QR codes to encourage students to click and learn about different topics in math. She teaches her students about technology applications in small groups and then allows them to teach each other and practice. In addition to her tablet, Isabel uses her computer for lesson planning, grades, and research (personal communication, December 7, 2018).

When I asked her whether technology had changed her beliefs about teaching, she replied with an answer I saw as foundational to most of the participants. She stated,

> I think my core beliefs about teaching remain the same, but the use of technology in the classroom has changed so much in the 13 years I've taught just because of our advances in technology. I think it changed my belief in reaching kids with 21st century learning. I can better reach kids if there's some digital technology aspect. However, I also believe that a balance has to remain because we still live in a paper pencil world, (Isabel, personal communication, December 7, 2018).

She believes in order to reach all of her students, she must introduce digital technology into the majority of her lessons. So, technology has not changed her beliefs about teaching, but it has changed her approach (personal communication, December 7, 2018).

She attended trainings for Google drive and Google Classroom. She also attended trainings for the way she uses her tablet. She admitted however, if she really wants to use something in her classroom and has a question, she is more likely to contact her ITC or research the information herself. Additionally, she believes her master's degree has given her much information on technology integration and the tools she needs to adapt and learn as she continues on her career path (personal communication, December 7, 2018).

Isabel sees many advantages to technology integration in the classroom. She believes it encourages her students to pay attention, become more motivated, and stay engaged in their learning. She also said technology integration is a way to make learning more hands on for all of her students. Finally, Isabel feels strongly that by using technology with her students, they take more ownership of their learning. They are more likely to ask questions and seek out answers to their questions through technology integration (personal communication, December 7, 2018).

When I asked Isabel about the disadvantages of technology, she mentioned a loss of fine motor skills. She has noticed as more and more students are passing through her class and are using technology from a very young age, they are losing their fine motor skills. They no longer know how to hold a pencil correctly, and their penmanship is declining. She also mentioned she believes some students are too dependent on technology. She feels it is important to find a balance for students so they are not losing fine motor skills but are also able to keep up with technology and learning (personal communication, December 7, 2018).

Jessica

Jessica is a fourth grade reading and writing teacher with seven years of experience. Teaching was a second career choice for Jessica, having earned a degree in fashion merchandising and working in that industry for almost a decade. She decided to make the change to teaching because she wanted to make a difference in the world and believed the best way to do that was to teach elementary students (personal communication, December 14, 2018). She told me,

> I just have a passion for teaching the young ones because I think that sets the foundation for them for the rest of their life. I think it's important for them to learn everything they possibly can in kindergarten through fifth grade so they are set with that good foundation, (Jessica, personal communication, December 14, 2018).

Jessica uses most of the previously mentioned technology in her personal life; a phone, her computer, and social media. She calls herself a "data nerd" because she enjoys digging into her students' evaluations and figuring out what they have mastered and what they still need a little more help on. She also enjoys learning and preparing for questions her students might ask her within her lessons. When we began our interview, she questioned why her ITC had recommended her for this interview. She did not believe she used technology all that much in

her life or at school. As we began talking, she was surprised to realize how dependent she actually was on the technology around her and her devices. She stated, “I don't know what I did like five or 10 years ago without it. Like text messaging, that's huge. That's my number one form of communication,” (personal communication, December 14, 2018).

For her class, she acquired a large number of computers. Her school had a large computer cart filled with 38 computers stored in the school’s office no one was using. So she brought them to her classroom. Now, if a teacher needs them for testing, or some other reason, she releases them, but she always gets them back. She has her students using them every day. They are very independent and task-oriented. Early in the year, she teaches them procedures for accessing each program or application she has them working on. Now, her students come to class in the morning and automatically know to access a computer to review concepts, take a book test, or complete assignments (personal communication, December 14, 2018).

Overall, Jessica does not believe her ideas about teaching have changed because of technology. However, she does state she understands the importance of integrating technology into her lessons. She knows technology is a part of her students’ lives and a great way to reach them. She has not had much formal training on technology but feels comfortable researching and asking questions when she needs to (personal communication, December 14, 2018).

One advantage Jessica sees to technology integration is student engagement. She sees her students really thrive on technology integration and become more motivated during lessons when she integrates technology. Her students use technology to further their understanding of concepts presented in class, to read books and magazines, and to practice new concepts introduced during direct instruction (personal communication, December 14, 2018).

One disadvantage Jessica mentioned was she sometimes feels her students are too dependent on technology. It is hard to pull them away from it. When they have to write or

complete an assignment using paper and pencil it is difficult to keep them engaged and focused on task mastery. Another disadvantage mentioned was a lack of time. It takes time to teach them proper procedures and time for them to complete tasks on computers and tablets. Ultimately, this is time taken from something else. Everything seems to be the most important and it is hard to carve out time for technology when curriculum is calling (personal communication, December 14, 2018).

Kim

Kim is a relatively new teacher. She had five years of teaching experience at the time of this interview. She has experience teaching fifth grade and third grade. During the interview, Kim was teaching third grade. When she went to college she did not know she wanted to be a teacher. She stated she kind of found her way into the field. She thought she wanted to do something in agriculture or maybe family and child development. When she went to her advisor, confused and looking for help, her advisor recommended an education class. From the first class, Kim was hooked. She enjoys teaching and the freedoms it gives her in her time (personal communication, December 17, 2018).

Kim uses technology in her personal life for research and entertainment. She uses her phone for an alarm, a camera, social media, and communication. She does her banking online and shops online for most of her personal items. At school she uses technology to create spreadsheets for data, create documents and slide shows on Google drive, and for research (personal communication, December 17, 2018).

Kim said she does believe her ideas about teaching have changed because of technology. She stated, “I feel like a classroom without technology...it's almost frustrating. But with technology it makes it so much more fluid,” (personal communication, December 17, 2018). She feels students grow and learn more through the use of technology. She spends time during

classes teaching students how to manipulate Google documents and create slide presentations on Google slides. She begins instruction, as many teachers do, through whole group instruction. Students may share computers during this time. Then, once direct instruction is complete, students are given time to explore and learn through practice, mastering the intricacies of the applications (personal communication, December 17, 2018).

One of the advantages Kim sees to technology integration in her classroom is her ability to be closer in proximity to her students. Through the use of an air server and her tablet, she is able to move around the room while still displaying the lesson to the front of the classroom. This cuts down on classroom disruptions and maintains on-task behavior during a lesson. She also noticed through the use of Google Classroom she is able to differentiate her lessons more easily. Her students might all been working on the same concept, but because they are all working within their Google Classroom application, she is able to differentiate the lesson to meet the needs of each of her students. Additionally, Kim believes the integration of technology prepares her students for the future and keeps them more engaged in their learning (personal communication, December 17, 2018).

I did ask Kim to discuss what she saw as disadvantages to digital technology integration. The first thing that came to her mind was using digital technology sometimes allowed her students to rush through their assignments. They might just click through responses and not take the time needed to read and search for evidence, or they might rush through a pencil and paper assignment in the hopes of getting on technology. Either way is a disadvantage because her students were not giving the correct amount of time and attention to the assigned task (personal communication, December 17, 2018).

Results

I asked each participant to answer 13 open-ended interview questions. In addition, each participant completed a writing prompt describing a technology integration activity in their classes and participated in a focus group discussion on technology integration. All data inquiry focused on one of the primary research question and three sub questions: How do Title I elementary teachers in Central Texas describe their experiences using digital technology in the classroom? How do Title I elementary teachers in Central Texas describe the strategies they use to help students learn how to use digital technology successfully? How do Title I elementary teachers in Central Texas describe student's exploration of digital technology usage in the classroom? How do Title I elementary teachers in Central Texas describe the barriers they may encounter in implementing digital technology in the classroom?

Theme Development

Theme development is important when analyzing data presented in a qualitative study. To establish fundamental answers to the research questions posed in this research, personal interview transcripts, focus group transcripts, and personal narratives of technology experiences were analyzed. From this analysis, themes were found that describe the experiences of elementary teachers' at Title I schools use of digital technology in their classrooms. The information below describes the processes used to evaluate and uncover the themes presented during data collection.

Epoche. I used Moustakas' (1994) process for phenomenological reduction. This process requires bracketing of personal feelings to set them aside before data analysis. Before, during, and after each interview or focus group, I used the process of epoche to separate my own feelings from those of the participants. It was important to set aside my personal thoughts and opinions because I desired to get to the root experiences of my participants. I kept a journal to

write down my thoughts and feelings to help me with that process. During data collection, I wrote down reminders, memos of important information, and questions I had and wanted to ask participants. This enabled me to remain focused on my participants and their experiences and alleviate, as much as possible, the bias of my own personal experiences.

One-to-one interviews. Personal interviews were my main source of data collection. These interviews provided an in-depth look at the experiences of my participants. The setting of most of the interviews was at the participants' home campus. This was determined to be the best place for interviews because participants were most comfortable in their classrooms. One participant did ask to be interviewed at my home campus because she had an appointment close to this campus soon after our interview. Interviews lasted between 45 minutes and one hour. I recorded each interview on two separate devices, my personal computer and my phone. Each device was password protected to maintain the privacy of my participants.

Focus group interviews. Focus group interviews were conducted after all personal interviews were complete. Ideally, I wanted to have one large focus group, but between family obligations, staff meetings, and outside commitments, we could not all meet at once. Therefore, I held two focus groups. The first focus group met at my campus after school hours. This campus is centrally located within the school district and would accommodate the number of participants attending. Five participants attended the first focus group with a sixth participant attending via Facetime. The second focus group was held about three days later. It was again set at my home campus to maintain the same conditions as the previous focus group. At this focus group, five participants attended. I was happy to have accomplished having all of my participants attend and participate in the focus groups scheduled.

In each of the focus group meetings, participants were comfortable with each other. Some of them knew each other, but most did not. Two teachers from the same campus attended

the first focus group and discovered they both had participated in this research. They did not know this previously. Each focus group interview was recorded on two separate devices; my personal computer and my phone. The interviews lasted between 45 minutes and an hour and fifteen minutes.

Writing prompt. During the time participants completed interviews and when we met for our focus group discussion, participants completed a writing prompt. The participants were asked to write about a time when they felt successful integrating technology or a time they were frustrated by integrating technology. Four participants wrote about an instance when they felt successful, four participants wrote about a time they were frustrated, and three participants wrote about both. The responses to the writing prompts were coded and added to the data analysis.

Researcher journal. During the data collection process, as well as the data analysis, I kept a researcher's journal. This was a spiral notebook I took with me to interviews and kept by my side to refer to and make notes, as I analyzed interview transcripts, focus group transcripts, and writing prompts. During interviews I would write down thoughts I had on the participants and ideas they sparked as we discussed technology integration. I often wrote ideas down that I would want to refer to in the data analysis phase. I enjoyed interviewing each of the participants and getting to know them. Many times, they provided me with great ideas to implement in my own classroom. I found them inspiring, positive, and a joy to get to know.

Horizonalization and clustering. After an interview was complete, I would transcribe it. I used a service called Temi, which is a software application. Temi would transcribe the interview basics, getting about 75% of the interview transcribed correctly. I would then view the provided transcript from Temi and listen to the audio. I would make corrections to the transcript and get it absolutely correct, many times listening to a recording three or four times to ensure proper transcription. When transcribed, I began coding the interview. I used Atlas.ti software to

maintain my codes and enable access to multiple codes over time. I would highlight noteworthy statements made by the participant. As more interviews were completed, I used horizonalization to bring themes to the forefront of my data. This highlighted the significant phrases being utilized throughout all participant interviews, focus groups, and narrative responses. When I had completed all data collection and coding, I was able to cluster my data into themes and begin creating textural descriptions of my phenomenon. Using imaginative variation, I next took a step back from my data to analyze it from a different perspective. Finally, I synthesized all of my data into the coherent narrative.

Themes. During the process of horizonalization and clustering, significant themes began to arise from the data. Significant statements (see Appendix I) from each participant were clustered together to form themes across the data. A total of six themes emerged from my data analysis and answered the four research questions asked in this investigation. These themes can be viewed in Appendix J.

This study answered the following research question: How do Title I elementary teachers in Central Texas describe their experiences using digital technology in the classroom? Participants discussed how technology has infiltrated almost all aspects of their lives. Technology as a basic part of life emerged as a result of this research question.

Technology as a basic part of life. The first identified theme arising from the data was how technology has insinuated itself into almost every aspect of life, to the point participants did not even realize how much they used it. A variety of devices were discussed. All participants had at least one of the following: a smart phone, tablet, computer, television streaming device, and home hub centers. Many of the participants had several of these devices and some had all of them. Several of the participants were surprised when we began discussing technology usage because they had not realized how much they were dependent upon it. Jessica stated, “I use it for

everything, and I guess I never really sat down to think about how much I use it," (Jessica, personal communication, December 14, 2018).

Participants used technology in a variety of ways both personally and professionally. Carla stated, "...if I were to lose my phone, I don't know what I would do because I have my life on my phone, (Carla, personal communication, September 19, 2018). Seven of the 11 participants used social media. They used it professionally to post about information happening in their classrooms and to see what other teachers were creating in their classrooms. Donna and Isabel both spoke intentionally about using Twitter as a professional platform for learning. Donna stated, "I like the platform it gives for sharing. Then I create these reciprocal relationships with people in different school districts like where you're all sharing ideas via Twitter, (Donna, personal communication, December 20, 2018). Ninety percent of participants used digital technology to research information. They used the information they found to strengthen their lessons. The research would spark ideas about activities they could create and include in their classrooms. They also researched methods of digital technology integration. If they were incorporating a new digital technology, they researched and practiced how to utilize the technology in order to teach it to their students. Isabel stated, "I do a lot of independent research in the form of blogs and online searches. If I want to use something or if I hear about a new tool, I'm going to go and self-research it," (Isabel, personal communication, December 7, 2018). Nine of the 11 participants used digital technology for lesson planning. Many of the participants collaborated with their grade level teams when lesson planning. Gina stated,

> the team was on board this year for the change and I kind of talked to them about the benefits of being able to more easily put links to those engaging videos or other things. But we have definitely upped our game with the lesson planning..." (Gina, personal communication, October 30, 2018).

In addition, all participants used technology to input grades for report cards and communicate with parents. The main descriptors of this theme can be viewed below in Figure 4.1.

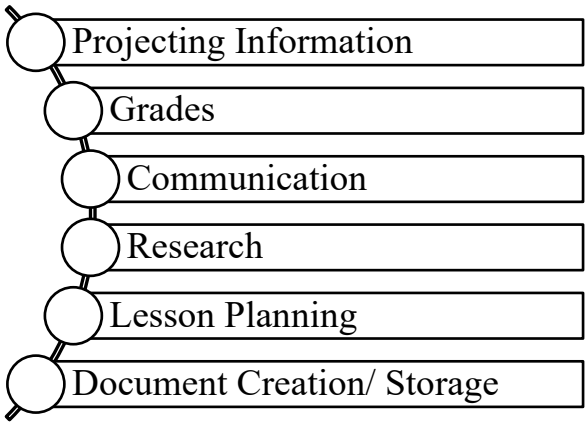

Figure 4.1. Theme One: Descriptors of Technology as a Basic Part of Life

Results of this investigation demonstrated technology is a vital part of our everyday life. It had infiltrated every dimension of these participants' lives. It was used personally to complete banking, shopping, and to communicate with loved ones. As educators, it was used to track data, create and store activities, research, and digitally display information and videos to enable better understanding of concepts. Participants stated they would not have the ability to maintain their current level of teaching without the technology supports they use.

Besides the main research question, this study also asked three sub-questions. These questions asked how teachers learn new technologies, how they teach their students new technologies, and what barriers they encounter as they incorporate digital technology in their classrooms. The first sub-question was: How do Title I elementary teachers in Central Texas describe the strategies they use to help students learn how to use digital technology successfully? A second theme arose from data collected for this sub-question: teaching technology.

Teaching technology. Technology applications for learning need to be taught to students. Data from participants indicated they spent time in their classrooms teaching students how to manipulate digital devices in order to produce products and master material taught in

whole group instruction. Donna stated, “It's like a double edged sword because I know they are so savvy and are used to getting that instant gratification from the Internet, but I don't know that they know how to utilize it in an educational setting,” (personal communication, December 20, 2018). Many of my participants reported they had to spend time teaching how to use the technology before students were able to complete assigned activities. Grade level was not a factor when it came to teaching technology. First grade teachers as well as fifth grade teachers reported the necessity of allocating time to teaching technology usage. Most of the time, the initial technology lessons were completed as whole group activities, with students following along on classroom devices as the teacher gave the instruction. Bob, a fifth grade science teacher, stated

> We just today did our first Google docs, so half the class time was teaching them how to open a Google doc and how that whole process works and the fact that you don't have to actually save. That all has to be taught to them. There is very little outside experience... (Bob, personal communication, September 12, 2018).

