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Elementary School Teachers' Perceptions of the Process of Integrating Technology

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Diana J. Thompson

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August 2015

Abstract

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MA, Armstrong Atlantic State University, 2007

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

Administrators in a rural K-5 school district provided leadership, technical assistance, and technology resources to increase teachers' use of technology to improve student achievement. Despite these efforts, teachers incorporated technology on a limited basis and some teachers reported they were unprepared to integrate technology. The purpose of this qualitative bounded case study was to examine teaching practices and teachers' perceptions of technology integration in their daily lessons. The conceptual framework for this study included technology integration and constructivism, a theory based on observation and scientific study about how people learn. A purposeful sample of 10 K-5 teachers who integrated technology in instruction volunteered to participate in interviews and classroom observations, and provided lesson plans for document review. Qualitative data were analyzed using open coding to identify patterns and themes. Based on the findings, teachers used instructional videos and PowerPoint-guided lessons in daily instruction, and they used technology to monitor student progress weekly or biweekly. Teachers expressed a need for ongoing professional development in technology integration to enhance instruction, and they requested more time to collaborate with colleagues to develop technology-integrated lessons. It is recommended that K-5 teachers receive easily accessible onsite professional development to learn strategies and methods to integrate technology in the classroom. These endeavors may contribute to positive social change by restructuring the current district technology-based professional development models to support teachers' integration of technology to improve student instruction.

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Dedication

This dissertation is dedicated to my husband, son, and in the memory of my mother. My family has constantly provided me with sincere motivation and inspiration to complete this journey. They have given me nothing but love and support during this academic achievement and I would not have been able to do it without them.

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Section 1: Introduction to the study

Computers, laptops and other forms of technology devices are fundamental to society and integral to communication, information seeking and sharing, collaboration, and productivity. Tingoy and Gulluoglu (2011) stated, "Technology has become an indispensable part of individual life in various areas from ATM's to internet connection" (p. 221). These technologies can also be effective instructional tools, providing exemplary learning opportunities for students (Lemke, 2010) while helping teachers gain insight into the use of technology in the workplace (Bellanca & Brandt, 2010). Technology integration requires teachers to comprehend, convey, and integrate technology skills into classroom planning and daily instructional practice. Administrators in the local public school system look for ways teachers can become more effective in preparing students for the 21st century. Forty years ago teachers began integrating technology into the classroom by using computers and projectors. These devices enabled the teacher to create organized notes for easier student note-taking and slides that could be repeatedly shown (Whitacker, 2012).

Despite years of increased awareness initiated by national reports, national policy, and reports of educational researchers, some teachers remain ill-prepared to integrate technology to enhance instruction. Supporting teachers who integrate the technological tools available to them can improve student instruction and prepare students for a technology-based workforce (Lemke, 2010). According to Jasper (2012), keeping students stimulated by using the latest inventions in computers and digital media is the

focus of teachers with a desire to integrate technology. An approach that has the possibility to affect an increase in teaching and learning with technology is awareness of teachers' perceptions of integrating technology in the classroom. The objective of the local school system is to make available to its teachers quality leadership, technical assistance, and technology resources to improve student learning through organized professional development courses.

When teachers integrate technology into classroom instruction, the hands-on experiences can stimulate student learning (Lemke, 2010). Student learning improves when students actively participate in knowledge construction and assessment of their learning. One such example is when students use the classroom performance system (CPS). These are small handheld devices that allow students to respond to questions asked verbally, on paper or screen and teachers are able to assess instantly students' comprehension of a lesson. Teachers who use this device in their classroom help create interactive learning environments. Professional development in the use of such technology can prepare teachers to be efficient in the use of new technologies that enhance instruction. Understanding the perceptions of teachers who were successful integrating technology in the classroom might help to create learning opportunities for teachers who have yet to take full advantage of technology in the classroom.

In this qualitative case study, I investigated perceptions of 10 classroom teachers on the process of integrating technology into daily instruction. The ten participants were selected from K-5 schools located in a southern part of the United States. The development and implementation of this district's technology initiatives have been well-

documented, but what has yet to be determined is the amount of innovative success taking place in the classrooms. Participants' viewpoints were investigated about the integration of technology into the classroom curriculum, as well as the challenges brought forth by the personal perspectives of the participants.

Problem Statement

Technology integration is a problem among teachers in a rural K-5 school district in a southern part of the United States, because they are held accountable to state technology standards through teacher evaluations. Teachers expressed they were ill-prepared to integrate technology to enhance student instruction. Administrators recognized the problem and provided an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of technology and digital resources by allocating time, resources, and ongoing professional growth in technology integration.

As part of the Race to the Top Initiative, the Georgia Department of Education (2011) supports technology integration and has made changes to curriculum standards and teacher evaluations to include technology standards. These changes were built upon the understanding that teachers are required to integrate technology into their daily lessons and are required to teach 21st century skills to all students in Grades k through 5 to better prepare them for middle school, high school, college, and the workforce. Since the implementation of the No Child Left Behind Act, teachers have been concerned not only about technology integration, but also about performance-based pay. Performance measures are based on core subject standardized test scores (Caillier, 2010). Revisions

are being made to the technology licensure issue and the role that technology standards will play in the process of teacher licensure renewal by the Professional Standards Commission. Revisions are expected to address competency standards used for planning professional development activities. The need for increased understanding of how teachers perceive the process of integrating technology into their daily instruction is vital for both student and teacher success.

Purpose of Study

The purpose of this qualitative case study was to investigate how K-5 teachers in a rural school district in a southern part of the United States perceived the process of integrating technology into their daily instruction. One participant from each of the 10 K-5 schools within the local district were observed and interviewed to gather their perceptions of integrating technology into their daily routine. Dewey (1916) stated, "If we teach today as we taught yesterday, we rob our children of tomorrow" (p. 36). Technology resources have increased, but the integration of technology in the K-5 classroom is often still deficient (U.S. Department of Education, 2011).

Nature of Study and Research Questions

A qualitative case study was the research method for this study. Case study research is used to explore contemporary phenomena in depth (Merriam, 2002) and answer questions such as *how* and *why* (Yin, 2009). I examined how teachers perceived the process of integrating technology into their daily instruction. In addition, the study design was a purposeful sample of 10 K-5 teachers in a rural school district in a southern

part of the United States to learn what their perceptions were about integrating technology. Data collection included interviews with 10 participants, classroom observations of teaching practices of the participants in the classroom, and participants' integrated technology lesson plans. Data were collected and the study findings were used to make suggestions to the school agents of change, and school leaders to possibly enhance teachers' use of technology in the classroom.

The following questions guided this qualitative case study:

1. How do K-5 teachers in a rural setting perceive the process of integrating technology into their daily instruction?

2. How do K-5 teachers in a rural setting implement technology in their delivery of instruction?

<div align="center">**Conceptual Framework**</div>

The conceptual framework for this study was based on Prensky's (2011) work about the integration of technology in the classroom promoting student engagement and helping students to develop their 21st century learning skills. Technology is just one learning tool that aids students' learning experiences. Students have been exposed to an array of technological devices, such as smart phones, iPads, and tablets. To enhance daily instruction for students, teachers need to be proficient in the use of technological tools available to them and their students. Not only do teachers need to be proficient in the use of technological tools, they need to be enthusiastic about integrating technology within instruction. The teacher's role needs to change from the voice of knowledge to facilitator of learning by engaging students in hands-on experiences integrating technology

(Prensky, 2010). Teachers who apply technology but deliver instruction the same way are not meeting student needs for working in the 21st century workplace (Prensky, 2011). It is important for teachers to use Prensky's framework because students will then be engaged in hands-on experiences integrating technology.

Definition of Terms

Competency: Whitman (1976) defined teacher competencies as the "knowledge, skills, behaviors" and sometimes "attitudes" (p. 2) that they possess. For this study, competency was defined within the area of educational technology as the knowledge, skills, behaviors, and attitudes that could be measured by observation and/or performance.

Constructivism: A learning theory that emphasizes that humans learn through construction by learning through new knowledge built upon a foundation of previous learning (Bruner, 1996; Dewey, 1916).

Information and communication technology (ICT): This is an expansive phrase used to explain the convergence of information, networking, and telecommunications technologies into a single technology (Friedman, 2006).

Levels of technology implementation (LoTi): LoTi is defined as a framework/scale designed to measure precisely authentic classroom technology integration. The LoTi framework focuses on the use of technology as a tool within the context of student-based instruction with an emphasis on higher order thinking (Moersch, 2006).

Motivation: Houde (2006) believed that adults are responsive to some external motivators, that is, better jobs, promotions, higher salaries, and so on. The most

compelling motivator was intrinsic motivation, which leads to greater achievement through personal interest, such as perceived autonomy of individual choice, perceived relatedness with other people, and perceived competence as in the challenge of the context and skill (Deci & Ryan, 2000; Ryan & Deci, 2000).

Proficiency: Klein (1983) suggested, "the attainment of proficient performance implies that a person can perform a skill so well and so efficiently that it can be a building block for the acquisition of additional skills, and is easily extended to unfamiliar tasks" (p. 821).

Assumptions

There were several assumptions that were made about the study.

1. Study findings may bring to light beneficial information about understanding how individual traits, such as beliefs, perceptions, attitudes, concerns, and classroom instructional practices impact teacher technology integration for classroom instruction and student learning.

2. Study findings may lead to the improvement of technology integration strategies and teacher training through professional development courses.

3. Study findings could help reveal common characteristics of exemplary technology use by teachers.

4. Participants may give responses about the integration of technology into instruction that either support or add to what is found in the current body of research.

Limitations

There were several limitations in this study. First, researcher bias may have an influence on the interpretation of the findings. To minimize this limitation, triangulation, code- recode, and reflexivity was used. Another limitation was that only kindergarten through fifth grade teachers in a specific school district was invited to participate. No other school district participated; hence, no other group of educators contributed.

Scope and Delimitations

The scope of this study was delimited to the data collection methods that included classroom observations, document review, and participant interviews only from K-5 teachers in a rural setting within the state who were experienced in using technology. The sample size of the study was small when compared to some other studies conducted with larger districts, and therefore as in most qualitative research, generalization was not a goal.

Significance of Study

Findings from the study added to the body of scholarly research and literature in the field of teachers integrating technology within the instruction, specifically within a rural K-5 school setting. This study is significant because classrooms in the 21st century are being infused with technological tools that can be used for the instruction. Teachers understand the value of being able to use technology within instruction and embrace its use. To help teachers become more proficient and motivated to integrate technology, administrators can offer professional development courses at their school site. The professional development courses should enhance teachers' skills and confidence in using

the technological tools available to them. These skills may enable them to deliver engaging lessons for their students.

In this study, I investigated teachers' perceptions and attitudes with respect to the integration of technology in the classroom. Prensky's (2010a) construct that there are digital native teachers in classrooms who bring with them different attitudes toward and aptitudes for technology warranted further inquiry. In this qualitative case study, I provided constructive insight into improved instruction for teachers and students by way of integrating technology. I also showed administrators how the integration of technology instruction can promote 21st century schools and showed them the significance that professional development may have on engaging teachers in the process of integrating technology. To assist in student academic success, changes in teaching styles and advancements in tools available for teachers are important resources.

Findings from this study have provided stakeholders, such as teachers, school board members, administrators, policy makers, and researchers with information about why teachers do or do not integrate technology-driven instruction. Increasing technology integration in the classroom will better prepare students for functioning fully in a 21st century workplace and society. Findings will be presented to the board of education, the school administrators, and faculty in hopes to convincing them to implement professional development for teachers in the area of technology that is both motivational and engaging.