Teaching technology involved a variety of aspects. Participants stated it was important for students to know and understand how to use technology for learning in order to be prepared for life after elementary school. In his writing prompt, Bob spoke about teaching his students to use iMovie. He felt successful, and his students felt successful, after he taught them to use iMovie to create instructional videos on how to use the triple beam balance. This was accomplished through several days of instruction, beginning with whole class instruction and moving into small group instruction to ensure every student knew how to progress in the assignment. At the end of the assignment, students were able to create the teaching videos and comment on other student’s videos (personal communication, September 12, 2018).

Ninety-one percent of participants spoke about the importance of this preparation in terms of student success later in school and ultimately in life. Carla stated,

> I think that it is the wave of the future and I think if we want to get our kids prepared to go out into the workforce and have what they need, to work at a job, they need to be able to have and learn those skills of how to do that, (Carla, personal communication, September 19, 2018).

Eight of the 11 participants mentioned the importance of teaching digital citizenship from the onset of technology integration in the classroom. For five of the participants, technology integration began with lessons on being a digital citizen and responsible search techniques. Bob stated,

> we have a long conference about the fact that from now on every time they get on the computer the district knows what they're looking at and what they're seeing. The good news is they have more access but with that access comes responsibility, (Bob, personal communication, September 12, 2018)

Though all participants felt it was important to teach students how to use technology in school to further their understanding, five participants also mentioned the importance of balance. Emily stated,

> I see in the classroom technology has huge benefits, but I also think the kids rely on it a lot. Sometimes if they have to use pencil or paper or engage with other individuals it can cause problems because they have had so much technology, (Emily, personal communication, October 16, 2018).

These participants indicated teachers must not rely solely on technology for educational purposes. They understood students need technology, but also need practice writing and creating with paper and pencils. The main descriptors of this theme can be viewed below in Figure 4.2.

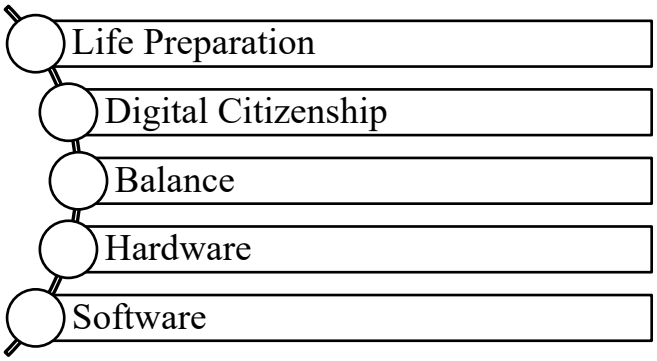

Figure 4.2. Theme Two: Descriptors of Teaching Technology

Results of this study demonstrated teaching technology to students was just as important as having it in the classroom. Students could not possibly be expected to know and understand how to manipulate digital devices if teachers did not spend time and energy engaging students in learning how to use the devices. In the district studied, teaching technology fell to the classroom teacher. There was not a specific time allocated to learning technology unless teachers used their classroom time to teach those concepts. Some students had more experience with technology than others, but all needed some instruction. This leads to the second sub-question and further identified themes.

The second sub-question was: How do Title I elementary teachers in Central Texas describe students' exploration of digital technology usage in the classroom? From this question, three themes arose. These themes were student applications of technology use, effects of student use of technology, and technology integration at Title I schools.

Student applications. Student applications are described as what students were actively doing on the computer. Participants in this investigation provided many opportunities for students to use technology to enhance or aid in their learning. One hundred percent of participants reported they had their students using technology independently during center or station time. While there, students used technology for review, enrichment, differentiation of lessons and to complete interactive activities. Amanda stated, "I'll make up math Kahoots and

then they challenge each other and do the math Kahoot. And they love it, (Amanda, personal communication, September 11, 2018). Amanda, Faith, Emily, and Donna have their students use technology during station time to complete interactive activities. Faith discussed her class going on interactive field trips and said,

> Discovery Ed has great field trips that they do online and sometimes I do a lunch bunch with my kids. They come in and Discovery will be at the place where they make footballs and they take you through the factory and they do a Q and A so we can ask questions while we're watching Discovery, (Faith, personal communication, September 20, 2018).

Participants also reported they taught their students how to use digital technology to complete research. Some of the participants allowed students to research questions they had as they were learning new topics, while other participants taught their students to use technology to research vocabulary words. Hannah found a praying mantis and asked her students to research how to take care of it. She stated, "They try to tell me about it first or try to find the answer to the question first before I just tell them the answer," (Hannah, personal communication, October 3, 2018). Eight of the 11 participants taught their students to use Google applications in some form. Their students were learning to create documents, spreadsheets, and slide presentations. Kim, who teaches third grade, stated, "We're in the trying phase of using Google slides and understanding what a spreadsheet is for and things like that," (Kim, personal communication, December 17, 2018). All descriptors of student applications can be viewed in Figure 4.3 below.

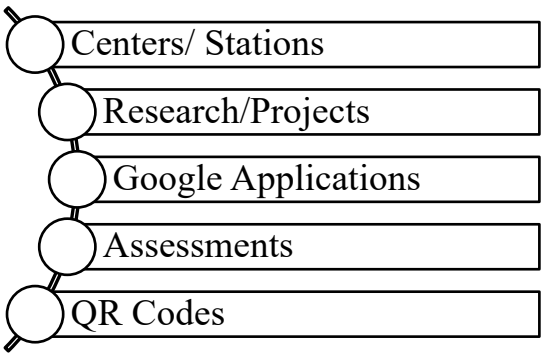

Figure 4.3. Theme 3: Descriptors of Student Applications

Effects. The second theme emerging from data analyzed from sub-question two was the effects of student use of technology. Participants reported several effects of students using digital technology for the purpose of learning. Nine of the 11 participants reported their students demonstrated more motivation and engagement when technology was introduced into the lesson. Amanda reported her students were excited about reviewing for an exam with Kahoot. Hannah stated, "They're motivated to do their presentations when they can do it on slides or they have a motion picture they were doing... So that keeps them very engaged," (Hannah, personal communication, October 3, 2018).

Eight of the 11 participants stated they believed student creativity was increased through the use of digital technology. Participants reported students used applications to draw, create videos, and make slideshows. Students learned how to manipulate applications to create a vision they had in their head. Hannah believed creativity was one of the best parts of her stop motion videos she taught her students to create. She stated, "...the creativity they have and the excitement they have to make things and do things with the technology is fun to watch," (Hannah, personal communication, October 3, 2018). Figure 4.4 below reveals the descriptors for this theme.

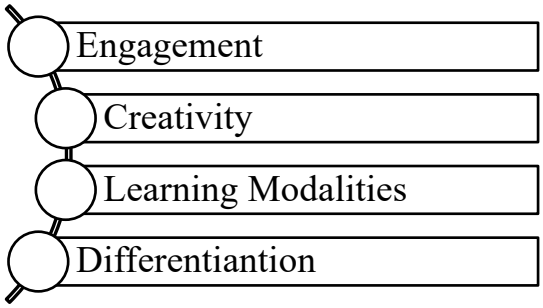

Figure 4.4. Theme 4: Descriptors of Effects

When participants began to discuss how they used technology in the classroom and how they taught their students to use technology, they were surprised by all they were accomplishing.

Student use of technology was occurring in all participant classrooms. Students were engaged in learning and motivated to do their best. Teachers found, through the use of technology, they were able to differentiate students' learning so all students were excelling. Finally, students had access to a different way of learning. They could be successful creating and learning while still addressing the curriculum standards required by the district. This was important to note because of the population of students the participants work with.

Technology in Title I schools. The focus of this research was on Title I elementary schools. The fourth theme was drawn from the data was the importance of technology integration at Title I elementary schools. Participants understood they were teaching a special population of students. At this district, the population of economically disadvantaged students served typically lacked technology at home. Most families had a phone, but probably did not have computers or tablets. Ninety percent of participants believed this was an obstacle they had to overcome. Carla stated during a focus group meeting her belief in the importance of technology integration at Title I schools. Those in her focus group discussed the fact that ensuring a technology rich experience at school was essential because their students did not have access to the same technology at home (personal communication, January 13, 2019). Amanda stated, "When you're Title I you tend to think no, they're really not exposed. And so you really try to enrich them with stuff that, you know, that you think other kids take for granted," (Amanda, personal communication, September 11, 2018). Other participants knew many students had video games and played games online, but this experience did not translate to an academic use of technology at school. Kim stated, "I think it's really driven me to teach them more about using Microsoft Word. This is how you put a header on your paper, or this is how you put a page number on your paper," (Kim, personal communication, December 17, 2018).

Opinions were divided when Title I funds were discussed. Amanda, Isabel, and Jessica believed their schools had more benefits because of the additional money their schools received because they were labeled Title I schools. On the other side, Gina, Hannah, and Emily believed they lacked technology at their schools because they were Title I schools. They all agreed Title I funds were dispersed to schools and administrators who were then able to use the funds in the best way they saw fit. Therefore, funds may or may not have been used for technology.

Eight of the 11 participants believed it was their responsibility to prepare their students for the future. Because many of their students lacked resources and experiences at home, participants took the time in class to ensure quality educational experiences through technology at school. During a focus group discussion, Emily discussed the differences between how technology is used at home and how it is used at school. She stated, "They're [students] being babysat by technology [at home] and they're not getting those good enriching activities," (Emily, personal communication, January 10, 2019). Examples of activities used to increase academic success at school include Faith's use of technology to take students on digital field trips, Kim's use of technology to teach word processing skills, and Bob's use of technology to teach appropriate ways to research (personal communication, September 12-December 17, 2018). Each participant understood the time invested was important to ensure student success in the future. Figure 4.5 below shows the descriptors of this theme.

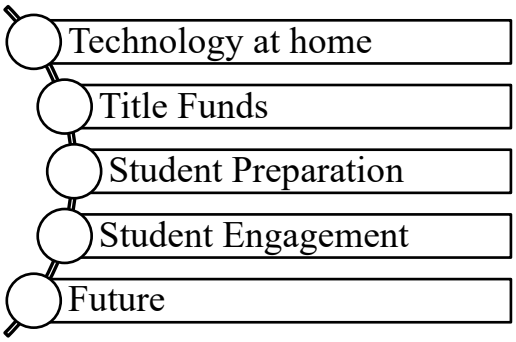

Figure 4.5. Theme 5: Descriptors of Technology at Title I Schools

Title I schools serve a special population of students. Understanding how to use technology to benefit this population requires teachers who are willing to spend time understanding their students. These participants demonstrated, regardless of the amount of technology they had in their classroom, they could adapt and serve their students. They allowed for students who had special circumstances that needed to be overcome in order for them to be prepared for life after school.

The final theme identified from the data was derived from the third research sub-question. This question was: How do Title I elementary teachers in Central Texas describe the barriers they may encounter in implementing digital technology in the classroom? This question seeks to uncover potential barriers participant face as they try to integrate technology in their classrooms.

Barriers to technology integration. Participants described a variety of barriers they encountered as they implemented digital technology in their classrooms. The number one barrier to technology integration mentioned by the participants during the interviews was not having enough bandwidth in their schools. If multiple classrooms were using the Internet at the same time, or many of students were taking an online test, the Internet would slow down and sometimes crash. Faith talked about her frustration when she stated, "Oh goodness. I think you just have to have lots of patience because sometimes the Internet goes out when you're in the middle of the lesson," (Faith, personal communication, September 20, 2018).

Eight of the 11 participants indicated another barrier they faced was not enough technology. This was especially true in the upper elementary grades, where participants felt the pressure to prepare students for middle school. Most participants had five computers or tablets in their classrooms. Some participants also had access to computer carts. The frustration they found was that any time there was a whole school test, such as a universal screener, all

computers were pulled into service, regardless of grade level. This happened for weeks at a time in order to get everyone in the school tested. Bob, a fifth grade science teacher reported,

> it's going to be a two week process and not only will I not have access to the computer carts, but for some of those days I'm going to have to give up my classroom computers so there will literally, for some of the next two weeks, be days where I will have no computers, (Bob, personal communication, September 12, 2018).

In this district, a universal screener is given at all elementary campuses three times a year. It is administered to all grade levels and takes two to three weeks to complete. This translates to one fourth of the school year without any technology in the classrooms. During a focus group discussion, participants recalled the dichotomy of this task. As a district, the teachers were asked to give the universal screener three times a year. Participants felt the administration within the schools placed a lot of importance on the test. At the same time, teachers were losing their technology and were not able to teach the skills necessary for students. As a result, participants felt this was a reason students might not be as successful as other students who do have more access to continued technology integration (personal communication, January 15, 2019).

The lack of technology equipment also limited how technology could be used in the classroom. With only five to seven computers or tablets, students were only given access to technology during centers or stations. Isabel discussed her desire for more equipment when she stated, “Limited access would be another barrier. We need more equipment. I have six classroom Mac books that the district gave me and I have an iPad I bought with my own money,” (Isabel, personal communication, December 7, 2018). Most participants wished they had more technology in their classrooms so they could use the technology in a 1:1 manner. Hannah, when I asked her about technology equipment needs, mentioned, “Sometimes the lack of each of them

having their own device and instead having to teach small groups at a time takes longer than if everybody was getting caught at once," (Hannah, personal communication, October 3, 2018).

Fifty-five percent of participants indicated another barrier was not all of their students had the same level of experience with technology. This barrier was directly related to participants teaching at Title I schools. Not all students at Title I schools are economically disadvantaged. In order to be labeled a Title I school 40% of the school population requires free and reduced lunch (Adams, 2014). Therefore, there is a mixed population of students attending the schools. Some of these students had access to technology at home. They may have had tablets and computers to use for school work. With that access, they also may understand how to manipulate and manage technology in a more academically minded way. Jessica remembered teaching technology skills to some of her fourth grade students and stated, "...if they had never touched a laptop before and they're used to a regular mouse, they don't know how to use the tracking pad. They don't know how to use it and it freaks them out," (Jessica, personal communication, December 14, 2018).

There were several other indicators revealed as the data was analyzed. Most of the participants realized not all barriers could be eliminated. Participants revealed they were resilient to frustration and were committed to continue to offer access to their students as much as possible. All theme six indicators can be viewed in Figure 4.6 below.

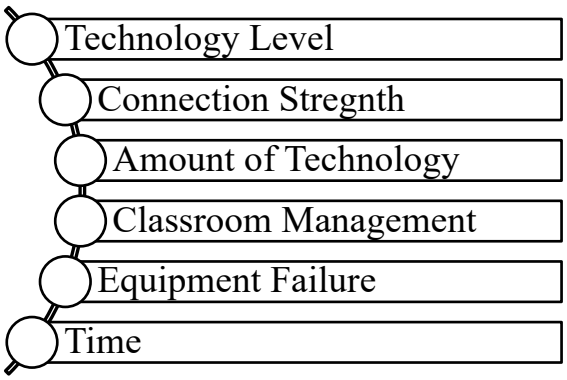

Figure 4.6. Theme 6: Descriptors of Barriers

Information gathered through interviews and focus groups provided rich data to analyze. Six themes were discovered after horizonalization of the data was completed. These themes draw a picture of how the participants integrated technology in their classroom, teaching their students to use technology and preparing them for the future.

Textural and Structural Descriptions

After these themes were generated, three descriptions were written for each participant: a textural description, a structural description, and a textural-structural description. The textural description was written to explain what the participants experienced as they both learned and taught digital technology in their classrooms. A structural description was written to explain how the participants learned and taught digital technology in their classrooms. Finally, a textural-structural description was written to explain the foundational ideas of each participant's experience with digital technology in their classroom. This was accomplished to create a thorough understanding of the 11 participants' experiences and ensure all foundational ideas were pulled from the data. Below is the textural description of what the participants experienced regarding learning technology themselves and teaching technology to their students.

Textural description. Participants were excited about using technology in their classrooms. Many of the participants attended fall and spring professional development sessions held within the district. Additionally, they sought out the advice and expertise of campus ITC's. Many of the participants continued their learning through research on their own to understand new technologies they wanted to implement in their classrooms. Overall, participants went out of their way to ensure they were prepared to teach their students using technology and also teach their students how to use technology.

Participants used whole group instruction and small group instruction when teaching students in their classrooms how to use technology. Many of them also utilized students who had demonstrated an advanced understanding of the technology applications they were using. They saw many advantages to technology integration and understood the importance they played in improving student readiness in the classroom and in their lives.

Structural descriptions. Participants worked diligently to provide quality opportunities for their students to learn and use digital technology. Through their own research, they set up opportunities for the students to learn about a variety of software applications, Internet programs, and fundamentals of research. Through whole group, small group, and individual attention, participants taught their students about technology.

When using Prodigy or Istation, software applications the district had purchased, participants taught students how to manipulate the program to get to their homepage. They instructed students in how to log on to the computer. From there, they gave instruction on where to go to find the programs and how to log on to them. Many participants had to help students set up individual accounts. This was especially true in the lower grades.

When teaching students about Google Classroom, participants helped students set up Google accounts, keep track of passwords, and learn how to access their assignments. Participants spent time teaching students how to open assignments, work and share information within the assignments, and turn in assignments. There was also time spent teaching students how to find assignments in progress and search for information needed for the assignments.

When teaching students how to conduct viable Internet searches, participants discussed with their students how to determine quality Internet sites and how to distinguish those from other sites that could be edited or demonstrated bias. This led to lessons on digital citizenship and author bias. Teachers taught how to tell a news story is fake and what kinds of Internet sites

can be trusted. There were many factors participants discussed about teaching their students to use technology for learning. Overall, they were excited about the possibilities technology integration held for their students and they wanted to ensure they provided as many opportunities as they could to prepare their students for life outside of school

Research Question Responses

There was one research question and three research sub-questions asked during the investigation portion of this study. The primary research question asked participants to describe how they used technology. It was important to investigate how they used technology to determine their level of personal technology integration. The first through third sub-questions were all follow up questions generated after the first question. The first sub-question sought to find answers to how participants were teaching their students to use technology. The second sub-question sought to determine how students were using technology in the classroom. Finally, the last research sub question asked participants to think about possible barriers to technology integration in their classrooms. Each question built upon the others to provide a thorough understanding of digital technology integration in each of the participants' classrooms.

Central research question. Many of the participants I spoke with began the interview believing they did not use technology that much in the classroom. Once we began talking, they were surprised to see how much technology had crept into their lessons and lesson preparation. Ten participants revealed they used technology to research their lessons. They looked at ideas and read articles to deepen their understanding of the concept they were teaching. Upon reflection, Jessica stated, "I can tailor a lot of my lesson plans from what I'm getting on Istation along with their MAP data," (Jessica, personal communication, December 14, 2018). Istation is a computer program many lower elementary teachers in this district utilize to enrich student reading comprehension. It is a software program the district has purchased for student learning.

MAP is the universal screener this district uses. Teachers are required to administer this online test at the beginning of the school year, right after the Christmas break, and at the end of the year. The data is used to determine student growth throughout the year.

Nine participants used technology to project information on the whiteboard for students. Two methods were revealed for projection during the interviews. Seven participants use an Elmo to project information from their computer like videos and websites. An Elmo is a digital overhead projector. It can display papers on a desk, like worksheets or student work, and connect to the teacher's computer to project digital content. Six participants used their tablets to project digital information and student work. Isabel used her tablet for much of her direct teaching time. She stated, "I move a lot. So, as I'm teaching lessons, the focal point necessarily isn't going to be on me but on the screen. I am now free to move wherever. I'm not tied to the dry erase board," (Isabel, personal communication, December 7, 2018). Participants who used this method of projection were very excited about the mobility it gave them as well as the opportunity it gave students to participate in the lessons.

All of the participants used digital technology for communication. They used email to communicate with colleagues and parents. Four of the participants used digital applications, like Class Dojo, Remind 101 and Bloomz to communicate with parents through their personal cell phones. These applications had a variety of methods teachers could utilize for communication. Gina was excited about the way she used this type of communication. She stated, "I use Bloomz to take video of them [students] reading and send it to mom and dad then they can share their experiences and their accomplishments with people through technology," (Gina, personal communication, October 30, 2018).

Sub-question 1. Participants understood the importance of teaching their students how to use technology. There were a couple of strategies that stood out among the participants when

asked about how they teach technology. The first strategy some of the participants used was integrating digital citizenship throughout their lessons. Four of the participants spent class time reviewing the procedures for technology prior to allowing students to get on computers or tablets. These participants spoke of the importance of teaching digital citizenship along with technology applications. Bob stated, "We talked a lot about the importance of passwords and privacy," (Bob, personal communication, September 12, 2018). Participants were really concerned students understand not just how to use technology, but how to use it responsibly so they did not find themselves in places they should not be.

Another strategy almost all of the participants used was spending time teaching basic computer application skills. For these participants, the basics included logging on to the computer and word processing skills. Ten participants spent time teaching technology to students they believed would further their education, prepare them for middle and high school, and prepare them for life outside of school. To do this, participants taught lessons whole group when they could. Many times, they reinforced previous lessons taught through small group instruction at stations or centers. These participants taught students how to use and save documents in Google drive. They taught students how to create slide shows through PowerPoint and Google Slides. Finally, they taught students how to create and use excel spreadsheets. Kim felt very strongly about teaching her third grade students about the applications they could use in Microsoft Office. Because she taught at a Title I school, she wanted to ensure her students learned how to use technology correctly. She stated,

> I think it's really driven me to teach them more about even just using Microsoft word. This is how you put a header on your paper, or this is how you put a page number on your paper, or the appropriate way to indent on a computer, (Kim, personal communication, December 17, 2018).

A final strategy participants used to teach technology applications was good researching skills. Four participants spent time prior to assigning lessons, teaching students how to conduct successful searches. The lessons were given whole group, while practice and refinement were conducted through small group instruction and individually. Because many of the participants allowed their students opportunities to research and find answers to questions asked in class, teaching them how to research was important. Donna, a fifth grade science teacher, said she allowed her students to look up answers to questions asked in class. However, before they were allowed to do that, she taught them about smart searches. She stated, "Google is my best friend and I teach the kids how to Google, like type something into Google where you're going to narrow down your choices. Because, for a lot of them, reading on the Internet is really daunting," (Donna, personal communication, December 20, 2018).

Sub-question 2. While at schools, participants integrated digital technology into their lessons when it was possible. This integration allowed students to explore the possibilities technology has for learning. Participants stated they primarily integrated technology at stations or during center activities. This was time when students would work independently to complete assigned work through technology.

Eight participants used Google applications like Google Classroom, documents, and slides. Participants took the necessary time to teach students how to use the programs and then allowed students time to create and complete assignments within the applications. By exploring the uses of Google Slides, or PowerPoint, students were able to learn about design and functionality when giving presentations. Kim reflected on teaching students to use Google documents or Microsoft Word. She remembered she taught students whole group multiple functions within the programs, then allowed students time in center activities to explore and create documents for assignments (personal communication, December 17, 2018).

When reflecting on how he integrated technology in the classroom, Bob stated, “I do a lot of stations and it's very much student driven, so it's [technology applications] part of a station, integrated with other activities like labs and more traditional reading activities,” (Bob, personal communication, September 12, 2018). This type of student driven exploration allows students the opportunity to research and find new information. It gives students examples of how technology can be used to further their education and expand their horizons.

Hannah spoke of a strategy she used once her first grade students had achieved a certain level of independence with technology. In her writing prompt, she discussed how she uses student technology experts to help her teach technology concepts other students are struggling with. She taught a lesson about how to use Adobe Spark to create presentations. Her technology experts created their presentations and then assisted others with their projects. Student experts were able to instruct struggling students with problem solving on the project, and Hannah was able to focus her attention on larger technology issues as they arose (personal, communication, January 6, 2019).

Participants believed technology integration improved their classroom environment. They reported students were more engaged in their lessons and more motivated to work. Nine participants reported student engagement went up and was sustained throughout the lesson when technology was a part of the activities. Hannah stated, “...just the motivation to want to learn. They're engaged in it,” (Hannah, personal communication, October 16, 2018). Isabel had something similar to say when she stated, “If they're using technology, they are going to be more engaged,” (Isabel, personal communication, December 7, 2018). Most participants made comparable statements within the interview.

Sub-questions 3. Barriers to technology integration come in various forms. Participants agreed not having every student at the same experience level was a barrier they had to conquer

early in the year. Participants reported students came to school with various amounts of technology at home and different levels of technology experience. However, participants felt the need to ensure every student had the same experience level by the end of the school year. Emily stated, “I think it does impact us [being a Title I school} because here at school, they either come with so much [technology] that they're relying on it or they come with nothing and we're having to teach them everything,” (Emily, personal communication, October 16, 2018).

Other barriers included not enough equipment, time management while teaching technology, lack of enough bandwidth to handle the number of students on computers, and equipment failure. Eight participants expressed a desire to have more technology so they could use it on whole class assignments. Though they taught technology whole group, many times students used technology in stations or centers. The participants’ desire was to have each student with technology so they could provide guided lessons to the whole class using technology. Going hand-in-hand with a lack of technology was time management. Finding the time to teach technology to students while also maintaining the level of rigor needed in the curriculum was challenging. Kim summarized the dilemma between these two pulls for attention in the classroom. She stated,

> We don't have enough resources. I have six computers and an iPad. With a class of 25 kids in here, it's very limited. And so then that limits it to using it during stations. That's not the ideal thing for you to be doing during stations; to teach them how we use Google slides or how we use spreadsheets. So then that stuff kind of goes to the wayside. But with the minimum resources the only feasible time to use it is during stations. So then they are limited to what I assigned them and to rely on each other because I can't pull my small group and do that at the same time (Kim, personal communication, December 17, 2018).

Amanda spoke directly to these barriers in her writing prompt. She discussed a time when she was allowing a previous class to type and print their finished writing projects. She had laid the foundation by teaching how to use the software applications and students were prepared to type their final drafts. Once on the computers and engaged in their projects, students began running into small problems. Examples of the problems she encountered with this lesson were the computer unexpectedly shutting down, students erasing their finished product, students clicking on the wrong command. When she attempted to print the assignments, the printer jammed or ran out of paper. She admitted to learning a lot about preparation for future projects, but ended this lesson frustrated by the constant "fires" she felt she was putting out while students attempted to complete the assignment (personal communication, January 7, 2019). Each of the participants was able to recall different episodes or examples of times when a barrier stood in the way of them integrating technology in the manner they desired. These barriers can be overcome but require hard work and dedication to find ways around them, through them, or over them.

Summary

The purpose of this qualitative phenomenological study was to investigate the experiences of Central Texas teachers' use of digital technology in their Title I elementary school classrooms. Eleven teachers teaching various grade levels in elementary school, with at least three years of classroom experience, participated in this investigation. I used structured interviews, writing prompts, and focus groups to obtain data for this investigation.

My focus in this investigation was on the following research question: How do Title I elementary teachers in Central Texas describe their experiences using digital technology in the classroom? There were an additional three sub-questions: (a) How do Title I elementary teachers in Central Texas describe the strategies they use to help students learn how to use digital technology successfully? (b) How do Title I elementary teachers in Central Texas describe student's

exploration of digital technology usage in the classroom? (c) How do Title I elementary teachers in Central Texas describe the barriers they may encounter in implementing digital technology in the classroom? I focused on the technology integration phenomenon at Title I elementary schools and the lived experiences of participants using digital technology in the classroom. Data from the research was organized into six major themes: technology as a basic part of life, teaching technology, student applications, effects of technology, technology in Title I schools, and barriers to technology integration. These themes provide insight for school administrators who control how Title I funds are spent. The data provides insight into how to better plan and use technology in elementary schools so students learn how to use it academically and are prepared for middle and high school, and ultimately, life after school. By analyzing feedback given by the participants in Title I elementary school, teachers who are struggling to integrate technology in their own classrooms may identify an idea or method of integration that will make their students successful as well as some of the challenges they may face as they integrate technology into their classrooms.

While addressing the theme of technology as a part of life, participants realized they use technology seamlessly. This realization underlies the importance of teaching technology in the classroom. Regarding the second theme, teaching technology, participants reflected on the different methods they used to teach their students technology. Many participants spent time teaching concepts whole group before allowing students to investigate on their own. Participants reported teaching students how to conduct searches methodically so students would arrive at quality information, and other research methods required to navigate the endless possibilities on the Internet. All participants addressed the limited time they felt they had to effectively teach technology and utilize it in the classroom successfully. The third theme, students' application of technology, revealed how classroom teachers integrated technology in their lessons. Students

were using technology for research and to complete assignments. They were scanning QR codes to access information from the teacher and projecting created videos and other presentations to classmates. Another theme, the effects of technology integration, reflected the importance of technology integration in the classroom. Participants reported high levels of student engagement and motivation to learn. The next theme, technology in Title I schools, discussed the importance of technology integration at Title I elementary schools. Because students attending Title I schools may not have technology at home, teaching students to use technology in an academic way was essential. Participants realized they were the bridge for their students. They were the ones responsible for preparing their students for life after school and all that would entail. Because they understood how seamlessly technology was used in their own lives, they felt a sense of urgency to prepare their students. Finally, the last theme discussed was barriers to technology integration. Participants reflected on their desire for more technology in their classrooms and as well as updated software. They also discussed how difficult it was to integrate technology to students at different ability levels. This was a significant barrier because there was not time to teach technology concepts while at the same time keeping the level of rigor in the curriculum required.

When addressing the research questions guiding this investigation, teachers described digital technology as any device that used the Internet and was digitally based. Participants understood the importance of teaching the use of technology for academic purposes to their students. They understood students would be graduating in 10 to 12 years into a world completely driven by technology and it was their responsibility to begin the process of teaching them about using technology. They worked tirelessly to find opportunities for technology integration in their lessons. Using centers to review concepts, stations to research and investigate concepts, and Google, participants walked their students through the learning process and

integrated technology on a daily and weekly basis for their students. They faced several barriers to technology integration. Participants discussed their lack of time and resources as the main obstacles to technology integration. Also mentioned were needed software updates and students' level of knowledge of technology as barriers.

Chapter four contains the detailed finding and data analysis of this study and the digital technology integration phenomenon shared by the participants at these Title I elementary schools. Descriptions of the data revealed while participants faced obstacles to digital technology integration, they were able to successfully utilize the resources available to them to prepare their students for life after elementary school. Participants shared common descriptions of technology integration and utilized many of the same strategies to integrate technology into their lessons. Though they struggled with a lack of equipment, participants felt they had successfully integrated technology into their lessons and were preparing their students for a life driven by technology.

CHAPTER FIVE: CONCLUSION

Overview

The purpose of this transcendental phenomenological study is to investigate the experiences of elementary Title I teachers' use of digital technology in their classrooms. After identifying 16 potential participants, a group of 11 individuals agreed to participate. These individuals were personally interviewed over the course of four months. They each completed a writing prompt about their use of technology in the classroom. Finally, they each participated in one of two focus groups. All of the interviews and focus groups were recorded and transcribed. Temi, an online digital software service, was used to transcribe each of the recordings. Moustakas' (1994) process for phenomenological reduction was then used to analyze all of the data. From this analysis six themes were discovered and reviewed. Much has been learned about the role technology plays in an elementary Title I school.

This chapter begins with a summary of the findings produced from the data analysis. Next, a discussion of the findings is reviewed as well as how the findings relate to the current literature and theories used to support this research. Implications of the study are described as well. Lastly, a discussion of the delimitations, limitations, and recommendations for future research are reviewed.

Summary of Findings

Through the analysis of participant interviews, writing prompts, and focus groups, six themes were identified in regard to teacher perceptions of technology integration at their Title I elementary schools in Central Texas. These themes were: technology as a basic part of life, teaching technology, student applications of technology, effects of technology, technology in Title I schools, and barriers to technology integration. These themes correlate to the research questions posed for this research project and can be viewed in Appendix J.

The central research question was: How do Title I elementary teachers in Central Texas describe their experiences using digital technology in the classroom? The first theme, technology as a basic part of life, was derived from this central research question. Participants acknowledged they had integrated technology into their personal and professional lives more than they at first believed. All participants utilized digital technology to create lesson plans, collaborate with other teachers, and keep up with grades. Ten participants revealed they used technology to research their lessons as they were planning. These participants would read articles, view other teacher ideas, and deepen their understanding of student progress data to further their knowledge of their student populations and create active and dynamic lessons for their students. They used email and several digital applications to communicate with friends, family, and students' parents. This method of communication saved much time for participants throughout their day. In many cases they were able to use digital applications to update parents on student activities as they were happening. Six participants used their tablets to project digital information and student work. This allowed them more mobility within the classroom and improved classroom management. The participants, at some point in our interview or focus group meetings, all stated they did not realize how dependent they had become on technology and how much it was integrated into their lives. This acknowledgement led them to begin thinking about how they teach their students to use technology.