Implications for Social Change

Technology impacts nearly every aspect of education, careers, and society. The implications for social change include understanding and identifying data that could be used to help development a teacher technology professional development plan. The foundation for this plan of change was based on in-depth observations of the teaching practices and perceptions of K-5 teachers in a rural setting in the use of technology for instruction and learning.

Research-based methods or strategies were revealed for promoting positive teacher perceptions of the implementation of technology. One method is for professional development for teacher training. This professional development would require collaborative teacher inquiry that could help a school community of learners in creating meaningful professional development training for meeting the technology integration needs of all teachers. Another method is teacher collaboration with their peers. This collaboration could prove to be a constructive method for school districts and administrators to promote effective technology integration professional development to meet teacher needs by using teachers who are skilled in a particular technology area to collaborate with their peers.

A technology professional development plan is another possible outcome for promoting social change. Staff development includes the district-wide professional learning program that has been implemented as professional learning courses for teachers. In order for the local school district to improve student learning through teachers' use of technology, the local districts mission is to provide leadership, technical assistance, resources, and consultative services to the local educational community.

Teachers could become better prepared and confident in the area of integrating technology within the instruction.

The development of teacher leaders is another possible outcome for promoting social change. Building and district administrators may see the value of encouraging teachers to use exemplary technology techniques. This may provide an avenue for teachers to undertake the role of teacher leader within the school. Teachers may also take the initiative to mentor or help organize training for other teachers in the area of effective use of technology for instruction and student learning. Teacher leaders can play a role in organizing an effective program because they are teachers, and they understand the challenges their peers experience in using technology as an instructional tool. The potential for influencing positive social change through the process of the study is encouraging.

Summary and Transition

This section provided an introduction to the study, including a problem statement, the nature of the study, operational definitions, and the significance of the study. For teachers to be successful in integrating technology, teachers' perceptions and beliefs are crucial for effective implementation. Student engagement is integral to academic success. Therefore, teachers need to stay abreast of new technologies being used in teaching. Informed of new technologies available by exploring and researching technology resources that are available to them. With state mandates for teachers to integrate technology and the workforce requiring technology use, it is vital that teachers search for educational resources that can be used as a tool in educating students, and instructional

technology is one such tool. Section 2 will provide a review of related research and works of literature. The review contains summaries of literatures that help define the most important aspects of the study.

Section 2: Literature Review

Introduction

Most school districts across the United States must become current with the advancing technologies to better serve students in a changing society (Pellegrino & Quellmalz, 2011). This section provides a conceptual framework for outlining the review of literature regarding how teachers perceive the process of integrating technology into their daily instruction. In this review, I highlight research on the following research question: How do teachers perceive the process of integrating technology into their daily instruction? This review will provide information regarding the challenges teachers face with technology integration; the barriers teachers encounter when integrating technology; and the effects of teacher perceptions, beliefs, and attitudes on technology integration. Information for the literature review was found in research books and online databases including Educational Resource Information Center (ERIC), Electronic Journal for the Integration of Technology in Education (EJITE), the Journal of Computing in Teacher Education (ISTE), Elton Bryson Stephens Company (EBSCO), and Thoreau Walden University Discovery Service.

The ongoing emergence of new technologies has impacted how teachers use these tools within the classroom to help students learn. Lever-Duffy and McDonald (2011) defined educational technology as "any technology used by educators in the support of the teaching and learning process" (p. 5). Depending upon the context and the learning needs, educational technology serves both students and teachers in a variety of ways. For example, teachers might use educational technology to enhance communication with

their students. Teachers might employ a process or technology to address their students' specific learning styles or intelligences. They could incorporate computer-learning software into their instruction in order to motivate students to engage with complex content. Educational technologies, therefore, can be used to enhance and support the teaching-learning process at any point within the instructional process (Lever-Duffy & McDonald, 2011; Smaldino et al., 2011).

The increasing pace of technology requires teachers in all disciplines to develop an understanding of how to become proficient in effectively planning, implementing, and evaluating instruction that can foster student success in technology-rich learning environments. It is important that teachers develop skills to effectively integrate these emerging classroom technologies and teach students who have grown up in this digital age of technology to compete and succeed in the workplace (Lever-Duffy & McDonald, 2011).

Conceptual Framework

The conceptual framework for this study was based on Prensky's (2011) work on the integration of technology in the classroom promoting student engagement while at the same time helping to develop their 21st century learning skills. Students have been exposed to an array of technological devices, such as smart phones, iPads, and tablets. To enhance daily instruction for students, teachers need to be proficient in the use of technological tools available to them and their students. Not only do teachers need to be proficient in the use of technological tools, they need to be enthusiastic about integrating technology within instruction. The teacher's role needs to change from the voice of

knowledge to facilitator of learning, by engaging students in hands on experiences integrating technology (Prensky, 2010). Teachers who apply technology but deliver instruction the same way are not meeting student needs for working in the 21st century workplace (Prensky, 2011).

Technology adoption in the classroom is spread across a continuum that Prensky (2010b) described as dabbling, doing old things in old ways, doing old things in new ways, and doing new things in new ways. Teachers may range from not using technology at all, to using it to augment their traditional instruction, or to using it to transform their entire teaching methodology. The reasoning behind each individual's level of adoption is far more complex than has been previously investigated. It is important to examine what is beneath the seeming-resistance and root out the barriers to integrating instructional technology tools into a person's curriculum.

Constructivism is a broad conceptual framework. The work of Dewey (1916) formed the basis of the constructivist theory. As Dewey (1944) theorized, students learn best through experience rather than through lecture. In constructivism, Dewey (1916) proposed that developing skills for the future is grounded through experience. Dewey (1916) claimed that people's surroundings are constantly changing, and education needs to adapt to such changes. The 21st century classroom is built on the idea that students need to be part of real-world experiences and actively participate in their learning (Dewey, 1944). Rather than passively witnessing a class lecture, students are now expected to be involved actively in the material they are learning. Dewey (1944) also

took into account that all students are different, and curriculum should be designed in ways to meet individual differences in the classroom.

Current Technology Use

Instructional technologies are technologies placed in teachers' hands for the purposes of presenting and sharing information and lessons (Hechter & Vermette, 2012). Teachers determine what does and does not occur in the classroom (Ertmer & Ottenbreit-Leftwich, 2010). Teachers create and maintain their classroom environment and also make their own decisions about whether or not to integrate technology. Technology does not just support and enhance learning, it creates ways for students to analyze and understand the world around them (Sayparn, 2011).

Researchers have revealed that gaps exist between the availability of computer software programs and other technologies and their integration by teachers for instruction (Gray et al., 2010). District demographics associated with socioeconomic differences were cited in some cases as the reason for gaps between technology availability and its use (Gray et al., 2010). Applicable computer programs and additional technologies include interactive whiteboards, student response systems, word processing programs, and spreadsheet programs. In another study of technology use by teachers and students, Hu (2011) found that 95% of teachers used word processing programs, which translated to high use by students. By teachers using word processing programs, students observed and engaged how they used the learning process. Teachers, who use word processing programs, allow students to use word processing programs to write research papers and create class presentations.

Teachers are no longer bound to presenting information on the chalk or dry-erase board. The Internet can display web content to an entire class through the use of a projector, making the World Wide Web more beneficial to the teacher (Whitacker, 2012). The Smart board is another form of technology that teachers use to engage students. A Smart board is an interactive whiteboard that allows teachers to project and digitally draw on images all with the touch of a finger (Jasper, 2012). Teachers can also manipulate computer functions through the use of a Smart board. Smart phones are another technological device that can be integrated into the classroom. According to Hardison (2012), smart phones, accompanied with the support of a strong classroom management system, have the potential to bring collaboration, communication, and creativity into the classroom.

Common Core and Technology Expectations

In classrooms across the United States, K-5 teachers have not been accountable for students' learning of technology skills (Miners, 2009). Now with the implementation of the Common Core Georgia Performance Standards, it is mandatory that Georgia educators integrate technology within instruction which in turn holds them accountable for students learning technology skills. Common Core was coordinated by the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO) in collaboration with classroom teachers, administrators, and other educators. The Common Core Standards aim to provide a consistent national framework for preparing students for college and the workforce in the 21st century (Common Core Standards Initiative, 2010).

Common Core online assessments are a worry to many districts as they potentially can define some of the future of school technology. Last year a "digital mandate" was issued by President Obama and his secretary of education, Arne Duncan, challenging schools to have digital technology onboard no later than 2017 for all students. It was done to compel schools to look toward digital technologies that would be of benefit to students. Current generations of students use digital media for many things-from communication with peers to purchasing of items important to them. Rather than asking them to adapt to more traditional ways of instruction, the concepts of digital instruction are helping add to the ways that students learn and engage in their learning (Marcoux 2013).

To hold teachers and administrators accountable, the state created an observation instrument called the Teacher Keys Effectiveness System (TKES). When teachers are observed by their administrators, they are checked for their use of technology within their daily instruction. The (TKES) system was designed to provide teachers with productive feedback and encouragement which may lead to enhanced teacher performance in the area of technology integration. The new evaluation system offers clear and precise indicators and resources to guide teachers and evaluators through the process. Full implementation of the TKES instrument was put into effect in the beginning of 2012-2013 school year.

The technology standards included in the TKES instrument identify essential skills teachers are required to possess in order to be effective using computers and other technology tools available to them for instruction. Linking teachers' technology skills

assessments, such as the TKES, to teachers certification requirements helps certify that teachers have the technology skills required by the state to support and guide students in engaging curriculum with the integration of technology driven instruction. Of the standards included on the TKES, the standard the teachers have the most difficulty with is the prerequisite that they know how to integrate technology into instruction. For example, teachers should know when it is appropriate to use technology with each lesson and to choose the right technology tool. The standards were written for teachers to integrate technology within instruction to engage students and to prepare them for the 21st century world in which they live. Porter al. (2011) suggested that a national curriculum could present the following benefits:

1) Efficiency. A national curriculum would alleviate the development of standards by individual states. This could also improve the quality and applicability of instructional materials, professional development, and teacher education.

2) Quality of assessments. A national curriculum could provide for consistent assessments that could be delivered electronically. (pp. 103-104)

3) Shared expectations. A national curriculum would offer consistency in what is expected of students.

4) Focus. A national curriculum could bring greater focus to what is being taught, improving the popular "mile wide and an inch deep" approach to the state curriculums.

Role of Administrators in Technology Integration

The influence of school-based leadership on teachers' beliefs, attitudes, and perceptions regarding technology's role in classroom instruction is underscored in current research on factors that impact technology integration in schools. By choice and demand, technology is restructuring education, teaching, and learning, and affects them in ways that impact on everyone (Minocha et al. 2011). Additionally, reform initiatives focused on the effective use of technology in the classroom also influences the dynamics of educational leadership. Chang (2012) remarked that leadership that infuses the tenets of technological competencies is emerging within a diversified educational leadership landscape (p. 328). Such leadership dynamics require that today's principals demonstrate the competencies necessary to use technology in a manner that motivates, inspires, and encourages technology use in all facets of the teaching and learning process. Additional research completed by Chin (2010) suggested leadership that models the appropriate use of technology in the learning environment remains uniquely different from traditional leadership paradigms in that it does not require a focus on leadership actions or characteristics.

Instead, technological leadership mandates that leaders develop, guide, manage, and apply technology to foster and promote academic and professional excellence within learning communities, In a 2012 study of the impact of leadership on technology integration in schools, Wirt (2012) explained because technology remains a pivotal component in schools, the demands placed on educational leaders has evolved and increased tremendously (p.14). Therefore, it is imperative that school leaders lead the

technology integration charge. Educational leaders must subscribe to the benefits of technology integration in schools if they are to serve as agents of educational reform. According to Chang (2012), technological advancements have infused a renewed sense of purpose and energy in education reform initiatives.