There were three sub-questions that followed the central research question in this study. The first sub-question was: How do Title I elementary teachers in Central Texas describe the strategies they use to help students learn how to use digital technology successfully? This question correlated to the second theme found in this exploration. Teaching students how to use technology for academic purposes was an important process to the participants. Ten of the participants acknowledged the importance of technology in order to prepare students for middle school and

high school, and ultimately for their life outside of school. Participants spent time teaching students how to utilize Google drive for storage. The strategies involved in teaching the students how to use Google drive were whole group lessons followed by small group instruction and one-to-one follow up. Three participants used Google Classroom to disperse and manage student assignments. Participants taught students how to create documents, slide slow presentations, and spreadsheets. While teaching students how to use the different applications, the participants utilized whole group instruction. This was followed by student interaction with the applications and practice. These participants knew this knowledge would help their students as they progressed through school, giving them the ability to work within these applications from an early age. Eight participants spent time teaching students how to conduct research on a digital device. They taught their students about the importance of quality Internet sites and how to narrow research results so students did not have to spend a lot of time reviewing extraneous information. Though this type of teaching was not reflected in any of the participant's curriculum standards, they all believed the time spent teaching their students these concepts was important in their students learning and development.

The second sub-question was: How do Title I elementary teachers in Central Texas describe student's exploration of digital technology usage in the classroom? This question revealed three themes when completing the data analysis. The first theme revealed from this research question was student application of technology. Participants believed most students had at least some access to technology at home. However, they believed the majority of their students utilized technology to play video games and connect with peers on social media. They did not believe their students were using technology at home for academic purposes. Therefore, participants believed it was their responsibility to integrate technology into weekly and daily lessons for the purpose of allowing students to explore technology used for learning as well as entertainment.

All of the participants integrated technology into centers or stations. Within these centers, students were able to explore software programs designed to improve their understanding of reading and mathematical concepts. Through the use of district purchased software, students were able to review concepts previously taught and receive reinforcement on the skills they were learning through direct instruction in the classroom. Additionally, eight of the participants integrated technology into their lessons through research opportunities. Students accessed digital technology and explored topics assigned by the teacher to further their understanding of concepts touched on in classroom discussions.

The second theme revealed through data analysis of research sub-question two was the effects of student use of technology. Participants discussed student engagement and motivation when technology was introduced into their lessons. They revealed their students were excited to open the computers and begin assigned tasks. Two participants mentioned how using technology increased student motivation over seemingly mundane tasks like mastering multiplication or reviewing long division. Students' attention levels were higher and they remained focused longer when technology use was a part of their lessons.

The third theme revealed through the second sub-question was the importance of technology integration in Title I elementary schools. This theme went hand in hand with student application of technology. Because students' use of technology was taking place within a Title I school, the two themes overlapped each other. The mention of a lack of appropriate technology at home was mentioned here as well. What was different was participants mentioned students came to school with varying levels of technology experience. In order to be considered a Title I school, a minimum of 40% of the student population must receive free and reduced lunch. Therefore, the student population at all of these elementary schools was quite diverse. Students came from both very low socio-economic backgrounds and high socio-economic backgrounds. This being the case, students

came to school with various amounts of technology available to them at home and a variety of ways in which it was used. Eight of the participants believed it was there responsibility to prepare their students for life after elementary school. They all ensured that quality educational experiences were taking place within the classroom through the use of technology. Students had opportunities to go on digital field trips, learn how to use Google applications, and conduct research. Participants understood the time they invested was important to ensure success in the generation of students they were teaching. The participants acknowledged the importance of technology integration because they knew they were preparing their students for jobs not yet thought of and technology applications beyond their current understanding.

The third sub-question was: How do Title I elementary teachers in Central Texas describe the barriers they may encounter in implementing digital technology in the classroom? This question correlated to the sixth theme found in the analysis of the research. This theme revealed the barriers these participants encountered as they integrated technology into their lessons and their students' academic lives. The most mentioned barrier participants cited was a slow bandwidth. Nine participants stated having an entire class on technology at the same time would make their connection slower and would cause buffering and delays in Internet sites loading. Lack of bandwidth also meant the Internet would crash unexpectedly and was delayed in getting restarted. These obstacles frustrated participants and their students because they caused a time drain on already limited class time. Another barrier, mentioned by eight of the participants, was a lack of adequate technology resources within their classrooms. With only five computers or tablets in a classroom of 20-25 students, there was no way to ensure all students had access to technology on a regular basis. Participants mentioned having to borrow from other classrooms and planning weeks in advance in order to set up a whole class technology lesson.

Two other barriers mentioned by participants worked together to create obstacles for the teachers. The first barrier was not all students were at the same level of technological experience. This barrier meant when participants wanted to teach a whole class lesson using technology, some of the students might already understand the information being taught by the teacher, or catch on very quickly, while the rest of the class took more time to understand the concept being addressed. Many of the participants used those students who caught on quickly as student technology experts to help others in the class. This helped to improve the second barrier participants faced when challenged with different ability levels. The second barrier was classroom management. With students at different levels, some ready to race forward with the assignment and others struggling to log on to the computer, the teachers grappled to maintain a calm classroom atmosphere that invited all students to learn and work through the lesson. They found this atmosphere problematic to maintain while also troubleshooting problems that arose as students came to procedures they did not understand. Six participants discussed the frustration they had at not being able to meet the needs of all of their students while trying to teach these lessons. This caused time to not be used wisely for participants and added frustration as they attempted to integrate technology for their students.

Overall, a great amount of information was derived from the study. In analyzing the data, I realized participants wanted to move their students forward with technology and allow them to feel successful in learning how to use these tools. Though they faced barriers that worked against this progress, all of the participants revealed a dedication to their students and a dedication to continued technology integration.

Discussion

This section will discuss the findings of the research in relation to the theoretical and empirical literature reviewed earlier in this study. Theoretical literature refers to the information

presented previously regarding the two theories supporting this study. Empirical literature refers to the information derived from previous research studies.

Theoretical Literature

Two learning theories were used in this research study. The first was the experiential learning theory. This theory originated with research conducted by David Kolb (1984). The second theory utilized in this investigation was the social constructivist theory and specifically, Lev Vygotsky's zone of proximal development.

Experiential learning theory. This study furthered the knowledge and understanding of Kolb's experiential learning theory. The purpose of Kolb's (1984) learning theory was to explain how adults learn new concepts. Participants of this study were adults learning new technologies and implementing them in lessons for their classrooms. Working with his wife, Alice, David Kolb (2013), discovered four phases of learning adults progress through. These phases were concrete experiences, reflective observation, abstract conceptualization, and active experimentation. Participants of this study discussed how they maneuvered through all four phases of learning as they worked to integrate technology into their classrooms.

Participants discussed how they were trained and learned to use digital technologies. This training parallels Kolb's first phase of learning called concrete experiences. All 11 participants discussed how they attended the district training offered in the fall and spring as well as technology professional development provided by the ITC's during the school year. The concrete experiences they received during this training led them to move to Kolb's second phase of learning; reflective observation.

During training, participants were given the opportunity to use the technologies and reflect on how they were manipulated. This reflection allowed participants to further their understanding of the technologies they were learning. Participants were then able to

conceptualize how they could use the new information to provide learning opportunities in their classrooms. This is the third phase of learning Kolb outlined; abstract conceptualization.

The final phase of learning Kolb discovered was active experimentation. Eight of the 11 participants revealed if they wanted to learn about a new technology or software program, they researched the information themselves or sought out help from their campus ITC. This represents how comfortable they have become with technology and their willingness to experiment on their own.

The seeking out of further information demonstrated the reality that my participants wanted to learn new information but adapted to this new knowledge differently than children and adolescents. Once mastered, the participants of this study were able to modify the technologies to fit the needs of their classrooms and student population. This process of learning, practicing, adapting, and utilizing corroborates previous research on the four phases of learning Kolb and Kolb (2013) introduced.

Zone of proximal development. This study furthered the application of Vygotsky's ZPD. The purpose of Vygotsky's (1978) zone of proximal development was to demonstrate the process of children learning new concepts. Children, introduced to a new idea, gradually move through the three zones of learning to master new material. The largest zone is what a student does not know. The middle zone is where students learn new material with the help of peers or the teacher. This is the area in which teachers spend most of their time. The inner, and smallest, zone is where the student has mastered the concept previously taught (Vygotsky, 1978).

When introducing a new concept, participants began by teaching their students the new technology applications for learning. Participants admitted students came to their classrooms with a limited knowledge of how to use technology for academic purposes. Donna stated,

> it's like a double edged sword because I know that they are so savvy and they're used to getting the instant gratification that the Internet brings, but I don't know that they know how to utilize it in an educational setting (Donna, personal communication, Dec. 17, 2018).

As their students learned new concepts, they progressed through Vygotsky's ZPD addressed in his learning theory (Vygotsky, 1978). The participants felt the need to integrate technology in their classrooms to prepare their students for the digital age in which they were living. Students learned about various programs, websites, and data storage facilities. The teachers who participated in this study revealed as their students practiced the use of technology components, they gained knowledge and strength of understanding. This represents Vygotsky's center circle, in which participants were teaching their students and students were learning and practicing new concepts.

Participants discussed how their students' confidence grew as they continued to mature in their knowledge of these new concepts. Ultimately, participants desired students to master new technology concepts to the point where the students were comfortable using them in class, and throughout their schooling. Five of the participants discussed how their students became technology helpers in the classroom. These students had progressed to Vygotsky's most inner circle of learning in the zone of proximal development (Vygotsky, 1978). All of these processes add further evidence of Vygotsky's ZPD and add support to his theory of learning. This study also added further information regarding the empirical literature discussed earlier in this investigation.

Empirical Literature

Current research into technology integration focuses on middle and high school settings as well as schools moving to a 1:1 model of technology integration. There is very little research

at the elementary level focusing on how teachers integrate technology into their classrooms. This section focuses on the relationship between the empirical literature reviewed earlier and information revealed in the data analysis of this study.

Teacher perceptions of digital technology. Previous research revealed teachers' desire to implement technology into their classrooms. Teachers want their students to investigate and take ownership of their learning (Ruggiero & Mong, 2015; Varier et al., 2017). The integration of digital technology in the classroom enables educators to structure their lessons in such a way that the students' needs are met. This research corroborates that idea. Many of the participants mentioned they were able to differentiate their lessons based on student needs through the use of technology. Students were able to learn at their level through the use of digital software and Google Classroom.

In previous research, teachers mentioned being hesitant to try something new or initiate change because they were holding on to their old teaching styles (Varier et al., 2017). Research also indicated as teachers integrated more technology in the classroom, they began to lose some of the control they had as the classroom became more student-driven (Ruggiero & Mong, 2015; Varier et al., 2017). This study extended the literature on the topic of teacher perceptions to include the possibility that teachers' views on technology may be changing. The participants in this research desired more technology integration. They sought out opportunities to learn and grow in technology integration. One of the participants, Bob, was primarily facilitating a student-driven classroom. Additionally, four of the participants in this exploration had over 20 years of teaching experience, and six had over 15 years' experience. This information reveals these participants were willing to change their teaching style as technology grew and they embraced the benefits of technology integration.

The time required to teach technology was a concern in the current research. Teachers reported technology integration took time for them to learn, plan, and teach (da Cunha, van Oers, & Kontopodis, 2016; Dorfman, 2016; Kladder, 2016; Varier et al., 2017). This research corroborates this belief. The participants revealed they took time in their day to teach seemingly simple technology applications. Because there was no longer a computer class taught at the elementary level in this district, the responsibility of teaching this technology fell on the classroom teachers. If they were going to use technology in the classroom, they were also going to teach students the primary applications of technology like logging on to the computer, opening and closing applications, typing, and slide show presentations.

Professional development in regards to technology. The research was clear when determining how to integrate technology in the classroom successfully (Bakir, 2016; Kim, Xie, & Cheng, 2017; Phu & Fade, 2014; Shih-Hsiung, Hsien-Chang, & Yu-Ting, 2015; Wright, 2017; Xie, Kim, Cheng, & Luthy, 2017). Many current studies indicated teacher training in technology integration was weak and ineffective (Phu & Fade, 2014; Wright, 2017). Much of the research suggested that training was not hands-on and content appropriate, it was too basic and did not prepare teachers for implementation in the classroom (Phu & Fade, 2014; Shih-Hsiung et al., 2015; Wright, 2017). This study disputed current research on this topic. It revealed training in technology was completed successfully at the district in which these participants were employed. Participants had many opportunities to learn about technology. The method used by most participants was through the teaching of the district ITC (Instructional Technology Coach). These individuals were on participants' campuses each week. They provided additional training to teachers and answered questions teachers had about technology integration. If new information about technology integration was used in the district, the ITC's were able to give teachers first-hand information and provide training so others could implement new technology

ideas the next day. In addition to this type of training, the participants discussed how the district provided hands on technology training at the beginning and end of each year. Many of the participants explained how they would take part in these trainings to further their understanding of technology as well as provide themselves with the necessary information to equip their students in the classroom.

Teaching students to use digital technology. Technology is integrated into the classroom when students are accessing it and learning to use it to further their understanding (Brahimi & Sarirete, 2015; Chung et al., 2014; Delgado et al., 2015; Gurung & Rutledge, 2014; Merchant, Goetz, Cifuentes, Keeney-Kennicutt, & Davis, 2014). This type of learning is completed in several ways. Merchant et al. (2014) found that gaming was an effective way to teach technology applications. It is also accomplished through a flipped classroom model where instruction is directed from a student needs perspective (Brahimi & Sarirete, 2015). Regardless of the method of delivery, research indicates if students are going to learn to use technology, it is essential they try it out in different ways and practice its use (Delgado et al., 2015; Gurung & Rutledge, 2014; Killeen, 2014; Merchant et al., 2014; Tate, Warschauer, & Abedi, 2016).

This study furthered the research on this topic. Participants discussed their willingness to teach students how to use different aspects of technology. Lower elementary participants taught their students to utilize software applications and games the district had purchased. These applications provided students the opportunity to learn in a fun and motivating way. In upper elementary, participants spent time teaching students how to maneuver through the Internet. They taught them how to research and determine the quality of Internet sites. They spent time teaching data processing and slide show applications. In several classes, participants integrated assignments through digital classrooms or utilized software to show student work in progress to

the class. Students studied how to manipulate the same software and demonstrate what they were learning as they practiced their daily lessons.

Barriers to technology integration. Research indicated there were three types of barriers associated with technology integration. These barriers were first-order barriers, second-order barriers, and bureaucratic and equipment barriers (Heath, 2017; Topper & Lancaster, 2013). First-order barriers are those barriers that impede schools and are district wide. These include a lack of devices, training, and support technology. Second-order barriers are focused more on the individual teacher. Examples of second-order barriers can be pedagogical belief systems and negative experiences with technology (Heath, 2017). This type of barrier can influence whether or not a teacher decides to try something new in his or her classroom (Cho, 2017; Crompton et al., 2016; George & Ogunniyi, 2016; Grant et al., 2015; Heath, 2017; Robinson, 2016; Rust, 2017; Topper & Lancaster, 2013). Bureaucratic and equipment barriers are a type of barrier hindering technology integration in schools. Examples of this type of barrier are a lack of technical support in setting up devices, reliable Wi-Fi connections, low bandwidth, and school firewalls (Heath, 2017; Topper & Lancaster, 2013).

This study found the first-order barrier of a lack of devices to impede technology integration. This finding supports the conclusions of previous research. Participants recalled how they would have devices taken from their classrooms several times a year due to district mandated testing. Participants borrowed digital devices from other classrooms when they were available. Much of the time, however, participants had only five devices for a classroom of 20-25 students. Nine of the 11 participants indicated they could do more technology instruction if they had more devices.

Training and support were not seen as a barrier in this investigation as it was in other research studies (Cho, 2017). Participants felt comfortable with the training they received at the

district level. Additionally, they utilized the campus ITC's when questions arose, or something was not working the way it needed to. Finally, many of the participants were comfortable researching new ideas themselves and teaching themselves how to integrate new technology in the classroom.

Previous research indicted teachers discussed a need for more time to learn how to use technology and also more time to teach their students to use new technology (Crompton et al., 2016; Grant et al., 2015; Heath, 2017; Topper & Lancaster, 2013). This study corroborated the research indicating teachers desired more time to teach students to use technology. Participants noted they did not have enough time to integrate technology into their classrooms fully. Additionally, because of the demands of the curriculum, they felt they did not have the time necessary to teach their students how to use technology. Many times, technology lessons were completed whole group with follow up lessons completed in a small group or one-on-one sessions. One way participants believed this barrier could be alleviated was to integrate computer classes back into the special's rotation each week.

Second-order barriers are focused on individual teacher beliefs. Examples of second-order barriers include teachers not wanting to change their lesson delivery style and frustration when attempting technology integration. George and Ogunniyi (2016) and Heath (2017) found that veteran teachers who have been teaching a particular way for many years may believe they do not need to change their methods because what they have done for so long has worked and they have been successful. Another example of a second-order barrier is when a teacher tries to implement new technology in the classroom only to have something go tragically wrong that extinguishes the implementation of the technology (George & Ogunniyi, 2016; Heath, 2017; Robinson, 2016). Both of these instances can result in teachers not integrating technology in their classrooms.

This study contradicts previous research on veteran teachers use of digital technology in the classroom (George & Ogunniyi, 2016; Heath, 2017). Over half of the participants in this investigation were considered veteran teachers, having taught over 15 years. They had many years of experience and knew what worked and did not work in their classrooms. The participant with the most experience, Carla, had over 30 years of experience and was also the participant most excited about having all of her students on tablets and using a BYOD (Bring Your Own Device) program in her second grade classroom. Another participant, Bob, had over 20 years of experience. He not only integrated technology in his class but taught other teachers at district training sessions how to create a student-driven classroom.

One of the participants, Amanda, discussed in her writing prompt, a time when a technology lesson had been a disaster. She answered both writing prompts, addressing when technology did not work as well as when it was successful. In her second prompt, she continued her story from the first prompt, by telling how she used that temporary setback in the technology lesson to strengthen her understanding of the program she was using. She then went back and completed additional lessons, teaching her students how they could apply the technology to their learning. The participants of this study were resilient and willing to try new ideas. They continued to learn ways to integrate technology, overcoming the obstacle of second-order barriers. They contributed further information to technology barriers by describing how to handle these barriers when they arose.

The third type of barrier discussed in the literature was bureaucratic and equipment barriers. These barriers are the type that cannot be overcome by the classroom teacher. They are barriers that happen at the most inopportune times and frustrate dedicated teachers. Participants indicated they encountered these types of barriers when they attempted to integrate technology. This study furthers research on bureaucratic and equipment barriers. The participants mentioned

they would become frustrated with low bandwidth issues when whole classes were on technology.

The participants managed to work within the barrier of their Internet going down unexpectedly. Veteran teacher participants spoke about always having a backup plan. They were concerned though with how a new teacher might handle the same situation and the time that would be lost because of a slow Internet connection or an accidental drop in the Internet. Participants demonstrated their determination to create classrooms integrated with technology to teach their students how to use technology for learning. The discussion of the theoretical and empirical literature leads to the implications of this research.

Implications

Participants revealed the desire they had for their students to succeed. They were willing to try new methods of technology integration in order to see their students accomplish new tasks. They understood life after school would be dominated by technology and their students would have to understand how to navigate through all of the technology rich developments. This desire to see their students succeed provided the motivation required to give their opinions regarding digital technology in their classrooms. Participants reveal both the positive and negative aspects of a technology integrated classroom. This section discusses the theoretical, empirical and practical implications of this investigation.

Theoretical

Theoretical implications are divided by the two theories used in this study. These theories were the experiential learning theory proposed by David Kolb (1984) and Lev Vygotsky's zone of proximal development (1978). The research of this topic added more information regarding how adults and students learn.

Experiential learning theory. This investigation added additional applications to David Kolb's experiential learning theory. David Kolb believed adults learned through application of new ideas flowing through his four-step process. They would read or listen to new ideas, reflect on the ideas, begin to make plans integrating the new information, and finally integrate the new information and use it successfully. Participants revealed their eagerness to learn new technologies. They attended trainings, sought out the advice of mentors, and took it upon themselves to research new methods of technology integration and software applications they could then teach their students. Through these methods of acquiring more knowledge of technology, participants learned, practiced, and mastered new technology ideas to introduce into their classrooms. This ability to increase their knowledge indicates one more application of adults learning and adapting to meet the needs of their world and demonstrates evidence of Kolb's experiential learning theory (Kolb, 1981).

Zone of proximal development. Participants revealed their processes of introducing new ways to use technology for the purpose of learning. They repeatedly stated that students came to school without the knowledge of how to use technology to further their understanding of concepts discussed in class. As classroom teachers, ten of the participants discussed how they explicitly walked their students through new uses of technology. They would provide an introduction to the technology, demonstrating for the students how to utilize it. Then, they would allow their students to practice using the technology, providing assignments that reinforced the use of technology. Finally, they would watch as their students grew in their understanding of technology and were able to adapt it to different settings and help others who struggled in class.

This investigation adds further validity to Vygotsky's concept of the zone of proximal development and continues to grow the pool of information on the social constructivist learning

theory. The participants were able to utilize the ZPD, whether they were cognizant of the theory or not, to grow their students' knowledge of digital technology applications. Students were able to move through the zones as they learned new information about the uses of technology for the purposes of learning.

Empirical

Much research has already been conducted on technology integration in the school system. Some of the primary topics researched extensively have been the use of BYOB programs and 1:1 technology initiatives. There has been little research conducted on elementary technology integration. This study added the voices of Title I elementary teachers to current investigations.

Legislation. Since 2001, with the signing of NCLB, technology became a factor in education (U.S. Department of Education; 2010). Teachers are required to utilize technology in some form during their teaching. Additionally, with the world racing towards a digital community, students are required to understand how to manipulate technology to perform in school and later, in life. In many cases, teachers hold the key to student success when learning how to use digital technology for the purpose of learning. Because they have this power, teachers' perceptions of technology are crucial in understanding how to teach students to use technology.

Technology integration in K-12 schools. Though there is much information on how technology is integrated into curriculum, there is very little information on technology integration at the elementary level. In my review of the literature there was no research found on technology integration at elementary Title I schools. This study added to the research by giving a voice to Title I teachers. It allowed participants to reveal how they learn to use new technology ideas in their classrooms. Speaking on their trainings and their own professional development in

regard to technology integration, participants revealed their own processes for learning and implementing new ideas in their classrooms. It further added to the literature on technology integration in K-12 schools. Through the voice of the participants, this research revealed how Title I elementary students use technology for the purpose of learning. Participants discussed the advantages of using technology in their classrooms and the increased engagement they witnessed in their students. They also discuss how they set about teaching their students to use technology. They admitted many of their students came with a limited knowledge of technology for learning purposes and they acknowledged they were responsible for lessening the gap between entertainment and learning in regard to digital technology integration.

Current research also indicates that teachers desire for their students to be successful with new technology implementation (Basilotta Gómez-Pablos et al., 2017; Beach, 2017; Ruggiero & Mong, 2015; Varier, Dumke, Abrams, Conklin, Barnes, & Hoover, 2017; Williams & Otrel-Cass, 2017). Participants in this investigation were no different. All of the participants used technology in their classrooms. They wanted to teach their students how to use the technological devices available and how to incorporate learning objectives into daily lessons. Amanda spoke about using digital technology because it is the way it is done in today's classrooms while Carla felt that digital technology was important because students' brains were becoming hardwired to learn from technology. She believed this was how her students' minds work. All of the participants felt a shift in education towards more technology integration.

Professional development in regards to technology integration. As teachers learn more about digital technology and how to implement it into their lessons, students are gaining more hands-on experience with technology themselves. Therefore, teacher training is important. Several studies indicate a positive correlation between teacher training and technology integration (Bakir, 2016; Kim et al., 2017; Shih-Hsiung et al., 2015; Xie et al., 2017).

Participants revealed they received training from their school district on several occasions. Carla revealed she attended professional development before the school year began to update her knowledge of technology integration at the district. Bob not only attended technology professional development, but also taught several of the sessions at the district's annual professional development conference. In addition, many of the participants utilized the districts ITC's as a one on one coach for integrating new ideas into their lessons. Analysis of this data indicated participants furthered the thought that effective training leads to better technology integration in the classroom.

Teaching students to use digital technology. Learning about technology is closely followed by teaching students how to use technology. Current research reported the best way to teach students about technology was to allow them time to practice (Delgado et al., 2015; Gurung & Rutledge, 2014; Killeen, 2014; Merchant et al., 2014; Tate, Warschauer, & Abedi, 2016). Participants in this investigation did that. Kim, a third grade teacher, spent time teaching her students about the ways to create documents for reports. She allowed her students to practice and utilize the information she taught them to create documents throughout the year. Donna, a fifth grade science teacher, taught her students how to narrow their research options, find quality Internet sites, and gather information. This is a skill her students will use the rest of their lives. This ability to learn lifelong skills enabled students to take ownership of their learning and demonstrated that it became more meaningful to each of them (Gurung & Rutledge, 2014).

Participants found there were many advantages to integrating technology into their lessons. This is corroborated by recent studies. Keppler et al. (2014) studied how technology could increase effectiveness in language arts classes. The study demonstrated, through the use of technology, educator pedagogy and student learning increased (Keppler et al., 2014). Other studies reported positive outcomes when presented with technology integration in secondary

classroom settings (Cho, 2017; George & Ogunniyi, 2016; Nowell, 2014; Robinson, 2016). Cho (2017) and Robinson (2016) both reported technology integration improved student motivation. Sixty-four percent of participants revealed the same findings. Though students were at an elementary level, participants spoke about increased student engagement in lessons, students being more motivated to learn new concepts, and an increased willingness to take risks and step out of their comfort zone when learning about a new technology. Researchers are finding that using technology at the earliest stages of education is beneficial for student achievement (Fox-Turnbull, 2016). This investigation corroborates those findings.

Technology in Title I schools. Though many studies have been conducted on technology integration, my review of the literature revealed no studies conducted on technology integration at elementary Title I schools. Title I schools serve a population of students that are defined as being low in socio-economic status (Adams, 2014). This investigation highlights the way teachers are using the resources available to provide a digitally integrated classroom to their students at Title I elementary schools. Amanda, a fifth grade math teacher, increased student motivation through the use of digital review games for her students. Bob, a fifth grade science teacher, facilitated a student-directed classroom where technology was a part of every lesson. Carla, a second grade teacher, integrated technology by allowing her students to research vocabulary words and definitions to increase reading comprehension for her bilingual students. Faith, a first grade teacher, took her students outside the boundaries of their neighborhood by conducting online digital field trips where students were able to interact and see places they may not be able to see any other way. These are just a sampling of the ways these participants integrated technology in their classrooms. All participants diligently sought ways to integrate technology for their students to improve lessons and learning every day.

There is much research regarding technology integration in K-12 schools. Many studies have been conducted to determine if 1:1 and BYOD initiatives are successful (Delgado et al., 2015). Additionally, studies have been conducted to determine how technology is improving learning in the classroom (Delgado et al., 2015). This study brought a new understanding to technology integration in Title I elementary schools.

Practical

There are several practical implications to this research study. These implications are in regard to how teachers are trained to use technology, technology integration in Title I elementary classrooms, and students using technology for the purpose of learning. These implications have led to specific recommendations for certain stakeholders. These recommendations are directed towards district-wide policyholders, elementary school principals, and elementary classroom teachers. The recommendations are directed to these groups because they are the ones who have the power and influence to write policies for school districts, purchase technology, and use technology in the classroom.

Policyholders. Policyholders refer to school board members, superintendents, and school district personnel responsible for decisions regarding how money is spent within departments and distributed to the district's schools. For teachers to be able to integrate technology into their classrooms, they must have adequate access to technology. Policyholders must understand the importance of providing training, digital devices, and updated software to teachers and their students, so they are able to stay current with what is available and accessed outside of the elementary school classroom. Cho (2017) stated if school districts are not providing adequate resources or the resources are outdated, digital technology will significantly decrease. Participants indicated how they adapted and worked within the framework of the technology available to them. Six of the participants indicated they wished they had more

technology in their classrooms and would utilize technology more if they had access to more devices. During focus group discussions, participants found technology was not the same at all of their schools. They recommended all Title I elementary schools have the same technology available across the district because their students were so transitory and would move between two or three schools in one school year. While purchasing technology and keeping it up to date is expensive, it is essential for schools to ensure students are prepared for life after school. One way this could be done is through grant writing opportunities. Technology integration needs to begin with elementary schools and funding technology should not be a barrier to successful implementation. O'Neal, Gibson, and Cotten (2017) stated, "students need integrated technology skills in their early learning and those skills will play a key role in their future success," (p. 199).

Administrators. This study revealed several advantages to digital technology integration in the classroom. The two most mentioned advantages were increased student motivation and increased student engagement. Participants discussed how their students were more motivated to complete assignments. Students worked harder and longer when technology was a part of the activity. Additionally, students were more engaged in their learning activities when technology was part of the lesson. They were excited to begin their work and maintained that excitement as they moved through their lessons. Administrators reading this investigation should have a better understanding of how to integrate technology in their Title I elementary schools. Though these schools were not 1:1 or BYOD campuses, participants were able to adapt to the devices available and provide technology-rich environments for their students. This allowed their students opportunities to learn and grow in their appreciation of technology and their ability to use technology for the purpose of learning. Looking outside of this district and to school districts across the nation, this investigation reveals the training needs of teachers. Participants had multiple opportunities to learn new information about digital technology

resources and how they can be implemented in their classrooms. This is important to recognize as administrators plan professional development opportunities at the beginning and end of the school year as well as ongoing trainings throughout the school year. These training opportunities increased confidence in digital technology integration and prepared participants to deliver digitally integrated lessons in their classrooms.

Teachers. All of the participants were elementary classroom teachers. They all taught at Title I schools. This investigation provides evidence of successful digital technology integration at this level. Teachers and students were able to learn and utilize digital technology to increase academic learning. Participants were divided on whether working at a Title I school affected their technology resources. What is important to realize is these participants did not let a lack of technology or a lack of student understanding stand in the way of them implementing digital technology in their classrooms. This is important for other teachers as they look to integrate technology in their classrooms. Participants discussed the importance of training and their education on technology. They focused on ensuring there was time in their lessons to teach their students how to use technology. Finally, participants gave their students the opportunities needed for them to learn the technology applications and utilize them to further their learning and understanding of their lessons.

Each of the stakeholders mentioned above have the power to make a difference in the classroom. Policymakers must work to ensure school districts are provided the means to incorporate and integrate technology at all levels of education. Administrators must work together to ensure their teachers are trained and prepared to teach their students the 21st century skills necessary to be successful in and out of school. Finally, teachers must be open to new ideas and training to improve their understanding of technology integration as well as not giving up when faced with the inevitable obstacles that will come with digital technology integration.

Delimitations and Limitations

In any qualitative study there will be some delimitation and limitations. Delimitations are decisions made to limit a study. Limitations are factors beyond the researcher's control that may bias the data. There were both delimitations and limitations in this investigation.

Delimitations

This research included several delimitations. The first was how participants were chosen. I used purposeful sampling in participant selection. Principals and ITC's recommended teachers they knew within their schools who met the criteria of the study. The limiting criteria was teachers who had at least three years of teaching experience and were known to use technology in their classrooms. Additionally, participants had to teach at one of the six Title I elementary schools within the focus of the study. This eliminated all teachers at the middle and high school level as well as the 207 teachers not recommended within the six elementary Title I schools. A seventh Title I school was not utilized because it is my home campus and participants from this campus might have been influenced by our teaching relationship. In addition, this investigation did not include the any private schools or any other public school districts in the area. The demographics of the schools were delimited because the study focused on only one school district in Central Texas. There is a possibility that the experiences and perceptions of the other teachers would yield different results. This study was conducted in five Title I elementary schools and reflects the experiences of teachers teaching at these schools. This sample can not be described as representing all Title I elementary teachers, it is unlikely the research findings would be limited to just this group of teachers.

Limitations

There were several limitations of the study. The first limitation was researcher bias. The phenomenon I studied was technology integration at Title I elementary schools. Part of the bias

from this investigation stems from the fact that I am a teacher at a Title I elementary school within the district used for this research project. While I made every effort to put my own thoughts and ideas aside (Moustakas, 1994) and allow the participants' voices to be heard, my own human nature provided some amount of bias in how I interpreted and drew conclusion from the data.

Another limitation was the voluntary nature of the study. This limited the study to only 11 participants, though 16 were recommended. While saturation was met, this limited the study to only one male teacher and no Special Education or Special Area teachers. Special Area teachers are those teachers who teach art, music, and physical education. A larger and more varied group of participants might have resulted in different themes.

Another limitation of the study was that participants came from only five of the seven Title I elementary schools. Because I teach at one of the Title I elementary schools, it could not be included, and I did not gain access to the sixth Title I elementary school. It can be presumed that adding participants from the two additional Title I elementary schools would have resulted in different, or more, themes in the research. The subjective memories of the participants in the study and the honesty of the participants are two other limitations of this study (Cordes, 2014). As the researcher, I did not know any of the participants previous to the study and therefore have no knowledge of their classroom experiences other than what they spoke to me about.