Overbay, Mollette, and Vasu (2011) further suggested principals must be fully connected to the infrastructural and academic needs of the learning environment if they are to lead technology-based school reform. Additional research conducted by Eren and Kurt (2011), Hillard and Jackson (2011), Song and Owens (2011), Yuksel and Alemdar (2012) solidified the concept that school principals are critically important to technology integration. In essence, school leaders serve as the beacons for promoting technology's effective use in schools. Serving as beacons of technology reform requires school leaders to maintain their focus on using technology to excite, energize, promote, and sustain academic excellence for all members of the learning community. Principals are charged with the responsibility of leading all aspects of learning communities; therefore, when they engage in practices that hamper educational progress the effects are far reaching (Yuksel & Alemdar).

Administrators also need to be mindful of their special education students when it comes to teachers integrating technology. Special education students who are under the response to intervention (RTI) program must also follow technology standards required in the Common Core Georgia Performance Standards. RTI is a prevention and intervention model for students who struggle in the areas of reading and math, often in the early grades (e.g., first to third). Administrators need to make sure that special

education teachers are integrating technology to literacy, mathematics, content-based instruction (e.g., science), and evidence-based practices (Smith 2010). Classrooms in the 21st century are saturated with technology. Baytak, Tarman, and Ajayi (2011) suggested that "technology in education has the potential for improving teaching and learning" (p. 140). Eristi and Kurt (2012) suggested that technology integration is an important component in classroom environments.

Once teachers integrate technology within their instructional practices, the benefits for their students are substantial. Researchers have documented student increase in the area of academic understanding and achievement when effective technology is integrated in the classroom (Bebel & Kay, 2010; Judson, 2010; Suhr et al., 2010). Critical thinking and problem solving skills develop within students when the teacher integrates technology-infused learning activities (Falloon, 2010). Not only is there an increase in academic achievement, there is an increase and better collaboration and communication among peers when technology is integrated (Stevens & Brown, 2011; Yang & Lin, 2010). Considering technology's role in facilitating learning, it remains essential that educational leaders and policy makers effectively use technology to create learning communities where its potential can be fully attained and realized while increasing educational gains.

Leaders must be well-informed and concerned about the obstacles teachers feel they face in their schools. Conducting research to understand the obstacles and barriers teachers face that prevent them from effectively integrating technology can help leaders try to prevent those barriers and could positively impact teaching and learning. "Rather

than expecting technology to change the nature of teaching and learning, it may be more beneficial to help teachers use technology to enhance the curriculum in ways they see fit" (Ottenbreit et al, 2010, p. 1323). Therefore, for teachers to integrate technology successfully, educational leaders and administrators need to provide an environment that is conducive to support such teaching.

Barriers Teachers Face with Technology Integration

In a society where students interact with technology on a daily basis, it is essential to bring technology into the classroom (Hutchison & Reinking, 2011). Odden (2012) suggested meaningful technology integration requires schools to tap into the power of technology 110% (p.15). There are many barriers in schools that impact successful technology integration by teachers. However, it has been observed that teachers' intention to change is affected by a myriad of factors such as their attitudes, beliefs, and school culture (Tay, Lim, Lim, & Koh, 2012). Many universities are providing computer technology courses as part of their teacher education programs to help better prepare their future teachers to effectively use computers in the classroom. In practice, however, most teachers' perceptions of technology integration are that they neither have the time nor confidence to implement its use. Literature reveals that teachers' attitude and pedagogical beliefs toward technology represent the most critical issues (Ertmer, et al., 2012; Richardson, 2013). Needless to say, the high uncertainty of new up-and-coming technologies makes it even more strenuous for teachers to develop the level of expertise needed to integrate technology in the classroom.

Prensky (2010b) summarized the intricacies of how first-, second-, and third-order barriers can interface. With very few exceptions, schools have not been physically designed for computers. Much time in our schools' 45-minute instructional periods is often wasted in computer setup and shutdown. Teachers are often unsure about how to integrate technology in their lesson plans and often, administrators have little, if any, guidance to give them. In many places where technology could liberate teachers most, such as automatic grading of homework and tests, automatically have been neglected. Adding digital technology is generally disruptive to what schools and teachers do, and the pressure of high stakes testing only exacerbates this problem. (p. 4) When barriers layer one upon the other, teachers are faced with enduring stumbling blocks or yielding to the status quo. Or they may make some technological adaptations and reject others because of feelings of frustration, limits to a person's skill set, or access to technical support.

For teachers to integrate technology successfully, educational leaders and administrators need to provide an environment that is conducive to support such teaching. "Rather than expecting technology to change the nature of teaching and learning, it may be more beneficial to help teachers use technology to enhance the curriculum in ways they see fit" (Ottenbreit et al, 2010, p. 1323). Therefore, leaders must be well-informed and concerned about the obstacles teachers feel they face in their schools. Conducting research to understand the obstacles and barriers teachers face that prevent them from effectively integrating technology can help leaders try to prevent those barriers and could positively impact teaching and learning.

Once technology is integrated and in an effective instructional manner, students may become engaged and be positively impacted in student learning. However, Tsai and Chai (2011) pointed out that "barriers will always exist in one form or another" (p. 1,059). Therefore, it is imperative to recognize the barriers that avert teachers from effectively integrating technology into instruction. Ertmer et al., (2012) analyzed the relationship between teachers' perceptions and technology integration practices finding that teachers whose attitudes and perceptions support technology integration, and who had the knowledge and skills to carry out their perceptions, were more likely to experience success regardless of the barriers they face (p. 423).

Even though technology literacy has its benefits, there are several barriers to effective technology integration that have been identified in the literature. Some of the primary barriers are lack of professional development, time, and largely, individual teacher beliefs. The percentage of teachers who had one or more computers in their classrooms, according to the National Center for Education Statistics (Gray et al., 2010), was 99% and the percentage of teachers who had access to the Internet in their classrooms was 95%. The students to computers ratio in the classrooms was 1.7 to 1. In addition to computers, teachers also listed technology items, such as projectors (36%), interactive whiteboards (28%), and digital cameras (64%) as being available to them on a daily basis. However, of the 99% of teachers who had daily access to computers in their classrooms, only 40% reported using the computers often during instruction (Gray et al., 2010.

Gibbs, Dosen, and Guerrero (2009) suggested that even though teachers have technology resources available to them to use, technology integration still has its barriers. (p. 13). For teachers to integrate technology, it is suggested they need to have knowledge of the relationship between the content they are teaching, the best practices for teaching the content, and the technology they are using (Ertmer & Ottenbreit-Leftwich, 2010; Mishar & Koehler, 2006). Ertmer and Ottenbreit-Leftwich recommended that when teachers integrate technology, they have knowledge that allows them to (1) align technologies to specific learning goals, (2) choose technologies for various phases of the learning process, and (3) select appropriate technologies to address issues and needs.

Professional Development

Teachers are the most valuable and relevant factor in attaining meaningful technology grounded educational reform. Potter and Rockinson-Szapkiw (2012) noted ineffective professional development fails to underscore how teachers' attitudes and beliefs about the use of technology impact their approach to technology integration (p. 22). Ottenbreit (2010) stated, "Rather than expecting technology to change the nature of teaching and learning, it may be more beneficial to help teachers use technology to enhance the curriculum in ways they see fit" (p. 18). In essence, for effective technology integration to become a reality in today's classrooms, teachers must be cognizant of its purpose and operation (Davies, 2011, p. 49).

To escalate teachers' integration of technology enhanced instruction, Ertmer and Ottenbreit-Leftwich (2010) argued that the emphasis should be placed on strengthening teachers' beliefs, perceptions, and technological skills by encouraging, and providing

opportunities for personal experiences with technology. Ertmer and Otenbreit-Leftwich (2010) also indicated teachers' that effectively use technology could help increase the self-efficacy of other teachers' use of technology if they would communicate and share their experiences of student achievement and model how they effectively integrate technology within their classroom. According to Ogwu (2010), the reason some teachers do not integrate technology in their classrooms is because of the lack of skills needed to use the tools available to them. School districts with technology plans can provide the support, knowledge, and resources to create lesson plans while enhancing teacher and administrator attitudes toward standards-based reforms (Pierce, 2010). Lu (2010) found teachers expressed the need for technology infused professional learning courses about how to integrate technology into specific curriculum standards as well as a need for professional learning about how to use specific technological devices.

Johnson (2013) suggested skills sets have not yet been established relating to technology skills that teachers should possess to facilitate student learning. Professional development is necessary for effective technology integration. Cifuentes, Maxwell, and Bulu (2011) stated that using technologies in schools does not amount to increased student learning. Schrum, Mason, and Levin (2013) contended effective professional development encourages and supports technology integration. Creating conditions that support teachers' technology integration efforts remains the only means of realizing technology's educational promise. As noted by Cifuentes, Maxwell, and Bulu (2011), professional development remains an integral part of meaningful technology integration (p.60).

Teachers are applying technology in their classrooms, but they are not effectively integrating technology to actively engage their students (Buckenmeyer, 2010). Buckenmeyer added that a significant number of educators fail to use the technologies available to them (p. 28). Ertmer and Ottenbreit-Leftwich (2010) recommended that teachers integrating technology have knowledge that allows them to (1) align technologies to specific learning goals, (2) choose technologies for various phases of the learning process, and (3) select appropriate technologies to address issues and needs. Smolin and Lawless (2011) stated that technology can significantly expand learning in a manner that a traditional curriculum cannot (p. 92).

Societies are aiming to train individuals who can apply technology appropriately and effectively. Individuals have to be trained as good consumers of knowledge who can have access to true and reliable knowledge in a short time, good producers of knowledge who can generate new knowledge from the information they have access to and persons who can generate new knowledge from the information they have access to and persons who can market the knowledge they have produced, convert the knowledge to power and money (Keser, 2011). Technologies trainers are affiliates in the process of training individuals in this way; in turn, individuals can implement technology appropriately and effectively. Training the information technologies trainers is a significant element in integration of technology in education (Keser 2011).

A myriad of conferences take place during the summer, including the American Library Association. These conferences feature speakers and programs that are both about and designed with technology. Western Oklahoma's first educational technology

conference (2013 Summer Technology Conference, "Recharge/Get Plugged In) featured a wide ranging program from a wide ranging group of participants (classroom teachers, teacher librarians, technology managers, and administrators). Conference presenters offer teachers a chance to mingle with peers and colleagues and learn how to integrate technology into the classroom as well as the school library, and offers ideas about how to facilitate technology advances in the classroom (Marcoux, 2013).

Ertmer and Ottenbreit-Leftwich (2010) suggested that teacher change for the purpose of integrating technology within instruction can be accomplished through both teacher education programs for pre-service teachers and professional development for in-service teachers. According to the National Staff Development Council (2011a), the goal of professional development is to increase student achievement via teacher continuing education. Accordingly, standards to help guide professional development programs were created by members of the NSDC, which benefit students by preparing teachers with the skills and knowledge necessary for effective 21st century classroom learning.

Relying on technology to create technology-infused learning communities means that knowing how to effectively use technology should remain at the core of teachers' "professional repertoire" (Keengwe, Georgina, & Wachira, 2010, p. 2). It is essential that increased professional development opportunities be offered to educators responsible for increasing the effective use of technology in instructional practices (Buckenmeyer, 2010, p. 3). Smiling and Lawless (2011) further supported the notion that professional development is essential to effective technology integration in classrooms (p. 92). Levin and Schrum (2013) asserted that technology is vital for student learning in the 21st

century; therefore, teachers must receive professional supports essential for creating meaningful educational change, expansion, or growth (p. 38).

Duran and Fossum (2010) promoted the concept that teachers determine the ultimate success or failure of all technology integration initiatives. Teachers' willingness and preparedness to integrate technology into their daily practices remains a key variable for transforming teaching and learning while creating technologically rich learning communities. Professional development that promotes and sustains teachers' use of technology in instruction should result in the transformation of classroom practices. On-going, research-based, and job-embedded professional development opportunities remain essential to meaningful technology integration. Martin, et al. (2010) offered exceptional professional development is critical to the implementation of lasting technology reform initiatives.

Professional development should be used to provide teachers with learning opportunities that to implement technology. Teachers who are at the heart of educational reform value opportunities to engage in professional development (Ghamrawi, 2013). According to Hsu (2010), affording teachers opportunities to "shadow" colleagues who are experiencing instructional success with technology must be factored into the realm of preparing educators to effectively use technology. Hsu contended that this approach to technology-based professional development remains a valuable aspect for personalizing the quality and types of professional development opportunities offered to educators; this approach is essential if the benefits of technology integration are to be realized in classrooms. Therefore, technology integration and the creation of technology-rich

learning communities cannot be used to promote academic excellence in schools without a focus on professional growth and advancement. According to Schleede (2011), meaningful technology integration begins with a focus on professional development that reflects teachers' needs and fosters educator buy-in. Such professional development models will create pathways for schools to benefit from the use of technology in classroom instruction.

A focus on effective technology integration in schools impacts various facets of the educational spectrum including teacher preparation programs. Moore-Hayes (2011) suggested a rapid increase in technology integration in education has a profound effect on the teaching profession, particularly as it relates to new instructional tools and strategies for teaching and learning. Prensky (2010) supported the view that educational leaders need to be knowledgeable about technology resources and, likewise, need to find creative ways to fund technology in schools.

Ajayi (2010) recognized the effective integration of technology into instructional practices is a major challenge faced in many teachers' preparation programs, especially for preparing novice teachers to meet the diverse needs of today's learners. Hence, the design of teacher preparation programs need to include components that can be used by teachers that will help them address deficits in existing practices in an effort to support schools' technology-based reform initiatives. Graham, Tripp, and Wentworth (2010) reiterated the notion that teacher preparation programs must adequately prepare pre-service teachers to effectively use technology in meaningful ways.

Results from several years of studies (Darling-Hammond et al., 2009 2010) about the quality and effectiveness of professional development point to the ineffectiveness of the existing structures of teacher workshop programs, specifically, sessions taught outside the classroom setting. Darling-Hammond et al. also found that new and veteran teachers encounter difficulty applying innovative strategies learned in one-day professional development sessions without support or collaboration. Darling-Hammond et al. noted that most professional development sessions last from about 5 to 14 hours, which is not conducive to a substantial increase in teacher learning.

Hsu (2010) discovered that the better trained the teacher was in the use of technology, the more likely the teacher was to successfully integrate it into classroom instruction. Rientiesa, Brouwerb, and Lygo-Bakera (2013) indicated that teachers from a range of disciplines including mathematics became more confident in terms of integrating technology into practices with pedagogical design principles after 12 weeks of technology training. In Polly and Orrill's (2012) study, teachers reported a gain in knowledge about technology and the technology support in mathematics teaching through the exploration of technology-rich mathematical technology training.

Members of the Professional Standards Commission reexamined the technology licensure issues and the role that the new technology standards in Georgia will play in initial and renewed licensure for teachers. One area under review is the relationship between the technology standards required and the current professional development activities being used to train teachers in these areas. Shih-Hsiung, (2013), Uslu and Bumen (2012), and Shu Chien and Franklin (2011) suggested that, too often, current

technology-focused professional development models do not lend themselves to supporting teachers use of technology in the classroom. One example of a current quality professional development plan is the Georgia Framework for Integrating Technology in the Student-Centered Classroom (InTech). The focus of the InTech professional development plan is curriculum and teaching methods rather than starting with technical skills. Once teachers are trained in the area of instructional methods, the integration of technology is gradually infused into the training.

Teachers have pointed to the lack of quality professional learning to model ways for them to integrate technology into the teaching process. Harris and Hofer (2011) reported encouraging results when teachers received professional development that focused on technology integration and effective pedagogy. Technology Pedagogical Content Knowledge (TPACK) is the professional development program Harris and Hofer referred to (Harris & Hofer, 2011). Teachers, who attended the professional development program TPACK, were supplied with the content specific materials they needed to support engaging teaching practices that integrated technology into their curriculum (Harris & Hofer, 2011). The results of Harris and Hofer's study revealed that teachers successfully implemented the TPACK professional development framework to support both effective pedagogy and technology integration. For teachers to become more proficient in integrating technology, they need adequate and sufficient training to apply these skills in the classroom.

Teachers are reminded each day by their school administrators that they need to meet each individual student's needs by differentiating their instruction, but

administrators forget that teachers also need differentiated instruction themselves. A kindergarten teacher may use a computer to help reinforce students' letter recognition skills; whereas, a fifth grade science teacher may use specialized technology such as software to conduct experiments in the classroom and spreadsheets to gather and analyze the data collected. Those who create technology standards and assessments for teachers need to consider what individual skills are needed at different levels of instruction.

Some, but not all schools have their own technology specialist to be available to support teachers with their technology needs during the day. Ogwu (2010) affirmed teachers believed the solution to the scarcity of professional development focused on technology integration was to hire a technology specialist to help train and assist teachers with technology integration. Inan and Lowther (2010) confirmed the need for schools to hire a technology specialist. The results of their study indicated that support for technology integration is a major obstacle confronting teachers as they integrate technology into their classrooms (Inan & Lowther, 2012).

Beglau et al. (2011) reported there were benefits for school districts that provided teachers an opportunity to participate in a professional development program that allowed them to work directly with a coach. This coach would provide effective best practices required so that the integration of technology could be successfully achieved. Through the International Society for Technology in Education, teachers can attend technology-related professional development that included three elements: (a) effective coaching, (b) collaboration through online learning communities, and (c) technology rich learning experiences (Beglau et al. 2011). Almekhlafi and Almeqdadi (2010) found that teachers

needed time to collaborate with their peers about technology integration and should be provided with frequent training opportunities. According to Cifuentes, Maxwell, and Bulu (2011), when school and district administrators created a professional learning community of teachers within their school or district who were committed to reformed instructional practices integrating technology, administrators saw increased technology integration in the classroom, increased student engagement, more student-centered instruction, and positive student achievement.

Lack of Resources and Time

Ogwu (2010) acknowledged that teachers believed the lack of technology software and tools available to them and the inability to access the software and tools was a barrier that prevented them from integrating technology in the classroom. Yaratan and Kural (2010) reported that teachers perceived that they did not have time to integrate technology. Teachers in the state of Georgia felt that they did not have the time to integrate technology and time to cover all the state mandated standards required of them. Therefore, Anthony and Clark (2010) contended that for technology integration to be successful, the educational leader must create a clear vision of successful technology use.

Teachers indicated that the availability of computers in the classroom can be a major problem. In reality, however, getting an open date in a computer lab can be challenging at times. In some cases, the issue is just simply not having enough computers in their classrooms. One elementary teacher indicated that she has 23-25 students in her class, but only two computers in the classroom. This situation presents a problem when students are given a mandatory assignment because it takes two or more weeks for

everyone to finish the assignment. All teachers indicate that they have at least one computer available in their classrooms, but some of them mainly use it for research purposes, not for classroom instruction (Chien, 2013). Wachira and Keengwe (2011) found that while access to computer technology in schools is improving, consistent declines in both use and integration of computer technology for the enhancement of student learning were apparent for the teachers that they surveyed (p. 17).

Teachers spend time trying to find available technological tools to integrate in their classrooms. Lacina, Matthews, and Nutt (2011) reported that often teachers' commitment to integrate technology in the classroom is obstructed by the lack of availability of the essential technological tools and resources to facilitate learning. When researchers describe time as a barrier to integrating technology, they describe the barrier of time as related to learning and implementing as well as to experience using the technology (Starky, 2010). Kopcha (2010) revealed that the length of time necessary to learn how to integrate technology and prepare lesson plans constituted a barrier to its use. Providing opportunities for technology infused professional development and teacher collaboration within the school day can also address the time barrier that impedes effective integration of technology.

There are many types of educational software programs for teachers to use during instruction, but not all schools have the software available for their teachers. Almekhlafi and Almeqdadi (2010) reported teachers did not have the appropriate software needed to support their curriculums. The primary problem for teachers to integrate technology in classrooms across the United States is no longer due to a lack of student or teacher

access. Public school districts have greatly improved access to technology resources, and researchers have found that 100% of public elementary schools have access to the Internet, more than 98% of classroom computers are online, and the average student to computer ratio is 3:1 (NCES, 2010). According to the United States Department of Education (2011), the majority of classrooms have internet access available to them, and the quantity of computers in schools has increased to a ratio of 4 computers to 1 student. Inan and Lowther (2010) stated that although there was an increase in technology resources available, integration of technology is still not being implemented in many classrooms as it should. Conversely, Robinson and Sebba (2010) stated that it was vital that educational leaders feel obligated to provide or set aside funding that would be used to purchase new technologies and maintain current resources for their teachers.

Lacina, Matthews, and Nutt (2011) reported that it is vital for educational administrators to make available, the resources necessary to integrate technology into the teachers' daily instruction. Administrators also need to provide teachers the time necessary to plan for its effective implementation. Fast-tracking the rate of technology integration in schools remains challenging, according to Dede (2011) who stated that educational professionals must increase the rate of technology use.

Teachers are mandated and encouraged to embrace new technology and resources for delivering instruction; however, they do not always have time to effectively explore and learn those new tools. One recommended solution is to transform students into peer coaches who could bring fresh ideas to teachers. Our students come from a generation of

confident and talented youth who are comfortable with being uncomfortable when it comes to integrating 21st century skills (Robinson, 2014).

Uncovering why some schools fail to create technologically sound learning environments is an important aspect of the effort to identify obstacles to technology integration in classrooms. For example, Lacina, Matthews, and Nutt (2011) reported that, too often, teachers' willingness to integrate technology in instructional practices is hindered by lack of availability of the necessary technological tools and resources to facilitate learning.

Impact of Teachers' Attitudes, Beliefs, and Perceptions about Technology Integration

Connections between self-efficacy and teachers' perceptions of their ability to deliver meaningful technologically-infused instruction to all learners is coupled with their willingness to engage in and experiment with new and innovative instructional strategies as noted by Moore-Hayes (2011). Recognizing that the classroom remains an essential component for clearing the pathway to meaningful technology integration, Smolin and Lawless (2011) argued as "frontline" stakeholders, teachers' role in facilitating technology in schools cannot be disregarded (p. 93). Ferriter (2010) also underscored teachers' role in effective technology integration initiatives through his assertion that teachers must become technologically-versed in the use of technology to improve instruction. Additionally, teachers must adhere to the belief that technology can indeed increase learning outcomes Chin, J.M. (2010). In essence, teachers continue to be the most important facet in the technology integration equation, prompting an urgent need to

explore factors that impact their perceptions of and willingness to integrate technology in all aspects of classroom instruction. Lin and Lu (2010) reveled high levels of teacher self-efficacy resulted in increased time and commitment dedicated to the amalgamation of technology. Similarly, according to Inan and Lowther (2010), teachers who felt ready and had the confidence to integrate technology in their classrooms did so more frequently than other teachers in their study.