A qualitative approach was used in this study and was suitable to gather the descriptive remembrances of the participants, but the findings may not be simplified to other populations and settings. Though the participants willingly engaged in the study and were generally excited to discuss their methods of technology integration, some of the participants may have remembered information and presented that information different from reality. Others may have forgotten important descriptions or stories that would have added to the study. Finally, this

investigation was dependent upon the participants' willingness to engage in discussions about technology integration. In some instances, the participants may have been hesitant to share their more private thoughts and beliefs during the focus group meeting. Finally, participants may have given answers they thought were sought after in an attempt to satisfy the researcher or the members of the focus group.

Recommendations for Future Research

I set out to study the experiences of Title I elementary teachers use of digital technology in their classrooms. I wanted to understand their perceptions as they discussed with me how they learned to use technology and how they taught their students to use technology. Although technology integration is becoming more commonplace in classroom settings (Alsaeed, 2017), there have been very few studies focusing on technology integration at the elementary level. While this study helped to fill the gap in the empirical literature on technology integration at Title I elementary schools, replicating this investigation with a larger sample would provide a richer description of the phenomenon. Additionally, repeating this study in more districts at their Title I elementary schools would add further accounts of the phenomenon. Finally, this investigation should be repeated adding student viewpoints to provide a firmer understanding of the phenomenon.

In addition to furthering the basis of this investigation, further research questions were raised during the interviews progress. First, further research should be conducted on what so much technology integration is doing to the attention spans of students in elementary schools. Gina, a first grade teacher raised this question during our interview. She wonders what is happening to our brains because we interact with technology every day. Because information is being moved and processed so quickly through technology it would be interesting to determine if student attention spans are shortening and how that affects student learning.

A second question that came up during the interview and focus group process was students' fine motor skills. Three of the 11 participants wondered if there was a loss of fine motor skills because students were not completing paper and pencil activities as much as computer activities. This was a concern of theirs because they teach elementary school students and understand the importance handwriting plays in refining these fine motor skills. Research on this question would be beneficial to teachers in lower elementary schools where teaching handwriting is still an essential skill that is taught on a regular basis.

A third recommendation for further research would be whether teachers preferred tablets or computers for student use. Participants used both. One participant believed that schools should be moving to all tablet, or touch screen, technology because that was the way technology innovation seems to be moving. Further research on this topic would provide administrators a firm base when determining how to spend funding for technology.

A final recommendation for further research would be to study the effects of low bandwidth on technology integration. Several of the participants questioned why the bandwidth would slow down, or completely collapse, at the elementary school when it did not seem to do this at the high schools in the district. They did not know if elementary schools traditionally received a lower bandwidth or if it was specific to their schools or this district.

Summary

Based on the theoretical framework of Kolb (1981) and Vygotsky (1978), this study sought to describe the perceptions of Central Texas elementary teachers' use of technology in Title I classrooms. I wanted to explain how these teachers learned to use technology as well as how they taught their students to use technology for academic purposes. Six themes emerged from the data analysis: technology as a basic part of life, teaching technology, student

applications of technology, effects of technology applications, technology in a Title I school, and barriers to technology integration.

Participants revealed their knowledge of technology and how they implemented its use in their classrooms. They reported on the trainings they received throughout their careers and the research they conducted to prepare for their lessons. Participants revealed their commitment to technology integration and teaching technology regardless of any obstacles placed in their way. They were dedicated to teaching their students how to use technology for the purpose of learning though many of their students came to school with little or no knowledge of technology for learning. They did not allow lack of time or devices to impede their progress towards technology integration and successful implementation of technology in their classrooms. Recommendations derived from the study included providing sufficient technology resources to classroom teachers and ensuring enough bandwidth so everyone could utilize technology when desired and needed.

Though there is much research on technology integration in schools, I was not able to find any study that examined technology integration in Title I elementary schools. Because this is a unique population of students, it was essential to determine if technology integration had been successful in this setting. By focusing on one primary research question and three sub-questions, the descriptions provided by the participants addressed the gap in the literature by giving a voice to those in elementary Title I schools. This research allowed them to share valuable opinions and concerns related to technology integration in their classrooms.

This study was only the beginning of the research needed to establish a firm understanding regarding technology integration at Title I elementary schools. Further research will enhance perceptions of teachers' methods of technology integration in elementary classrooms, and specifically Title I elementary classrooms. Additionally, new research should

be conducted expanding the study to include more teachers and teachers who teach special classes like art, physical education, and music.

REFERENCES

Adams, L. T. (2014). Teacher and policy alignment: A phenomenological study highlighting Title I high school teachers' professional development experiences. *Issues in Teacher Education*, *22*(2), 117-138.

Alabdulaziz, M., & Higgins, S. (2017). Understanding technology use and constructivist strategies when addressing Saudi primary students' mathematics difficulties. *International journal of innovative research in science, engineering and technology.*, *6*(1), 105.

Alsaeed, M. S. (2017). Using the internet in teaching algebra to middle school students: A study of teacher perspectives and attitudes. *Contemporary Issues in Education Research*, *10*(2), 121-136.

Andrei, E. (2017). Technology in teaching English language learners: The case of three middle school teachers. *TESOL Journal*, *8*(2), 409-431.

Bakir, N. (2016). Technology and teacher education: A brief glimpse of the research and practice that have shaped the field. *Techtrends: Linking Research & Practice to Improve Learning*, *60*(1), 21-29. doi:10.1007/s11528-015-0013-4

Basilotta Gómez-Pablos, V., Martín del Pozo, M., & García-Valcárcel Muñoz-Repiso, A. (2017). Project-based learning (PBL) through the incorporation of digital technologies: An evaluation based on the experience of serving teachers. *Computers in Human Behavior*, *68*501-512. doi:10.1016/j.chb.2016.11.056

Beach, P. (2017). Self-directed online learning: A theoretical model for understanding elementary teachers' online learning experiences. *Teaching & Teacher Education*, *61*60-72. doi:10.1016/j.tate.2016.10.007

Blau, I., & Shamir-Inbal, T. (2016). Digital competences and long-term ICT integration in school culture: The perspective of elementary school leaders. *Education and Information Technologies*, *22*(3), 769-787.

Brahimi, T., & Sarirete, A. (2015). Learning outside the classroom through MOOCs. *Computers in Human Behavior*, *51*604-609. doi:10.1016/j.chb.2015.03.013

Brasiel, S., Martin, T., Jeong, S., Yuan, M., & Society for Research on Educational Effectiveness. (2016). Mixed methods evaluation of statewide implementation of mathematics education technology for K-12 students.

Brenner, A., & Brill, J. (2016). Investigating practices in teacher education that promote and inhibit technology integration transfer in early career teachers. *Techtrends: Linking Research & Practice to Improve Learning*, *60*(2), 136-144. doi:10.1007/s11528-016-0025-8

Butler, M. S., & Votteler, N. K. (2016). Disequilibrium: An instructional coach's reflection. *Texas Journal of Literacy Education*, *4*(1), 29-36.

Council for the Accreditation of Educator Preparedness (2016). 2013 CAEP standards. Available at http://caepnet.org/~/media/Files/caep/standards/caep-standards-one-pager-061716.pdf?la=en. Accessed on April 20, 2018.

Carver, L. B. (2016). Teacher perception of barriers and benefits in K-12 technology usage. *The Turkish Online Journal of Educational Technology, 15*(1), 110-116.

Cho, V. (2017). Vision, mission, and technology implementation: Going one-to-one in a Catholic school. *Journal of Catholic Education*, *20*(2).

Chung, C. J., Cartwright, C., & Cole, M. (2014). Assessing the impact of an autonomous robotics competition for STEM education. *Journal of STEM Education: Innovations & Research*, *15*(2), 24-34.

Clarà, M. (2017). How instruction influences conceptual development: Vygotsky's theory revisited. *Educational Psychologist*, *52*(1), 50-62.

Contino, J. (2013). A case study of the alignment between curriculum and assessment in the New York state earth science standards-based system. *Journal of Science Education And Technology*, *22*(1), 62-72.

Cordes, M. L. (2014). A transcendental phenomenological study of experiences and perceptions of developmental math students (Unpublished doctoral dissertation). Liberty University, Lynchburg, VA.

Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches*. Thousand Oaks, CA: Sage Publications, Inc.

Crompton, H., Olszewski, B., & Bielefeldt, T. (2016). The mobile learning training needs of educators in technology-enabled environments. *Professional Development in Education*, *42*(3), 482-501. doi:10.1080/19415257.2014.1001033

da Cunha, F. R., van Oers, B., & Kontopodis, M. (2016). Collaborating on Facebook: Teachers exchanging experiences through social networking sites. *Cultural-Historical Psychology*, *12*(3), 290-309. doi:10.17759/chp.2016120318

Davidson, L. J., Richardson, M., & Jones, D. (2014). Teachers' perspective on using technology as an instructional tool. *Research in Higher Education Journal*, *24.*

Davis, N., Eickelmann, B., & Zaka, P. (2013). Restructuring of educational systems in the digital age from a co-evolutionary perspective. *Journal of Computer Assisted Learning*, *29*(5), 438-450.

Delgado, A. J., Wardlow, L., McKnight, K., & O'Malley, K. (2015). Educational technology: A review of the integration, resources, and effectiveness of technology in K-12 classrooms. *Journal of Information Technology Education*, *14*397-416.

Dernova, M. (2015). Experiential Learning Theory as One of the Foundations of Adult Learning Practice Worldwide. *Comparative Professional Pedagogy*, *5*(2), 52-57.

Desimone, L., Smith, T. M., & Phillips, K. R. (2013). Linking student achievement growth to professional development participation and changes in instruction: A longitudinal study of elementary students and teachers in Title I schools. *Teachers College Record*, *115*(5).

Devlin, T. J., Feldhaus, C. R., & Bentrem, K. M. (2013). The evolving classroom: A study of traditional and technology-based instruction in a STEM Classroom. *Journal of Technology Education*, *25*(1), 34-54.

Doering, A., Koseoglu, S., Scharber, C., Henrickson, J., & Lanegran, D. (2014). Technology integration in K-12 geography education using TPACK as a conceptual model. *Journal of Geography*, *113*(6), 223-237.

Dole, S. , Bloom, L. , & Kowalske, K. (2016). Transforming pedagogy: Changing perspectives from teacher-centered to learner-centered. *Interdisciplinary Journal of Problem-Based Learning, 10*(1).

Dorfman, J. (2016). Music teachers' experiences in one-to-one computing environments. *Journal of Research in Music Education*, *64*(2), 159-178. doi:10.1177/0022429416649947

Downes, J. M., & Bishop, P. A. (2015). The intersection between 1:1 laptop implementation and the characteristics of effective middle level schools. *RMLE Online, 38*(7), 1-16. Retrieved from http://ezproxy.liberty.edu/login?url=https://search-proquest-com.ezproxy.liberty.edu/docview/1673958731?accountid=12085

Dube, S., & Scott, E. (2017). A Survey of the University Students' Perspectives about Using Digital Technologies in Education: Zimbabwean Case. *IAFOR Journal Of Education*, *5*(1), 123-139.

Edwards, A. H., Neill, P., & Faust, P. B. (2015). Literacy coaching: Middle school academic achievement and teacher perceptions regarding content area literacy strategy instruction. *Alabama Journal of Educational Leadership*, *2*15-25.

Every Student Succeeds Act: Federal Elementary and Secondary Education Policy. (2017). *Congressional Digest*, *96*(7), 4.

Fitzpatrick, K. (1991). Attention teachers! Microcomputers and your classroom reading program. *Reading Improvement, 28*(2), 119. Retrieved from http://ezproxy.liberty.edu/login?url=https://search-proquest-com.ezproxy.liberty.edu/docview/1994304340?accountid=12085

Fornaciari, Charles J., & Lund Dean, Kathy. (2013). The 21st-Century Syllabus: From Pedagogy to Andragogy. *Journal of Management Education, 38*(5), 701-723. doi: 10.1177/1052562913504763

Fox-Turnbull, W. (2016). The nature of primary students' conversation in technology education. *International Journal of Technology and Design Education, 26*(1), 21-41. doi:http://dx.doi.org.ezproxy.liberty.edu/10.1007/s10798-015-9303-6

George, F., & Ogunniyi, M. (2016). Teachers' perceptions on the use of ICT in a CAL environment to enhance the conception of science concepts. *Universal Journal of Educational Research*, *4*(1), 151-156.

Gerola, H., & Gomory, R. E. (1984). Computers in science and technology: Early indications. *Science*, *225*, 11+. Retrieved from http://link.galegroup.com.ezproxy.liberty.edu/apps/doc/A3342163/AONE?u=vic_liberty&sid=AONE&xid=8b53b4d5

Grant, M., Tamim, S., Brown, D., Sweeney, J., Ferguson, F., & Jones, L. (2015). Teaching and learning with mobile computing devices: Case study in K-12 classrooms. *Techtrends:*

Linking Research & Practice to Improve Learning, *59*(4), 32-45. doi:10.1007/s11528-015-0869-3

Gurung, B., & Rutledge, D. (2014). Digital learners and the overlapping of their personal and educational digital engagement. *Computers & Education*, *77*91-100. doi:10.1016/j.compedu.2014.04.012

Harnisch, D. L., Comstock, S. L., & Bruce, B. C. (2014). Collaborative inquiry with technology in secondary science classrooms: Professional learning community development at work. *E-Learning and Digital Media*, *11*(5), 495-505.

Harris, J. L., Al-Bataineh, M. T., & Al-Bataineh, A. (2016). One to one technology and its effect on student academic achievement and motivation. *Contemporary Educational Technology*, *7*(4), 368-381.

Harris, R., Hall, C., Hawkins, T., Hartley, M., McCray, W., & Sirleaf, H. (2016). Methods and strategies: Oral science stories. Using culturally responsive storytelling to teach socioeconomically disadvantaged students. *Science and Children*, *53*(9), 64-68.

Heath, M. K. (2017). Teacher-initiated one-to-one technology initiatives: How teacher self-efficacy and beliefs help overcome barrier thresholds to implementation. *Computers in The Schools*, *34*(1/2), 88-106. doi:10.1080/07380569.2017.1305879

Hsu, P. (2016). Examining current beliefs, practices and barriers about technology integration: A case study. *TechTrends, 60*(1), 30-40. doi:http://dx.doi.org.ezproxy.liberty.edu/10.1007/s11528-015-0014-3

Internet World Statistics. (2018). World internet users— statistics. Available at http://www.internetworldstats.com/stats.htm. Accessed April 20, 2018.

Jacobs, J. (2015). Disrupting the education monopoly: A conversation with Reed Hastings. *Education Next*, *15*(1), 44-47.

James, L. (2014). The integration of a computer-based early reading program to increase English language learners' literacy skills. *Teaching English with Technology*, *14*(1), 9-22.

James, L. (2016). Facilitating lasting changes at an elementary school. *International Electronic Journal of Elementary Education*, *8*(3), 443-454.

Jenkins, J. J., & Clarke, T. (2017). Engaged Journalism: Using Experiential Learning Theory (ELT) for In-Class Journaling Activities. *International Journal Of Teaching And Learning In Higher Education*, *29*(1), 154-161.

Jose, S., Patrick, P. G., & Moseley, C. (2017). Experiential Learning Theory: The Importance of Outdoor Classrooms in Environmental Education. *International Journal Of Science Education, Part B: Communication And Public Engagement*, *7*(3), 269-284.

Karalar, H., & Sidekli, S. (2017). How do second grade students in primary schools use and perceive tablets? *Universal Journal of Educational Research*, *5*(6), 965-971.

Karchmer-Klein, R., Mouza, C., Harlow Shinas, V., & Park, S. (2017). Patterns in teachers' instructional design when integrating apps in middle school content-area teaching. *Journal of Digital Learning in Teacher Education*, *33*(3), 91-102.

Kayalar, F. (2016). Cross-cultural comparison of teachers' views upon integration and use of technology in classroom. *TOJET: The Turkish Online Journal of Educational Technology, 15*(2) Retrieved from http://ezproxy.liberty.edu/login?url=https://search-proquest-com.ezproxy.liberty.edu/docview/1807692456?accountid=12085

Keane, T., Lang, C., & Pilgrim, C. (2012). Pedagogy! Ipadology! Netbookology! Learning with mobile devices. *Australian Educational Computing*, *27*(2), 29–33.

Keengwe, J., Schnellert, G., & Mills, C. (2012). Laptop initiative: Impact on instructional technology integration and student learning. *Education and Information*

Technologies, 17(2), 137-146. doi:http://dx.doi.org.ezproxy.liberty.edu/10.1007/s10639-010-9150-8

Keppler, M., Weiler, S. C., & Maas, D. (2014). Focused ubiquity: A purposeful approach to providing students with laptops. *Journal of Educational Technology & Society, 17*(4), 278-288. Retrieved from http://ezproxy.liberty.edu/login?url=http://search.proquest.com.ezproxy.liberty.edu/docview/1660156988?accountid=12085

Kermani, H & Aldemir, J (2015) Preparing children for success: Integrating science, math, and technology in early childhood classroom. *Early Child Development and Care, 185*(9),1504-1527, DOI: 10.1080/03004430.2015.1007371

Khosrow-Pour, M. (2014). Educational technology use and design for improved learning opportunities. *IGI Global*.