It is essential for educational leaders to discuss the necessary components needed to help teachers provide for the successful integration of technology as a learning and teaching tool in the 21st century classroom. Cullen and Greene (2011) contended teachers' attitudes toward technology integration are the strongest predictors of whether or not they would incorporate technology rich instructional strategies into their classrooms (p. 31). According to Anthony and Clark (2010), too many school initiatives impacted teachers' ability to focus on incorporating technology in their classrooms. Yaratan and Kural (2010) reported that teachers perceived technology integration interfered with the time it took to cover curriculum mandates represented a significant obstacle, one which prevented teachers from integrating technology.

In a study of 300 elementary teachers in Taiwan, the researcher aimed to determine the levels of computer anxiety and computer self-efficacy, and their correlations to classroom teaching (Chen, 2012), In this study teachers had moderate to high computer phobia and low computer self-efficacy (Chen, 2012). Also, it was found that teachers who frequently used computers showed lower computer phobia. Male teachers perceived themselves as having higher computer self-efficacy, and younger

teachers tended to have a lower level of computer phobia and higher computer self-efficacy. High accessibility of computers at school for teachers would significantly lower computer anxiety and raise computer self-efficacy. Professionals working in educational centers have to be aware if teachers do not have enough internal interest towards computer use, technology integration will not work in the classroom.

In a current study aimed to discover the attitudes of pre-service Turkish teachers toward computer use, results revealed that the participants had positive attitudes towards computer use. In addition affective components, such as student engagement, had a positive significant correlation with behavioral intention, but a significant negative correlation with perceived usefulness (Saricoban, 2013). In other words, the more the students' feelings towards computer use increased, the more intensively teachers' beliefs about the usefulness of computers in their job decreased. Furthermore, computer courses had no effect on teachers' attitudes towards computers; whereas, the participants' age and subject domain had a significant effect on their attitude towards computer use.

Teachers indicated a number of ways in which they improved their technology skills. Some teachers indicated workshops were a good resource, because they provide necessary training in the use of technology integration. One teacher indicated: "I develop my technology skills by going to workshops and taking classes" (Chien, 2013, p. 11). Other teachers indicated that they observe the more technology-savvy teachers in their schools and use these individuals as a resource for improvement. One teacher stated, "Many times if I find that another teacher has received training, or is knowledgeable in an

area of technology that interests me, I will use their expertise in learning the new skills" (Chien, 2013, p. 11).

Despite the progress that computer technology has made, there is still a common misconception that computers and the Internet are the only useful technologies for the field of education (Lyle, 2009). According to Kay, Knaack, and Petrarca (2009), when elementary school teachers used web-based learning tools as part of their daily lessons, they perceived that their students were more successful due to being highly engaged in the lesson. These students also had higher test scores when tested on material taught with the integration of technology. The teachers from this study indicated that not only did they feel the web-based learning tools were easy for them to use, but the students felt the tools were easy to use as well. With technology integrated activities, students become highly engaged in their learning. Interactive lessons provide students with a more active way of thinking by delivering hands-on learning experiences.

While state and local board of education reforms accentuate the importance of integrating technology into the classroom, teachers' perceptions and beliefs could conceivably be potential obstacles to technology integration. For successful implementation of technology integration, teachers have to buy-in to the idea that technology integration is not a hindrance. In a study designed to discover teachers' beliefs about technology integration, researchers found that teachers who had negative attitudes about technology use in the classroom did not feel comfortable using technology (Cullen & Greene, 2011). Conversely, teachers who did feel comfortable and open to learning new technology welcomed technology integration in their classrooms. Their

attitudes were directly related to self-efficacy. Teachers who understood how to use technology and the importance of technology use in their classrooms were open to learning new ways of implementation, while teachers who did not were closed to using technology in the classroom (Cullen & Greene, 2011).

Opposing Views about Technology Integration

Not all educators adhere to the principle that technology is a viable solution for increasing student achievement. Opponents of technology integration in schools argue that relying on technology to create conditions that foster and promote improved teaching and learning practices remains a fallacy CITE. Capo and Orellana (2011) suggested educators face a significant amount of demands and challenges as it pertains to creating learning conditions that guarantee student success. Moore-Hayes (2011) further stated that the national focus on integrating technology negatively impacts the growing demands and challenges that educators already face. Cennamo, Ross and Ertmer (2010) asserted the increased rate at which technology has been factored into education serves as an additional burden to an already demanding workload faced by 21st century educators. Wachira and Keengwe (2011) suggested although technology integration continues to be regarded as a catalyst for lasting school reform, educational technologies are yet to be effectively integrated into most K-12 classrooms.

Opposition to the use of technology in today's classrooms is centered on the barriers that continue to hinder its effective use in schools. There remains need to provide teachers with the tools and resources necessary to facilitate the use of technology in classroom instruction. Failure to remove barriers, such as lack of resources, and the lack

of time to research available technologies, results in the lack of teacher support to integrate technology. Buckenmeyer (2010) suggested despite the investments made to successfully integrate technology in schools, efforts will continue to prove futile if the focus remains on technology instead of shifting attention to teachers and their needs to effectively integrate technology. Wachira and Keengwe (2011) asserted technology will fall short of leveraging the instructional landscape technology availability and training remains limited, unreliable, and inaccessible to teachers. In essence, opponents of technology integration in schools demand that educational reform initiatives redirect the national emphasis on technology to a focus on developing pedagogy while providing teachers' with an array of instructional strategies and resources from which they can readily select to foster teaching and learning.

In recent years, educational professionals from a variety of disciplines have designed and implemented computer games for educational purposes. However, one challenge for game-based learning is to integrate intentional learning into game features while not violating or corrupting what is enjoyable about games. Educational gaming as a learning tool may be less effective for certain group of learners-those who were not game players, or had difficulty extracting knowledge from the games (Brom, Sisler & Slavik, 2010).

Summary

At the core of effective technology integration in schools are teachers' willingness, attitudes, beliefs, and perceptions about the benefits of technology integration in their instructional practices. Dawson (2012) stated that teachers are

essential in determining how technology is used in the classroom. Demps, Lincoln, and Cifuentes (2011) showed that strong support for teachers resulted in rewarding experiences and opportunity for teachers to concentrate on quality instruction using technology.

Other important factors addressed while laying the foundation for this proposed research study include examination of barriers that affect teachers' use of technology in school. Such barriers include teachers' inadequate preparation to use technology, educational leaders who are not equipped to manage and lead technologically-sound learning communities, insufficient time to plan for technology's effective use in classroom instruction, and lack of access to job-embedded professional development. The forthcoming sections of this proposed research study will include the methodology framework that addresses data collection methods, procedures, analysis and reporting of the data. Additional sections that will be included in this research study include research findings, limitations of the study, recommendations based on research findings, suggestions for additional areas of research, concluding with an extensive overview of the entire research study.

Section 3: Methodology

Introduction

The purpose of this qualitative case study was to investigate how K-5 teachers in a rural setting perceive the process of integrating technology and use technology in their daily instruction. The research method used for this study was a qualitative case study. A case study is an intensive, holistic description and analysis of a single, bounded unit (Merriam, 2009). In a case study, the researcher focuses on the exploration of an activity, event, process, or individuals (Creswell, 2012). The following research question guided the study:

1.   How do K-5 teachers in a rural setting perceive the process of integrating technology into their daily instruction?

2.   How do K-5 teachers in a rural setting implement technology in their delivery of instruction?

Face-to-face interviews were conducted with 10 elementary K-5 teachers from 10 elementary schools located in one large school district in the Southeast. Interviews were conducted to gain an understanding of their perceptions and beliefs concerning the process and barriers to integrating technology into their daily instruction. Observations of the classroom teachers were also conducted to identify teaching strategies for integrating technology. Finally, copies of lesson plans were collected to determine how successful teachers build lesson plans around teaching 21st century skills through the implementation of technology. Lesson plans were examined for types of technology used and for how teachers use technology to teach a lesson.

Generating data that reflect educators' beliefs of the benefits of technology in teaching and learning served as the foundation for addressing the research questions that guided this study. As delineated by Merriam (2011), qualitative researchers unveil an understanding of how experiences are interpreted by individuals who have lived those experiences (p. 5). Lodico, Spauding, and Voegtle (2010) also supported the concept that qualitative research is an appropriate platform for capturing key elements of the human experience.

The next section includes a discussion of the study (a) research and design approach, (b) setting and sample, (c) instrumentation, (d) data collection procedures, (e) data analysis procedures, and (f) ethical considerations for the protection of human participants.

Research Design and Approach

For this case study, qualitative data were collected to gain insight, meaning, and understanding of teachers' perceptions and beliefs about integrating technology. In this case study, the aim was to gain an understanding of teachers' perceptions and beliefs about technology integration and the barriers they face. I was focusing on a particular situation, so the case study is defined as particularistic (Merriam, 2009). The collected data, each interview, observation, and the lesson plan was systematically reviewed to identify patterns and themes. Once patterns and themes emerged from the data, each skill and theme was typed into an Excel spreadsheet and color-coded. Each document was reviewed and were color-coded concerning quotes, teaching strategies, skills, and technology tools that fall under each category.

Setting

This study took place in a rural school district located in the South East United States. The school district included 15 schools: 10 elementary schools, four middle schools, and two high schools. The current study took place in the 10 elementary schools, which included Grades K-5. All 10 elementary schools were ethnically diverse in the population including European American, African American, and Hispanic American students. All of the participants worked in the same school district where 44% of the students qualified for free or reduced lunch. The number of students enrolled was approximately 3,000, and the number of teachers was approximately 410. Every teacher in this study had a desktop computer with the standard software that the system has installed and provided.

Sample

Research participants were 10 K-5 teachers in a rural school district in a southern part of the United States. Through personal observations and interviews, the participants shared their perceptions and beliefs regarding technology integration in their daily curriculum, as well as the barriers they faced. The participants ranged from veteran to novice teachers to gain a wide perspective. All elementary school teachers in the school were invited to volunteer to participate.

Ethical Protection of Participants

Several measures were taken to ensure the protection of the rights of the participants. Creswell (2012) described three basic principles of federal guidelines for protecting participants. These principles include (a) maximizing good outcomes and

minimizing risk; (b) protecting autonomy and ensuring well-informed, voluntary participation; and (c) fair distribution of risk and benefits (p. 22). Prior to conducting data collection, an institutional review board (IRB) request was submitted to Walden University for approval to conduct the study. The superintendent of the district involved in the study was asked to provide a letter of cooperation. Once approval was given, I set up a day and time that I could briefly come by each of the K-5 schools and speak at their faculty meeting. I presented the topic of my case study and gave out my e-mail address. Those who would like to participate in the case study contacted me via e-mail. To establish a researcher-participant working relationship, I assured participants that their responses would not be judged and assured that their responses would be respected. Upon receiving e-mails from those interested in participating in the case study, I e-mailed those chosen with an attached informed consent form to be filled out and returned.

Measures for ethical protection of participants included informing participants of the purpose of the study, sharing information with participants, respecting the research site, using ethical interview practices, maintaining confidentiality, and collaborating with participants (Creswell, 2012). The interview format allowed for participants to be candid about their perceptions and beliefs about technology integration. Confidentiality was of the utmost importance; therefore, participants were protected by assigned pseudonyms as a means of protecting their privacy (Kvale & Brinkman, 2009). Participants also understood that at any time during the interview they could stop answering questions or just quit the interview.

Guidelines were also used for participation in this study. Participants were asked to provide a day and time that they would like their classes to be observed for the purpose of research and data collection. They were also asked to provide a convenient time to conduct the interview, which would take place outside of instructional time. Participants were informed that they had the right to withdraw from the study at any time. No data were collected prior to IRB approval. Upon IRB (approval#11-06-14-0135074), all data have been stored on my computer and can only be accessed by a secured password.

Data Collection

Observations

Each study participant was observed as they taught one time for 45 minutes. The classroom observation included teaching methods of the educators' integrating technology with instruction. Successful classroom teachers design instruction to effectively teach students how to reason, analyze, weigh evidence, problem solve, and communicate effectively. Notes were taken throughout the observation to record what was observed. To be sure each observation examined similar teaching characteristics, an observational protocol served as a guide (See Appendix A). Stake (1995) explained that observations are often based on interpretation. As a means of interpreting the observation, a reflective journal was maintained about the lessons observed.

Semistructured Interviews with Teachers

Semi-structured interviews were used to help me understand the participant's experiences integrating technology into their daily instruction. According to Stake

(1995), interviews are used to fill in the blanks of what researchers cannot observe. Conducting a semi-structured interview allowed me to ask meaningful questions and still allowed for flexibility in the conversation to take its natural course. Throughout the interview, I asked the participants probing questions to delve into further detail to either clarify a point or explain a comment further (Kvale & Brinkmann, 2009).

During the interviews, shorthand notes identifying key points were kept in a journal. Interviews were audio-recorded for accuracy of the responses and verbatim transcription. Open-ended questions were included in the interview so that the participants would be able to "best voice their experiences unconstrained by any perspectives of the researcher of past research findings" (Creswell, 2012, p. 218). Kvale and Brinkmann (2009) suggested using an interview guide to serve as the base of the interview (See Appendix B). Interviews were conducted during a time that was convenient for the potential participants, and outside of instructional time.

A schedule for one-on-one interviews was designed based on participant availability. Once each participant's schedule was available, a calendar was created which included all participants and their scheduled interviews. Participants received an individual schedule of meeting days. If participants preferred the interview to be conducted via telephone, there was a scheduled time for each phone interview as well. Each teacher participated in a one-to-one, face-to-face interview. The audiotaped interviews took approximately 45 minutes. In the event the participants were unable to meet in person for the interview, they had the option of a phone interview (vale & Brinkman, 2009).

Documents from Teachers

To gain understanding of teachers' perceptions and beliefs about integrating technology within instruction and delivery of instruction using technology, participants were asked to provide a copy of a lesson plan. The lesson plan was a separate document from the lesson observed. From the lesson plans I was saw which teachers integrated technology within the curriculum and to what extent. A checklist was used to analyze the lesson plans (See Appendix D). All data and documents have been placed in a locked filing cabinet at the researcher's home. Electronic files have been stored on the researcher's password-protected computer and backed up on a password-protected hard drive and will be kept for five years.

<div align="center">

Researcher's Role

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As a colleague of some of the participants for several years, it was imperative to define my role of the researcher rather than as a colleague. I had no authority or evaluative power over the potential participants, as I am a teacher in the district and have no supervisory role at any of the schools. I have worked in the district for 20 years in various capacities including paraprofessional, secretary, Instructional Coach, and teacher. Because of my professional relationship with teachers in the district, reflexivity was used to set aside personal biases that could have affected data analysis. This research topic has been a discussion in our school district for many years. It was imperative for me, as the researcher, to enter the interview and classroom observation without any preconceived notions or assumptions about individual responses or strategies. I also stayed focused

during the interviews and assured participants that they would not be judged based on their responses.

Data Analysis

There are various ways to analyze qualitative data. According to Miles and Huberman (1984), data analysis consists of three concurrent flows of activity: (a) data reduction, (b) data display, and (c) conclusion-drawing/verification. Data reduction occurs continuously throughout the life of the qualitative research project (Miles & Huberman, 1984). Data analysis for this case study was conducted throughout the data collection process. Data display is defined as the organization of information so that further analysis can take place (Miles & Huberman). Once data were collected, open coding was used to help identify patterns and themes. Once the data collection was finished, all of the interview transcripts, classroom observation notes, and lesson plans were compiled to review findings and the information was organized for the purpose of identifying patterns (Merriam, 2009). To analyze the collected data, each interview, classroom observation, and lesson plan was systematically reviewed to identify patterns and themes. Once patterns and themes emerged from the data, each skill and theme was typed into an excel spreadsheet and color coded. Each skill and theme was a visual way to help identify what teaching strategies were used and what changes needed to be made to assist other teachers in integrating technology. Stake (1995) suggested that researchers keep data in file folders which include personal notes of the classroom observations and interviews, as well as photocopies of lesson plans. Files will be kept in a secure location in my home.

Evidence of Quality

Data analysis included code recode, reflexivity, dense description, and triangulation to ensure accuracy and credibility. Code recode allowed for more refined codes and the potential to develop new codes through analysis (Merriam, 2009). This process occurred as classroom observations, and interviews were completed. While certain biases were challenging, through reflexivity, I bracketed my biases to ensure data were analyzed fairly (Merriam, 2009). Throughout data analysis, I used verbatim quotes from participants to provide dense description. Using multiple sources of evidence in case studies makes case studies much more convincing and accurate because they are then based on several different sources of information (Yin, 2003 2009). If there were any discrepancies in the accuracy of the data, the data were discarded and the discrepancy was noted.

Section 4: Results

Introduction

For this case study, qualitative data were collected to gain insight, meaning, and understanding of teachers' perceptions and beliefs about integrating technology into classroom instruction and the barriers they face. The collected data, each interview, classroom observation, and lesson plan were systematically reviewed to identify patterns and themes. Once patterns and themes emerged from the data, each skill and theme was typed into an Excel spreadsheet and color-coded with regard to quotes, teaching strategies, skills, and technology tools that fell under each category. This process provided a visual way to help identify what teaching strategies were used.

This study was based on the following research questions:

1. How do K-5 teachers in rural setting perceive the process of integrating technology into their daily instruction?

2. How do K-5 teachers in a rural setting implement technology in their delivery of instruction?

This section is organized into three subsections. It contains both the processes that were used to gather, generate, record, and analyze the data, as well as the outcomes of the data analysis. This first section contains information by which data were generated, gathered, and recorded including the systems used for keeping track of data and emerging understandings. The second section includes the methods used to analyze the data and includes findings of this study in a manner that addresses the research questions. Patterns, relationships, and themes described as findings are supported by the data. In the third

section, I present a discussion of the quality of the evidence in the data collected and the organization of data.

Data Collection Process

The process of data collection began with the identification of participants. The participants were teachers from 10 K-5 schools in a rural school district in a southern part of the United States who volunteered to participate in the study and were willing to give their time to be interviewed and observed. I scheduled a day and time that I could briefly visit each of the K-5 schools and speak at their faculty meeting. I presented the topic of my case study and provided my e-mail address for those who wanted to volunteer to participate in the study. Participants contacted me via e-mail to inform me of their voluntary participation. They were all provided with informed consent letters via e-mail to which each replied with the words "I consent." In an effort to establish a researcher-participant working relationship, I assured participants that their responses would not be judged and assured that their responses would be respected and kept confidential.

Once participants were selected, I contacted each one of them and scheduled a day and time for their interview and classroom observation. The participants expressed their suggestions for conducting the classroom observation and interview on the same day. Participants asked to have their interviews at the end of the day and conducted in their own classroom.

The qualitative methodology of this case study design included a combination of semistructured interviews, integrated technology lesson plans, and observational field notes from the classroom observation. Data were collected over a 2 1/2 time period in

October, November, and December of 2014. The data collection took place at 10 elementary school campuses. Of the 10 teacher participants, three teachers identified themselves as first grade teachers, two identified themselves as third grade teachers, two identified themselves as fifth grade teachers, two identified themselves as fourth grade teachers, and one was a second grade teacher. All of the teachers were self-identified as technology-using, elementary-level teachers, and had received some training in the area of integrating technology in the classroom.

Classroom Observations

As part of the research agenda for the qualitative data collection process, I visited the research sites for direct classroom observations in teacher classrooms. The classroom observations were focused on observing teachers' use of technology in the classrooms for instructional purposes. Not all teachers and classrooms were a part of the field observation. The selection of teachers for the observation was purposeful, and it only included teachers who were interviewed.

The classroom observations were conducted prior to the interviews on the same scheduled day for each teacher. The role of the observer in the setting was a nonparticipant role. I arrived at each of the schools at the scheduled time and checked in at the front office. I was given a visitor's pass and proceeded to the teacher's room. Once in the room, the teachers introduced me to the class and told the students that I was a college student who was visiting for an observation.

Ten participants were observed for approximately 45 minutes. An observation protocol (Appendix C) was used for each classroom observation to maintain continuity in

the data collection. The observation included teaching methods the educator used successfully to integrate technology within instruction. To record the observation, notes were taken throughout the observation. Stake (1995) explained that observations are often based on interpretation. As a means of interpreting the observation, a reflective journal was maintained on the lessons observed. Once the observations were completed, I thanked the teachers and reminded them that I would see them at the end of the day for their interview.

Interviews

A schedule for one-on-one interviews was designed based on participant availability. Once each participant's schedule was available, a calendar was created that included all participants and their scheduled interviews. Participants received an individual schedule of meeting days and times. If participants preferred the interview to be conducted via telephone, there was a scheduled time for each phone interview as well. There were no telephone interviews.

I arrived at each of the participants' schools at the designated times and checked in at the front office. I was given a pass and was escorted to the teacher's classroom. I was invited in by the teacher and given a seat. After a brief introduction, the intent of the interview was explained. Each interview was started and ended in the same manner informing the participant that all the information was confidential and would only be used for the purpose of this research study. All names and places were coded to assure confidentiality. All sessions were digitally voice recorded and transcribed verbatim. To maintain complete confidentiality, each participant in this study was identified with an

alphabet designation of A, B, C, and so on. Each interview session was guided by the same set of semistructured interview questions as seen in Appendices B.

The interviews of the 10 participants lasted approximately 45 minutes. To document the interviews, shorthand notes identifying key points were taken and kept in a journal. The interviews were audio recorded for accuracy of responses and were transcribed verbatim. During this time, participants were asked a series of 10 open-ended questions developed to gather the necessary data to answer the research questions (Appendix B). These interviews occurred over a three-week period. All 10 interviews took place at the school site after school hours. Each participant chose the date, time, and place for the interview. The participants were assured that their responses would remain confidential so that they would feel free to answer openly and honestly about their experiences integrating technology within instruction. These interviews were recorded and then transcribed verbatim within 72 hours by color coding to identify themes. Conducting a semistructured interview allowed me to ask meaningful questions and still allowed for flexibility in the conversation to take its natural course.

An interview guide was used to ensure that the same general areas of information were collected from each interviewee. Brinkmann (2009) suggested using an interview guide to serve as the basis of the interview (See Appendix B). Each interview in this study was conducted with the potential participant during a time that was convenient and outside of instructional time. Once the interviews were completed, I thanked the participants and asked them for their copy of one of their technology infused lesson plans.

Research Findings

The following section includes a description with analysis of the research findings presented in the context of the relationship to each of the two research questions. All elementary school educators in the district were invited to participate. From these participants, 10 K-5 teachers, one from each of the 10 elementary schools in the district, was selected to establish the case. Data analysis was based on case analysis of information collected from interviews, technology-integrated lesson plans, and classroom observations to address the research questions and draw conclusions.