Killeen, E. B. (2014). Give them a step up! *Teacher Librarian*, *42*(2), 60.

Kim, M. K., Xie, K., & Cheng, S. (2017). Building teacher competency for digital content evaluation. *Teaching & Teacher Education*, *66*309-324. doi:10.1016/j.tate.2017.05.006

Kladder, J. (2016). Maschine-itivity: How I found my creativity using a digital sampling device to compose music. *Journal of Music, Technology & Education*, *9*(3), 289-313. doi:10.1386/jmte.9.3.289_1

Koivisto, J. (2014). Computers in education in Finland. In: A. Tatnall, & B. Davey (Eds.), *Reflections on the History of Computers in Education* (Vol. 424, pp. 239–245, IFIP Advances in Information and Communication Technology): Springer Berlin Heidelberg

Kolb, D. A. (1981). Experiential learning theory and the learning style inventory: A reply to Freedman and Stumpf. *Academy of Management. The Academy of Management Review*

(Pre-1986), 6(000002), 289. Retrieved from http://ezproxy.liberty.edu/login?url=https://search-proquest-com.ezproxy.liberty.edu/docview/230014586?accountid=12085

Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education, 4*(2), 193-212. Retrieved from http://ezproxy.liberty.edu/login?url=http://search.proquest.com.ezproxy.liberty.edu/docview/223304689?accountid=12085

Kolb, A. Y., & Kolb, D. A. (2013). *The Kolb Learning Style Inventory 4.0: A comprehensive guide to the theory, psychometrics, research on validity and educational applications*. Boston, MA: Hay Resources Direct. Retrieved from www.haygroup.com/leadershipandtalentondemand

Kolb, D. A., Boyatzis, R., & Mainemelis, C. (2001). Experiential learning theory: Previous research and new directions. In R. Sternberg & L. Zhang (Eds.), *Perspectives on cognitive learning, and thinking styles*: 228–247. Mahwah, NJ: Erlbaum.

Kostaris, C., Sergis, S., Sampson, D. G., Giannakos, M. Í., & Pelliccione, L. (2017). Investigating the potential of the flipped classroom model in K-12 ICT teaching and learning: An action research study. *Journal of Educational Technology & Society, 20*(1), 261-273. Retrieved from http://ezproxy.liberty.edu/login?url=https://search-proquest-com.ezproxy.liberty.edu/docview/1874038366?accountid=12085

Lai, C. (2016). Integrating e-books into science teaching by preservice elementary school teachers. *Journal of Education in Science, Environment and Health*, *2*(1), 57-66.

Leinonen, Teemu, Keune, Anna, Veermans, Marjaana, & Toikkanen, Tarmo. (2014). Mobile apps for reflection in learning: A design research in K-12 education. *British Journal of Educational Technology, 47*(1), 184-202. doi: 10.1111/bjet.12224

Macy, L. (2016). Bridging Pedagogies: Drama, Multiliteracies, and the Zone of Proximal Development. *Educational Forum*, *80*(3), 310-323.

McGraw-Hill Concise Dictionary of Modern Medicine: Perception (psychology). (n.d.) *McGraw-Hill Concise Dictionary of Modern Medicine*. (2002). Retrieved July 26, 2017 from http://medical-dictionary.thefreedictionary.com/Perception+(psychology)

McKnight, K., O'Malley, K., Ruzic, R., Horsley, M. K. Franey, J. J., & Bassett, K. (2016). Teaching in a digital age: How educators use technology to improve student learning. *Journal of Research on Technology in Education, 48*(3), 194-211.

McLean, K. J. (2016). The Implementation of Bring Your Own Device (BYOD) in Primary [Elementary] Schools. *Frontiers in Psychology*. Retrieved from http://link.galegroup.com.ezproxy.liberty.edu/apps/doc/A470303337/AONE?u=vic_liberty&sid=AONE&xid=32079443

McQuirter, S. R., & Meeussen, N. (2017). Self-regulated learning: A touchstone for technology-enhanced classrooms. *Reading Teacher*, *70*(6), 659-666

Mehan, H., & California Univ., S. P. (1985). Microcomputers and Classroom Organization: The More Things Change the More They Change Each Other. Interactive Technology Laboratory Report #10.

Merchant, Z., Goetz, E. T., Cifuentes, L., Keeney-Kennicutt, W., & Davis, T. J. (2014). Effectiveness of virtual reality-based instruction on students' learning outcomes in K-12 and higher education: A meta-analysis. *Computers & Education*, *70*29-40. doi:10.1016/j.compedu.2013.07.033

Mitchell, G. W., Wohleb, E. C., & Skinner, L. B. (2016). Perceptions of public educators regarding accessibility to technology and the importance of integrating technology across the curriculum. *The Journal of Research in Business Education, 57*(2), 14-25. Retrieved from http://ezproxy.liberty.edu/login?url=https://search-proquest-com.ezproxy.liberty.edu/docview/1863560051?accountid=12085

Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, CA: Sage Publications, Inc.

Murphy, J., Chang, J., & Suaray, K. (2016). Student performance and attitudes in a collaborative and flipped linear algebra course. *International Journal of Mathematical Education in Science & Technology*, *47*(5), 653-673. doi:10.1080/0020739X.2015.1102979

Nepo, K. (2017). The use of technology to improve education. *Child & Youth Care Forum*, *46*(2), 207-221.

Nowell, S. D. (2014). Using disruptive technologies to make digital connections: Stories of media use and digital literacy in secondary classrooms. *Educational Media International*, *51*(2), 109-123.

O'Neal, L. J., Gibson, P., & Cotten, S. R. (2017). Elementary School Teachers' Beliefs about the Role of Technology in 21st-Century Teaching and Learning. *Computers In The Schools*, *34*(3), 192-206.

Ostayan, J. R. (2016). Early literacy skills and English language learners: An analysis of students in a Title I school. *Reading Psychology*, *37*(8), 1097-1118.

Parker, C., Abel, Y., & Denisova, E. (2015). Urban Elementary STEM Initiative. *School Science and Mathematics*, *115*(6), 292-301.

Parsons, S. A., Malloy, J. A., Parsons, A. W., & Burrowbridge, S. C. (2015). Students' engagement in literacy tasks. *Reading Teacher*, *69*(2), 223-231.

Patrick, S., & Sturgis, C. (2015). Maximizing competency education and blended learning: Insights from experts. International Association for K-12 Online Learning. Retrieved from http://www.competencyworks.org/wp-content/uploads/2015/03/CompetencyWorks-Maximizing-Competency-Education-and-Blended-Learning.pdf.

Patton, M. Q. (2002). *Qualitative research & evaluation methods*. Thousand Oaks, CA: Sage Publishing.

Peled, Y., Blau, I., & Grinberg, R. (2015). Does 1:1 computing in a junior high-school change the pedagogical perspectives of teachers and their educational discourse? *Interdisciplinary Journal of E-Skills and Lifelong Learning*, *11*257-271.

Phu, V., & Fade, P. (2014). A snapshot of technology integration training in teacher education programs. *International Journal of Psychology: A Biopsychosocial Approach / Tarptautinis Psichologijos Zurnalas: Biopsichosocialinis Poziuris*, (14), 139-150. doi:10.7220/2345-024X.14.7

Pittman, T., & Gaines, T. (2015). Technology integration in third, fourth and fifth grade classrooms in a Florida school district. *Educational Technology, Research and Development, 63*(4), 539-554. doi:http://dx.doi.org.ezproxy.liberty.edu/10.1007/s11423-015-9391-8

Preble, B. C. (2015). A case for drones. *Technology and Engineering Teacher*, *74*(7), 24-29.

Ravitch, D. (2014). Hoaxes in educational policy. *Teacher Educator*, *49*(3), 153-165.

Ringstaff, C., & Sandholtz, J. H. (1994). Trading places: When teachers use student expertise in technology-intensive classrooms. *People & Education*, *2*(4), 405.

Robinson, K. (2016). The effect of technology integration on high school students' literacy achievement. *Teaching English with Technology*, *16*(3), 3-16.

Ruggiero, D., & Mong, C. J. (2015). The teacher technology integration experience: Practice and reflection in the classroom. *Journal of Information Technology Education*, *14*161-178.

Rust, J. (2017). Pedagogy meets digital media: A tangle of teachers, strategies, and tactics. *Contemporary Issues In Technology and Teacher Education (CITE Journal)*, *17*(2).

Sen, C., & Ay, Z. S. (2017). The views of middle school mathematics teachers on the integration of science and technology in mathematics instruction. *International Journal of Research in Education and Science*, *3*(1), 151-170.

Shabani, K., Khatib, M., & Ebadi, S. (2010). Vygotsky's Zone of Proximal Development: Instructional Implications and Teachers' Professional Development. *English Language Teaching*, *3*(4), 237-248.

Shih-Hsiung, L., Hsien-Chang, T., & Yu-Ting, H. (2015). Collaborative professional development of mentor teachers and pre-service teachers in relation to technology integration. *Journal of Educational Technology & Society*, *18*(3), 161-172.

Start Class. (2017). Graphiq. Retrieved from http://public-schools.startclass.com/

Stieler-Hunt, C., & Jones, C. M. (2015). Educators who believe: Understanding the enthusiasm of teachers who use digital games in the classroom. *Research in Learning Technology, 23* doi:http://dx.doi.org.ezproxy.liberty.edu/10.3402/rlt.v23.26155

Suppes, P., Holland, P. W., Hu, Y., & Vu, M. (2013). Effectiveness of an individualized computer-driven online math K-5 course in eight California Title I elementary schools. *Educational Assessment*, *18*(3), 162-181.

Sysło, M. (2014). The first 25 years of computers in education in Poland: 1965–1990. In A. Tatnall, & B. Davey (Eds.), *Reflections on the history of computers in education* (424),

pp. 266–290, IFIP Advances in Information and Communication Technology: Springer Berlin Heidelberg

Tate, T. P., Warschauer, M., & Abedi, J. (2016). The effects of prior computer use on computer-based writing: The 2011 NAEP writing assessment. *Computers & Education*, *101*115-131. doi:10.1016/j.compedu.2016.06.001

Texas Education Agency. (2018). *STAAR resources* [Data file]. Retrieved from https://tea.texas.gov/student.assessment/staar/

Tirrell-Corbin, C., & Cooper, D. H. (2014). Deweyan inquiry as a means of transforming the culture of family involvement in a Title I professional development school. *Teacher Education Quarterly*, *41*(3), 25-45.

Topper, A., & Lancaster, S. (2013). Common challenges and experiences of school districts that are implementing one-to-one computing initiatives. *Computers in The Schools*, *30*(4), 346-358. doi:10.1080/07380569.2013.844640

Tutt, K. (2014). U.S. arts education requirements. *Arts Education Policy Review*, *115*(3), 93-97.

Union, C. D., Union, L. W., & Green, T. D. (2015). The use of eReaders in the classroom and at home to help third-grade students improve their reading and english/ language arts standardized test scores. *TechTrends, 59*(5), 71-84. doi:http://dx.doi.org.ezproxy.liberty.edu/10.1007/s11528-015-0893-3

Urban, M. J., & Falvo, D. A. (2016). Improving K-12 STEM education outcomes through technological integration. IGI Global.

U.S. Department of Education (2010). Elementary and secondary education act. Retrieved from https://www2.ed.gov/policy/elsec/leg/esea02/index.html

U.S. Department of Education. (2010b). National education technology plan 2010: Executive summary. Retrieved from http://www.ed.gov/technology/netp-2010/executive-summary

U.S. Department of Education (2010). No child left behind act. Retrieved from https://www2.ed.gov/policy/elsec/leg/esea02/index.html

Van Manen, M. (1990). Researching lived experiences. Albany, NY: State University of New York Press.

Varier, D., Dumke, E., Abrams, L., Conklin, S., Barnes, J., & Hoover, N. (2017). Potential of one-to-one technologies in the classroom: Teachers and students weigh in. *Educational Technology Research & Development*, *65*(4), 967-992. doi:10.1007/s11423-017-9509-2

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Vygotsky, L. S., & Kozulin, A. (2011). The dynamics of the schoolchild's mental development in relation to teaching and learning. *Journal of Cognitive Education & Psychology*, *10*(2), 198-211. doi:10.1891/19458959.10.2.198

Wang, S., Hsu, H., Campbell, T., Coster, D. C., & Longhurst, M. (2014). An investigation of middle school science teachers and students use of technology inside and outside of classrooms: Considering whether digital natives are more technology savvy than their teachers. *Educational Technology, Research and Development, 62*(6), 637-662. doi:http://dx.doi.org.ezproxy.liberty.edu/10.1007/s11423-014-9355-4

Wang, Y., Gushta, M., & Society for Research on Educational Effectiveness, (. (2013). Improving student outcomes with mClass: Math, a technology-enhanced CBM and diagnostic interview assessment.

Warschauer, M., Zheng, B., Niiya, M., Cotten, S., & Farkas, G. (2014). Balancing the One-to-One Equation: Equity and Access in Three Laptop Programs. *Equity & Excellence In Education*, *47*(1), 46-62.

Wass, R., & Golding, C. (2014). Sharpening a Tool for Teaching: The Zone of Proximal Development. *Teaching In Higher Education*, *19*(6), 671-684.

Wetzel, L., & Marshall, S. (2012). TPACK goes to sixth grade: Lessons from a middle school teacher in a high-technology-access classroom. *Journal Of Digital Learning In Teacher Education, 28*(2), 73-81.

Williams, P. J., & Otrel-Cass, K. (2017). Teacher and student reflections on ICT-rich science inquiry. *Research in Science & Technological Education*, *35*(1), 88-107. doi:10.1080/02635143.2016.1248928

Wright, N. (2017). Developing professionally: Examining the value of an external agent to the professional growth of teachers experimenting with mobile digital technologies. *Educational Action Research*, *25*(2), 223-238. doi:10.1080/09650792.2016.1147367

Xie, K., Kim, M., Cheng, S., & Luthy, N. (2017). Teacher professional development through digital content evaluation. *Educational Technology Research & Development*, *65*(4), 1067-1103. doi:10.1007/s11423-017-9519-0

Yenmez, A. A. (2017). An examination of the effectiveness of instruction in which pre-service mathematics teachers use technology to overcome student difficulties. *Journal of Education and Practice*, *8*(15), 1-21.

Yuksel-Arslan, P., Yildirim, S., & Robin, B. R. (2016). A phenomenological study: Teachers' experiences of using digital storytelling in early childhood education. *Educational Studies (03055698)*, *42*(5), 427-445. doi:10.1080/03055698.2016.1195717

APPENDIX A: IRB APPROVAL LETTER

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

August 24, 2018

Rebecca S. Acosta
IRB Approval 3401.082418: A Phenomenological Study of the Experiences of Elementary Title I Teachers' Use of Digital Technology in the Classroom

Dear Rebecca S. Acosta,

We are pleased to inform you that your study has been approved by the Liberty University IRB. This approval is extended to you for one year from the date provided above with your protocol number. If data collection proceeds past one year or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Your study falls under the expedited review category (45 CFR 46.110), which is applicable to specific, minimal risk studies and minor changes to approved studies for the following reason(s):

6. Collection of data from voice, video, digital, or image recordings made for research purposes.

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,

[redacted]

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
The Graduate School

LIBERTY
UNIVERSITY.
Liberty University | Training Champions for Christ since 1971

APPENDIX B: SCHOOL DISTRICT REQUEST FOR PERMISSION

Date:

Dear Superintendent:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The title of my research project is A Phenomenological Study of the Experiences of Title I Teachers' Use of Digital Technology in the Classroom and the purpose of my research is to describe the experiences of elementary teachers in Central Texas Title 1 schools using digital technology in their classrooms.

I am writing to request your permission to conduct my research within the school district and to contact staff and educators within the school district to invite them to participant in my research study.

Participants will be asked to click on a link to complete a survey and then schedule an interview. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Thank you for considering my request. If you choose to grant permission, please provide a signed statement on official letterhead indicating your approval.

Sincerely,

Rebecca S. Acosta
Doctoral Candidate

APPENDIX C: SCHOOL DISTRICT APPROVAL

Curriculum and Academics Department

Mission: *We support the educational community to cultivate student excellence*

Purpose: *To collaborate, communicate and provide continual support*

June 26, 2018

Rebecca Acosta
[redacted]

Dear Rebecca –

Please consider the request to conduct a research study on the experiences of Title I teachers' use of digital technology in the classroom approved by the administration of [redacted]

[redacted] would be happy to participate in the research study being conducted by you through your doctoral work in the school of education at Liberty University.