Data Analysis

The data were analyzed using color coding to identify themes. I carefully read all interview transcriptions twice. I then conducted open coding by generating numerous category codes as I read responses, labeling data that were related without worrying about the variety of categories. I wrote notes to myself in my journal, listing ideas or finding relationships. I noticed, and I watched for special vocabulary that participants used because it often indicated an important topic. The Text Highlight Color feature of Microsoft Office Word was used to highlight key words and phrases in the transcripts for each identified category.

Next I used coding to eliminate, combine, or subdivide coding categories and looked for repeating ideas and larger themes that connected codes. After I developed my coded categories, I made a list that assigned each code an abbreviation and description. The themes that emerged from coding the data were lack of time, lack of resources, lack

of motivation because of standard mandates, and the lack of knowledge in the area of technology use.

There were no discrepant cases, but one participant reported different perceptions of the process from the other nine. Participant F stated that she preferred to use only a limited amount of technology and that she was a proponent of the "old-school" method of learning with books, paper, and pencils. She wants students to be self-sufficient and not rely on a machine to do the work for them. She did not appear to understand the current technological society. One example, she used was it may be a valuable skill to create a graph on excel, but what happens if the computer is down? Students need to create a graph on paper with an accurate scale for the X and Y axes. She still uses technology as a means of lesson delivery because it is mandatory on the teacher observation instrument.

Evidence of Quality

Several strategies were used to analyze the data to address the research questions. To ensure accuracy and credibility, data analysis included code recode, reflexivity, dense description, and triangulation. Code recode has allowed for more refined codes and potential to develop new codes through analysis (Merriam, 2009). This process occurred as classroom observations, and interviews were completed. The researcher acted as the primary data collection source and acknowledges personal values, biases, and assumptions can affect the mechanics of the study including how data are collected, analyzed, and interpreted. To preserve the quality of the study, I made every attempt to devise methods of separating personal feelings and interpretations from the descriptions and perspectives provided by the participants. Information coding and brackets were

included in field notes and a research journal to assist me in reflecting on new information and to more effectively distinguish data from personal biases and views. If there were any discrepancies in the accuracy of the data, the data were discarded and the discrepancy was noted.

Credibility

To establish internal validity, I triangulated the interview data points with written notes in my journal minutes. I also included the notes from the classroom observations. To further establish credibility, participants taught in 10 different school sites to reduce the effect on the study of particular local factors peculiar to one institution.

Transferability

External validity was established through a rich narrative description of the teachers' perceptions of their experiences with integrating technology. The narrative demonstrated diverse perceptions of the collaborative experience which may enable transferability by a variety of educators. Gender, age, and ethnic demographics within the purposeful sampling of the 10 teachers at this rural school may enable transferability of the findings by readers, but that decision will be made by each reader.

Dependability

To establish dependability, I triangulated the interview data points with written notes in journal minutes kept by me. These notes included notes from the classroom observations. Written notes were kept as an audit trail of the data collection and analysis process.

Confirmabilty

The audit trail was a documentation of procedure. Additionally I kept a journal of notes on my reflections and thoughts which also established confirmability. The act of reflecting on the data and the responses garnered in the interviews allowed for the critical analysis necessary in qualitative research. The case study methodology worked well for this study because analyzing the in-depth interviews of the participants helped establish themes and patterns to describe each the teacher's perceptions.

Results: Research Question 1

Research Question 1: How do K-5 teachers in a rural setting perceive the process of integrating technology into their daily instruction? Five themes were identified from the data: (a) teachers felt there was a definite lack of time to prepare technology integrated lessons, (b) there is a lack of available resources, (c) there is a general lack of training in the area of integrating technology into curriculum, (d) teachers felt pressured to integrate technology, and (e) teachers felt technology did enhance instruction.

Time for Collaboration with other Teachers

Teachers work under severe time constraints. They are asked to accomplish much, which includes showing student growth, acquiring a minimum amount of time needed for professional learning courses for re-certification, creating technology integrated lesson plans, keeping data notebooks on each child, as well as other tasks. A common theme voiced by the participants was the idea that teachers do not have enough time to prepare integrated technology pieces into their lesson plans. The participants interviewed expressed their interest in learning, but they often make little use of technologies because

they do not have enough time. Teachers are working alone or with a small group of grade level teachers creating their lesson plans. The problem is that most of the administrators want all teachers to create their own lesson plans and not to use plans of other teachers. Teachers felt if they could work on the plans together they would make better use of their time.

Participant E mentioned:

> I often feel like teachers are just being dumped on with a to-do list and no time to do everything, let alone teach. State mandates are requiring teachers in Georgia to integrate technology into their lesson plans without thinking about time restraints. The problem of lack of time exists for teachers in many aspects of our work as it affects our ability to complete tasks.

Several of the participants in this study specifically stated which aspects of integrating technology required more time. These include the time needed to locate Internet advice, prepare lessons, explore and practice using the technology, deal with technical problems, and receive adequate training.

Participant D, who had been teaching for five years when the state created the Georgia Performance Common Core Standards, which include integrated technology, expressed her perception of her own situation by saying:

> When I started teaching I was given nothing in terms of instructional training in the area of technology integration. However, because of the new Georgia Teacher Evaluation instrument and the new standards, I had to find the time to teach myself how to integrate technology into my daily routine.

Teachers appear to adapt to required teaching methods. Although several of the participants in this study discussed the lack of time and training in the area of using technology, they have managed to find the time, and have gained the necessary knowledge needed for them to integrate technology within their teaching. Participant J explained:

> I don't know how some teachers find the time to integrate technology for their students because I can't find the time. I already don't have time to do all that is expected of me as it is. I feel that I have to give something up, but what?

The lack of time is a theme within this study. Most of the teachers who were involved in this study felt they needed an extra planning time just to practice and learn how to use technology with fidelity, and to enhance their skills with its use. The lack of time for planning was a consistent concern for the participants. Participant G said:

> I would like to see a technology integration specialist, someone like a reading specialist, who comes around, works in classrooms, helps with special projects, you know someone to help model how it is done. I feel that with more support, someone modeling how to integrate technology, and just knowing there was someone on campus to provide answers, would help with my planning time

Teachers felt they had to spend too much time trying to research ways to integrate technology and to implement it with fidelity. With all their extra time spent on trying to learn how to use technology, what type of educational technology was available, and how to integrate it, they did not have any time left to actually plan their daily lesson plan. The

teachers do not know where to get extra time that is vital to their success in implementing technology driven instruction.

Need for Access to Technology Resources

The next theme was a lack of resources, such as computers in the classroom and the lack of access to the resources. This theme was mentioned throughout data sources indicating that lack of access to resources, including home access, is another complex barrier that discourages teachers from integrating technology in their lessons. Participant F mentioned how difficult it is to access computers in the school:

It is very difficult to always have access to computers at my school. You have to book the computer lab or the computer cart in advance and sometimes I forget, or I can only book it for one session. I don't have the luxury of always having the computers available to me because the labs and computer carts are shared with the whole school, it is frustrating.

The barrier of accessibility of computers varied from school to school. Some of the reasons for these differences were because of administrator's choice on what to allocate funds toward. Some of the schools, such as participant A's school, had an entire computer lab for each grade level and at least six computers in each classroom, which is a great small group size. Participant A stated, "I thought we didn't have enough computers until I spoke to some of my friends at the other schools. Some of them only have two student computers, I would go crazy. Participant F mentioned:

We have access to computers, it is the lack of bandwidth space at our school, and it is extremely slow. Because it takes forever to go to a site, a lot of the teachers

hate using the computers, but because we are being evaluated by the state on technology integration we have to just grit out teeth and deal with it. We are expected to have our students on the computers and utilizing technology, but when the school doesn't have the proper equipment for us to use teachers become frustrated. Our administrators have told us that this is a system problem and that they are looking into expanding the bandwidth.

Within this research the lack of technology availability to teachers was a common theme. Lacina, Matthews, and Nutt (2011) reported that, too often, teachers' commitment to integrate technology in the classroom is obstructed by the lack of availability of the essential technological tools and resources to facilitate learning. As school districts create their technology plans for the school year, they should explore all areas of individual school needs.

Several of the participants interviewed expressed that the lack of technical support prevents teachers from successfully integrating technology into their lessons. Participant F stated, "I worry so much that one day my Principal will come in to do an observation and my computer, or the program I have planned to use will not work properly." The teacher explained to me that the only support staff the school had to assist the teachers with technical difficulties was their media specialist. This situation created a unique problem at that school. The media specialist's focus was on the duties of this position rather than addressing the requests and needs of teaching staff. Several schools expressed this same problem. There is a county technology coordinator that is available to assist teachers, but there are only four of them for the 18 schools within the district.

Professional Development for Technology Integration

Another common theme revealed during the interviews was the teachers' view that there was a lack of effective training. Participants expressed their concern that there are not enough training opportunities for them in the use of technology. Liu (2011) found teachers expressed the need for technology infused professional learning courses about how to integrate technology into specific curriculum standards as well as a need for professional learning about how to use specific technological devices. Participant B mentioned:

> There is insufficient amount of Professional Learning courses offered for teachers
> in the area of technology and computers. The available courses offered are
> courses that I personally do not want to attend nor need training in. I think it
> would be nice if whoever developed the professional learning courses could ask
> the teachers what they felt they needed.

Participant A indicated to me that inappropriate teacher training is not helping teachers to integrate technology within instruction. When technology needs to be integrated in the classroom, teachers have to be trained in the use of these particular programs to be successful, and to implement the programs with fidelity.

Participant I indicated that a lot of teachers were unable to integrate technology with fidelity because of a variety of reasons:

> I am not proficient in the use of the computer. I can be taught the programs my
> students use but I also need some professional training to develop appropriate

skills, knowledge, and attitude regarding the effective use of computers to support learning by my students.

Most of the participants in the study felt that when there are new tools, and approaches to teaching such as integrating technology, training is essential if they are to implement these approaches effectively and with confidence. Participant C told me that she felt inadequately prepared and was not confident to carry out full integration of technology in her classroom. She felt that there was also a need to not only be computer literate but also to be able to develop skills in integrating computer use into her teaching program.

The majority of the participants in the study agreed that they needed more time, and training in the area of integrating educational technology. I discovered that teachers want to learn how to use new technologies in their classrooms, but the lack of opportunities for professional development obstructed them from integrating technology with fidelity. Participant F stated, "I feel that we teachers are looked at to differentiate and integrate our teaching for our students, so why don't our administrative staff differentiate to meet the teacher's specific learning needs?" This thought was the consensus of the teachers involved in this study, and a common theme within the literature review.

Pressured to Integrate Technology

Teachers integrated technology in their curriculum because it was new, fun, and engaging for the students. Teachers felt like it was an added resource that could enhance their teaching. With the new teacher evaluation instrument in Georgia, which requires teachers to integrate technology, teachers feel pressured to search for technology pieces to include in their daily lesson plans. Participant C mentioned:

I think that technology-based instruction can be a great tool. I don't feel however that it can replace the teacher. Students are students, and they need to be accountable to a person. They need to have someone to give guidance to them, if they have a question about what they are working on, the student is not able to ask the computer. Students need that immediate feedback from their teacher

The participant felt that although computers were a useful tool, it is just that, a tool, an inanimate object which is lifeless. A person however is an animate object which is full of life. For example, teachers provide students with verbal praise and encouragement, whereas a computer cannot provide such support.

Limited time to integrate technology has put pressure on teachers. Participant B stated:

Honestly, I prefer to use only a limited amount of technology. I am a proponent of the "old-school" method of learning with books, papers, and pencils. The problem with this is that administrators are coming into classrooms to conduct teacher evaluations, and they are looking for technology integration. When the administrator comes in, you must show them where you are integrating

technology in your class or you won't get this area checked off from the teacher evaluation checklist. This can hurt my annual evaluation at the end of the year which in turn could jeopardize my job.