It is our understanding that you will contact staff to invite them to participate in the study. Once they agree, you will ask them to complete a survey and schedule an interview. We also understand that you will hold a focus group meeting with participants and also ask them to complete a writing sample. The writing sample will be a question they can answer describing a time technology was successfully used in their classroom. It is our understanding that participation is completely voluntary and participants are welcome to discontinue participation at any time.

If you need any more information from me, please do not hesitate to ask.

Thank you,

[redacted]
Assistant Superintendent, Curriculum and Academics
[redacted]

APPENDIX D: PERMISSION FORM FOR PRINCIPALS

Date:

Dear (Principals):

As a graduate student in the School of Education at Liberty University, I have recently been granted permission from the Superintendent to conduct research as part of the requirements for a doctoral degree. The title of my research project is A Phenomenological Study of the Experiences of Title I Teachers' Use of Digital Technology in the Classroom and the purpose of my research is to describe the experiences of elementary teachers in Central Texas Title 1 schools using digital technology in their classrooms.

I am writing to request your assistance in identifying qualified participants. Participant requirements are: (1) the teacher must teach at an elementary Title I school; (2) the teacher must have taught for at least three years; (3) the teacher must utilize digital technology in the classroom.

Participants will be asked to complete an online survey, give a personal interview, participate in a focus group discussion, and submit artifacts for document analysis. The data will be used to understand the experiences of teachers use of digital technology in the classroom, their professional development process in learning digital technology, and the process they use to teach their students to use digital technology for the purpose of learning. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Thank you for considering my request. If you choose to grant permission, please provide a signed statement on official letterhead indicating your approval.

Sincerely,

Rebecca S. Acosta
Doctoral Candidate

APPENDIX E: LETTER OF INTRODUCTION/RECRUITMENT LETTER

Date:

Dear Teacher:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The purpose of my research is to describe the experiences of elementary teachers in Central Texas Title 1 schools use of digital technology in their classrooms, and I am writing to invite you to participate in my study.

If you are 18 years of age or older and are willing to participate you will be asked to (1) complete an online survey consisting of eight questions; (2) participate in an interview session where I will ask 13 questions related to your experiences learning and using digital technologies into your classroom; (3) participate in a focus group discussion regarding these same topics; and (4) submit writing samples and related documents for the purpose of analysis of digital technology usage. I will audio record all interviews and focus group discussions for transcription purposes. It should take approximately 2 hours for you to complete the procedures listed. Your name and other identifying information will be requested as part of your participation, but the information will remain confidential.

A consent document is attached to this letter. To participate complete and return the consent document to me at your earliest convenience. It can be emailed to me at bacosta@liberty.edu or given to me at the time of the interview.

If you have questions, you are encouraged to contact me at: (337) 255-4876 or by email at bacosta@liberty.edu. Thank you for your consideration.

Sincerely,
Becky Acosta
Doctoral Student, Liberty University

APPENDIX F: CONSENT FORM FOR PARTICIPANTS

The Liberty University Institutional
Review Board has approved
this document for use from
8/24/2018 to 8/23/2019
Protocol # 3401.082418

CONSENT FORM FOR PARTICIPANTS

A Phenomenological Study of the Experiences of Elementary Title I Teachers' Use of Digital Technology in the Classroom

Rebecca S. Acosta
Liberty University
School of Education

You are invited to be in a research study concerning your perception of digital technology use in elementary Title I classrooms. You were selected as a possible participant because you (1) teach at an elementary Title I school, (2) have been in your current position for at least three years, and (3) utilize digital technology in the classroom. Please read this form and ask any questions you may have before agreeing to be in the study.

Becky Acosta, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this study is to describe the experiences of elementary teachers in Central Texas Title 1 schools who use digital technology in their classrooms, and I am writing to invite you to participate in my study.

Procedures: If you agree to be in this study, I would ask you to:

1. Allow me to utilize your responses from the online screening survey that you previously completed consisting of eight questions.
2. Participate in an recorded interview session where you will be asked 13 questions related to your experiences learning and integrating digital technologies into your classroom. This should take 45-60 minutes to complete.
3. Participate in a recorded focus group discussion regarding these same topics. This should take 45-60 minutes to complete.
4. Supply a writing sample and documents that relate to your digital technology usage in the classroom. These documents will be photocopied and returned to you. The writing sample will take 45-60 minutes to complete.
5. Once an interview is completed, it will be transcribed. When the transcribed interview is ready, it will be given back to you to review for accuracy. You will have an opportunity to make any corrections needed and approve the final transcript before it is used in the data analysis. This procedure may take between one to two hours.

Risks: The risks involved in this study are minimal in that participants will not encounter any other risk than they normally would during everyday life.

Benefits: Participants should not expect to receive a direct benefit from taking part in this study. However, the results of this study may provide a deeper understanding of teacher perceptions as educational leaders move forward in developing future technology integrations, professional development strategies for implementation of digital technology in the classroom, and successful pedagogies. In addition, this study may inform educators, parents, and educational leaders about selecting digital technology for teacher and student use as well as enabling educational leaders to better understand the needs of educators and students in Title I elementary schools.

Compensation: Participants will not be compensated for participating in this study.

The Liberty University Institutional Review Board has approved this document for use from 8/24/2018 to 8/23/2019 Protocol # 3401.082418

Confidentiality: The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Participants will be assigned a pseudonym. I will conduct the interviews in a location where others will not easily overhear the conversation. Research records will be stored securely, and only the researcher will have access to the records. Data will be stored on a password locked computer and may be used in future presentations. After three years, all electronic records will be deleted. Interviews and focus groups will be recorded and transcribed. Recordings will be stored in a locked file cabinet for three years and then erased. Only the researcher will have access to these recordings. I cannot assure participants that other members of the focus group will not share what was discussed with persons outside of the group.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University, your school district, and your school. If you decide to participate, you are free to not answer any question or withdraw from this study at any time without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please contact the researcher at the email address included in the next paragraph. Should you choose to withdraw, data collected from you, apart from focus group data, will be destroyed immediately and will not be included in this study. Focus group data will not be destroyed, but your contributions to the focus group will not be included in the study if you choose to withdraw.

Contacts and Questions: The researcher conducting this study is Becky Acosta. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact me at (337)255-4876 or bacosta@liberty.edu. You may also contact my faculty advisor, Linda Holcomb at ljholcomb@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

You will be given a copy of this information to keep for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

☐ The researcher has my permission to audio-record me as part of my participation in this study.

Signature of Participant Date

Signature of Investigator Date

APPENDIX G: INTERVIEW QUESTIONS

1. What led you into the field of education, specifically elementary education?

2. What are your personal interactions with digital technology outside of the classroom setting?

3. How has the use of digital technology in the classroom changed your beliefs about teaching?

4. How do you use digital technology in the classroom for yourself?

5. What kind of training have you received in order to implement digital technology in your classroom?

6. How do you use digital technology in the classroom to help your students?

7. How does the use of digital technology in your classroom impact your students' learning?

8. How do your students use digital technology in the classroom for the purpose of learning?

9. What are some of the advantages you see in your students using digital technology in your classroom?

10. What are some of the disadvantages you see in your students using digital technology in your classroom?

11. Why it is important for your students to have access to technology in your classroom?

12. Have you encountered any barriers in the process of teaching your students to use digital technology? Is so, what are those barriers?

13. How does being a Title I school impacted technology in your classroom?

APPENDIX H: FOCUS GROUP QUESTIONS

1. What initially attracted you to the field of education and teaching?
   Probe: What were your hopes and dreams for your teaching career?

2. How many years have you taught and at what grade level?
   Probe: What experiences have you had in different schools and/or grade levels?

3. What are your thoughts and beliefs about teaching and how children learn?

4. What are your thoughts and beliefs about technology and its potential impact on student learning in the classroom?

5. What types of digital technologies do you use in your classrooms?

6. Reflecting on when you first used digital technologies until now, describe any differences in your perceptions about project activities.
   Probe: What do you know now that you wish you had known then?

7. How do your students use digital technology in your classrooms for the purpose of learning?

8. Explain the advantages and/or disadvantages you see in students using digital technology in your classroom.

9. Thinking specifically of the fact that you teach in a Title I elementary school, explain any barriers you may face to integrating digital technology in your classroom.

10. How do you overcome any obstacles that might pose a problem in your classroom with technology integration?

11. What other information concerning classroom technology, or learning with technology, would you like to add?

APPENDIX I: SIGNIFICANT STATEMENTS

Significant Statement	*Formulated Statement*
I use it for everything, and I guess I never really sat down to think about how much I use it.	Technology is an important part of teachers' lives.
...if I were to lose my phone, I don't know what I would do because I have my life on my phone.	Teachers use technology to organize their lives.
... I create these reciprocal relationships with people in different school districts like where you're all sharing ideas via twitter.	Teachers use technology to build professional relationships with other teachers in other districts.
... I kind of talked to them about the benefits of being able to more easily put links to those engaging videos or other things. But we have definitely upped our game with the lesson planning...	Teachers use technology to plan with their teams. .
... It's like a double edged sword because I know they are so savvy and used to getting that instant gratification from the Internet, but I don't know that they know how to utilize it in an educational setting.	Teachers believe technology can provide motivation to learn. Teachers know that some students do not understand how to utilize technology for academic purposes.
... half the class time was teaching them how to open a Google doc and how that whole process works and the fact that you don't have to actually save. That all has to be taught to them. There is very little outside experience...	Teaching students how to use technology takes much class time.
... I think if we want to get our kids prepared to go out into the workforce and have what they need, to work at a job, they need to be able to have and learn those skills of how to do that...	Teaching students to use technology is important because it prepares them for life after school.
... we have a long conference about the fact that from now on every time they get on the computer the district knows what they're looking at and what they're seeing.	Teaching students about digital citizenship is an important step in teaching them how to use technology academically.
They try to tell me about it first or try to find the answer to the question first before I just tell them the answer.	Teaching students how to ask questions and search for their answers online is an important step in teaching them how to use technology academically.
... they're motivated to do their presentations when they can do it on slides or they have a motion picture they were doing...	Teaching students to use technology increases their motivation and engagement in lessons.
... when you're Title I you tend to think no, they're really not exposed. And so you really try to enrich them with stuff that, you know, that you think other kids take for granted...	Teaching at a Title I school means that your students may need more opportunities to learn with technology at school because they do not have the opportunity at home.

... for some of the next two weeks, be days where I will have no computers...	Teaching with technology is difficult when the devices are being pulled from my classroom for outside testing.
... I think you just have to have lots of patience because sometimes the Internet goes out when you're in the middle of the lesson.	Teaching with technology requires a backup plan because outages and mishaps may happen.
...if they had never touched a laptop before and they're used to a regular mouse, they don't know how to use the tracking pad. They don't know how to use it and it freaks them out	Teaching students about technology is sometimes teaching them about the very basic parts.
... I move a lot. So as I'm teaching lessons, the focal point necessarily isn't going to be on me but on the screen. I am now free to move wherever. I'm not tied to the dry erase board.	Teaching with technology allows teachers to have better classroom management and helps students to stay engaged in lessons.
... for a lot of them, reading on the Internet is really daunting...	Teaching students how to read and analyze material found on the Internet is important in developing their academic technology skills.
... I think it does impact us because here at school, they either come with so much [technology] that they're relying on it or they come with nothing and we're having to teach them everything.	Teaching technology is important because students come to school with very different experiences and levels of knowledge with technology.
I've had several parents that have gone on to do the Khan Academy lessons, so someone else is explaining it and then it takes that piece out of it and they get to use technology.	Teaching students how to use technology can expand their family's knowledge of technology as well.
I think it emphasizes or underscores for me, the economic and social gaps in education. I see that students from lower social economic backgrounds are less prepared for the technology, so there's a much greater learning curve in terms of building that comfort level with the technology and just the use of the Internet overall	Technology is a determining factor in highlighting economic and social gaps in society.
...I'll use the term click and go. They look at it and there's something different about clicking on an answer as opposed to reading an answer and committing to circling it	It is important to balance technology with student needs.
It's the way that our kids are going to grow up.	Teaching technology to students is important because they will need these skills when they grow up.
I feel like it really extends our learning further than what I can do because it helps. It's like another teacher.	Technology is like having another teacher in the classroom.
I think it changed my belief in reaching kids with 21st century learning. I can better reach kids if there's some digital technology aspect	Technology has changed the way teachers teach and the way students learn.

I feel like a classroom without technology...it's almost frustrating. But with technology it makes it so much more fluid.	Teaching with technology is natural and feels more fluid.
I do a lot of independent research in the form of blogs and online searches. If I want to use something or if I hear about a new tool I'm going to go and self-research it	Teachers are training themselves in new technology applications.
Sometimes if they have to use pencil or paper or engage with other individuals it can cause problems because they have had so much technology	Teachers determine there needs to be a balance between technology and pencil/paper work
Discovery Ed has great field trips that they do online and sometimes I do a lunch bunch with my kids	Teachers use technology to take students out of their communities.
...the creativity they have and the excitement they have to make things and do things with the technology is fun to watch	Teachers agree that using technology enables creativity
I think it's really driven me to teach them more about using Microsoft word. This is how you put a header on your paper, or this is how you put a page number on your paper,	Teachers understand teaching technology tools are important.
they're [students] being babysat by technology [at home] and they're not getting those good enriching activities	Teachers believe students are using technology at home, but not in academic way
We need more equipment. I have six classroom Mac books that the district gave me and I have an iPad I bought with my own money	Teachers need more devices in their classrooms.
Sometimes the lack of each of them having their own device and instead having to teach small groups at a time takes longer than if everybody was getting caught at once	Teachers need more devices in their classroom.
I can tailor a lot of my lesson plans from what I'm getting on Istation along with their MAP data	Teachers create their lessons based off of information received from learning programs
If they're using technology, they are going to be more engaged	Students are more engaged in learning when technology is used.
We don't have enough resources. I have 6 computers and an iPad. With a class of 25 kids in here, it's very limited	Teachers want more devices in their classrooms.
I use a traditional thing like doing grades and putting it in attendance and that kind of thing.	Teachers use technology for keeping track of grades
...I am now digitally projecting through the airplay. So when I teach, I'm using again the whiteboard app or almost kind of essentially creating a smart board in my room	Teachers use technology to project their lessons through an iPad.

So each one of my kids, is on a computer at least once a day, whether it be Istation, practicing a Map test, on my iPad, prodigy for math. They'll get on and they can get up in here as well. I have them type their papers.	Teachers teach students how to use software programs so they can review material taught in class.
...students scan QR codes a lot for answer checks, task cards and anything like that	Students use QR codes to find information
I have five centers, so every group gets to go to the laptop and for daily five. Right now, what they have learned to use is I'm reading A to Z and I get to set their independent reading level and so they have access to books to both listen to and read by themselves.	Students use centers for reading enrichment.
Normally there's like three or four more desks over there and I have whole computer row and it's set up every morning they come in for their AR tests, start writing their papers on the computer. Istation, Lexia.	Students are on technology every day.
My iPad is always set up over in one of the reading centers for them to do their accelerated reader tests	Students complete tests and assessments online.
So I definitely feel like we have less technology than schools that are non-Title I. I don't know that for a fact though. I've only worked at two title one schools in the state of Texas...but I know I have less technology than other campuses in our district. I don't know how I feel about that...	Teachers are unsure of how Title I funds are distributed in the district.
Being in a Title I school we get more funding than if we weren't a title one school. Um, but depending on what the principal wants to use that funding for is going to depend on what we actually get	Title I fund distribution
I think that they have to have the technology because it's helping prepare them for the future because this, the technology is the future.	Technology is the future
But if we're truly looking for our students to be the wave of the future, we definitely want to get them the access that they need so that they can become the creative minds that are making a difference in the future	Technology is the future
I think there are always going to be technical issues. I'll give you an example today we got all the computers out because we're still introducing Google classroom. So I wanted to do it as a whole class. Five computers	Equipment failure can be a barrier to technology integration.

couldn't get on the network. I had to reboot them. That sort of thing.	
I think there's a classroom management aspect. We're sort of in the early days here in group three, but we talk about the fact that I'm going to get most of you going right, and then there's going to be a few that are going to have problems that may not even be your fault, but let's get most of the people going. So, you know, if you're sitting there, get out your library book wait and then go around.	Classroom management is an important aspect of technology integration

APPENDIX J: THEMES

Theme	Research Question Correlation
Technology as a Basic Part of Life	RQ1
Teaching Technology	RQ2
Student Applications of Technology	RQ3
Effects of Student Applications of Data	RQ3
Technology in Title I Schools	RQ3
Barriers	RQ4