Participant B stated: "I feel that I am being forced to use educational tools that I may not otherwise use every day because I am being told I have to because it is a state requirement." Teachers want the freedom to choose which methods work best when teaching. They want to integrate technology that they feel comfortable and confident in its use, and not mandated for them to use tools they otherwise may not have selected.

The state of Georgia's new teacher evaluation platform has put a lot of pressure on teachers in the area of their teaching styles. The tools and means a teacher uses to instruct students are their tools of choice; it is the style in which they teach. Not every teacher is efficient using technology within instruction and do not want to use it. Participant H stated:

The Georgia Department of Education implemented the Georgia Frameworks which includes technology standards for teachers to help their students prepare for the 21st century workplace. The problem with this is that we were not prepared in advance to be proficient with integrating technology because we were not mandated to include this in our daily routine. It is like we were just told with one day warning that we would be evaluated in the area of technology integration, so we better be doing it.

Participant F, a veteran teacher, told me she felt pressured to use technology. She has taught for so long without technology that it scared her when she found out that she had

to use it each day in some way. She stated: "My kids know more about how to use the technology that is available in my class than I do. I worry that they go home and tell their parents that I don't know what I am doing." She felt that the public and the students' parents already had high expectations for them to use instructional technology, and now the students seem to be less engaged in learning if the teachers are not using technology in their lessons.

Some participants feel that because they are living in a technological society, they are pressured to be the responsible person to teach students how to use technology. Participant C stated: "Kids are growing up in a digital age. Most of the students I teach have an iPod, iPad, computer, laptop, or some type of computer. Most of them have access to the internet at home." Because the students are already using so much technology on their own, the teacher felt the students are expecting them to use technology in their classroom.

Participant C also felt that the students seem bored and disengaged when she does not use technology during a lesson. Teachers are feeling pressure from all sides, the state, the students, the parents, and the school administration. Participant C stated:

> I feel my students are less engaged when I am not using the computer, and expect me to teach with computers all the time, I feel that I am pressured by not only the state and the district, but also by my students.

So many students have iPods, iPads, or some type of technology they use that they do expect to see it implemented within instruction.

Technology Integration Does Enhance Instruction

Most of the participants in this study agreed that technology is an important tool for teaching and learning. They maintained that the use of technology helps to keep students engaged in their learning. Participant C mentioned:

Technology plays an integral part of every school day in my classroom setting. Any time you put students in front of a computer there is instant motivation. Add in the bonus of a game format and students are doubly hooked. We live in a technological generation, and this is what students expect.

In this study students were engaged when they were able to do their lessons on the computer, or were able to interact with an Active Board. It is evident that technology is a beneficial instructional tool.

Technology can be used to enhance, and engage student learning. Participant A mentioned:

I like integrating technology to enhance student performance. It helps make my instructional delivery easier and learning fun. Technology helps me meet the needs of each student and helps build collaborative problem solving. I also feel that by integrating technology I increase student motivation, and my student's attitudes toward learning. This method of lesson delivery has become an integral part of my teaching practice.

Each classroom that I observed where the teachers were integrating technology, the students were highly engaged in the content of the lesson. The students showed interest by actively participating in the lesson by using the SMART Board, Elmo, or even

the Classroom Performance system. The small groups of students who were not using

technology showed less engagement, and active participation within the lesson.

Participant I was glad that the state of Georgia included technology integration as part of

the teacher observational instrument because without this mandate, technology

integration may not have occurred. Most of the teachers in this study agreed that they did

not feel they would be using technology as much if it were not mandatory.

Results: Research Question 2

Research question two asked how K-5 teachers in a rural setting implement

technology in their delivery of instruction. Four themes emerged from the data: (a)

Instructional videos, (b) PowerPoint guided lessons, (c) Student created PowerPoints, and

(d) progress monitoring.

Instructional Videos Are Useful for Enhancing Student Learning

The school system in which this research was conducted does not allow teachers

to use videos as part of their instructional technology, unless it is enhancing the teaching

of a concept in a way that would be difficult to do without technology. With high stakes

testing from the state, school administrators want to make sure that any type of

integration of technology utilizing videos be short and focused on the objective being

taught. Participant C explained:

I love using instructional videos in my classroom as activators and summarizers.

An activator is an activity that is used to link prior knowledge of my students with

the lesson content I am about to teach. A summarizer is the portion of the lesson

that gives evidence of student learning with a summarizing activity. This is why I

begin a lot of my lessons with a video. There are so many video resources on the internet. I have used Safari Montage, United Streaming, Teacher Tube, and You Tube the most.

Most of the participants in this study mentioned how engaged their students became in the content when they are viewing a video. Participant A told me that instructional videos were huge within his daily lesson:

One type of instructional video I like to use to help guide my instruction is virtual tours. Virtual tours are like virtual fieldtrips. Our school system acts like they are broke and each grade level is only allowed one field trip a year, so I began using virtual tours. My students are highly engaged and love watching them. They are able to tour the American Museum of Natural History, they have toured the Holocaust Museum, the Sistine Chapel, The Great Wall of China, and Gettysburg. What my students and I love about these virtual tours are that most of them are a 360 degree view. You can't get that in a textbook.

Participant A was so enthusiastic about using virtual tours. I was told that the students love the tours so much that the other teachers on the team are using the videos as well.

Participant F told me that there were so many sites to find educational videos on that selection was almost overwhelming. Participant F too agrees that videos are an essential tool used

I love using movie trailers, and webinars to help my students learn. A lot of my co-teachers think that webinars shouldn't be used, but as long as my students

show understanding and they are engaged in the webinar, I think it is fine to use them. The students do prefer the movie trailers over the webinars.

Webinars are a resource for teachers to help guide instruction as well. A key feature of using webinars is the interaction between two live instructors in real time. You can ask questions, and engage in interactive activities

Each of the elementary schools within the district provides student access to several on-line computer programs that include educational games and videos. Participant B mentioned:

I access webinars from the Scholastic site during reading. I also use the CPS for immediate feedback to check for student understanding of lessons and mastery of skills. I will also assign software assignments such as Study Island, Moby Max, and Success Maker for independent student practice. All these programs include engaging videos for the students.

It was interesting to me as an educator to hear two of the participants discuss how they integrated webinars in their teaching practices for their students. Webinars create a virtual classroom that comes directly to you.

Participant J discussed the importance of instructional videos in the classroom. She shared:

As a teacher, my goal is to engage my students in the learning process as much as possible. With technology so readily available to me, when it is working, I use videos. My students generate greater amount of interest and enjoyment than the

more traditional worksheet packet that I would have once given. It took me a while to get the hang of integrating technology, but I am getting the knack.

All participants in this study made me aware that the only videos teachers are allowed to play in the classroom are instructional videos, and they must be included in their lesson plans. Any other type of video must be approved by the principal and their media specialist.

One of the participants who teaches history gets excited seeing the visual expressions of her students when a video is used to take them back in time and hearing voices from the past. Participant H told me:

 I have to teach about the important role that Greece played in the Olympics and how Greek architecture was vital to American architecture. Being able to put on a video from the past is so much more engaging to my students, and they retain what they have seen because the videos are so good.

Participant H expressed to me that the videos help guide instruction for follow up activities, such as having students dress as the Greeks and creating Olympic games as a culminating activity. Participant H also let me know that when the students were assessed on this topic, the majority of the class passed with an A.

Participants indicated that instructional videos are a resource for educators to help engage, and enhance student learning. Although most of the participants mentioned the love for using the videos, several participants reminded that there are disadvantages to planning and integrating instructional videos. No matter how well plans are developed,

there is a risk of technical difficulties, in which case, they have an alternative method for instruction.

PowerPoint Guided Lessons

One other way teachers' implemented technology into their daily instruction was by using PowerPoints to help guide their lessons. Not only did the teachers use the PowerPoints to guide their lessons, of the power-points that were used were interactive for student participation. Participant G told me:

I pray every day that my computer or Smart-board doesn't go down. I would be totally lost because I use it every single day. I create a cool background that changes themes monthly. I do this to keep things fresh and new for my students. I then create my day one each slide. I include any videos links, and student interactive all in the same Power-point. I also transition my students using the Power-point because I have embedded music videos. I use a remote control and it works great. My classroom works like clockwork, and my students love it.

Teachers in this study used PowerPoint in many ways. Participant F advised she uses Power-point frequently in the class, and also said, "PowerPoints are fun for me to make. I like creating PowerPoints to help me teach because I feel it helps me accommodate all learners' needs in my classroom." Participant B said, "I like using PowerPoints because if students do not finish work during the class period or are absent, the PowerPoint presentation would always be posted online for students to access. The teacher said, "By posting my lesson online via PowerPoint, students are held accountable

for making sure they can get their work done. There is no excuse because all my students know they can find out what we have done, on-line every-day."

Participant C said, "I like using PowerPoints to help me teach. I feel that the screen is big enough and the activities I plan by using the PowerPoints are engaging. I have, however, found out that I need to keep any type of animated gif, or images to a minimum. My students get highly distracted by the animated gif, so I have come to remember that the animated gifs are not the focus of the lesson." One other participant uses the PowerPoint program only for her activating strategies to introduce students to the new content and to assess students' prior knowledge. She told me, "I mainly grab the attention of my students at the beginning of each lesson by using a short video clip that has been embedded into a slide in the PowerPoint program. Once I have the attention of my students, they are hooked."

PowerPoint is frequently used in content delivery by most of the participants. Participant C stated, "I like using PowerPoints in my room because my lesson can be delivered with different types of media such as images, sounds, animations, and videos. This helps my students stay engaged which in turn helps them to retain what they're being taught, especially those students that are visual learners." All the teachers I observed in the study expressed that preparing a presentation ahead of time, using Power-point saves valuable instructional time. Because the information is already prepared, the teacher does not have to spend time preparing the classroom for instruction and possibly experiencing student focus. The lesson is cohesive because the teacher is not required to change focus in teaching the lesson. For example, the teacher would not write content on

the board, and erase the content when discussed or explained to fill the board with new information.

Student Created PowerPoints

Teachers explained how students were proficient in using technology and are talented in using Power-point themselves. Participant I stated, "Sometimes I have problems remembering how to do something in PowerPoint, and my students are able to tell me how to do it. It always amazes me how much my students know about the computer and the programs." According to the teachers in this study, most of their students ask to do their projects and other school work in PowerPoint form. Participant A stated, "My students love to use PowerPoint to present projects to the class. I use a remote control when I use PowerPoint in my class and the students look forward to being able to use the remote control. They strut around the room, pointing at the screen like they are the teacher."

When teachers allow students to create their own PowerPoints to present to their peers, the teacher may the facilitator of student learning, and the students may become active participants in their own learning experience. Participants felt that students enjoyed listening to their peers and were engaged in their learning when their peers were teaching. Participant D stated:

Before I turn over a lesson to a student to present using Power-point, I have already taught the big idea. I tell the students that I am going to let them teach the lesson, and that I will assign which student will teach which part of the lesson. When I do this, my students become really excited and interested in what I am

teaching. This helps me teach because my students are paying close attention to what I am saying.

Participant G stated ran the instructional portion of class with a PowerPoint, and told me:

I enhance my instruction using PowerPoint as an enticement for my students. They love using PowerPoint so I tell them they can use PowerPoint to create their information about researching a topic. One such topic I have used was to create a presentation about what they can learn about adverbs. They love the challenge; they are using various skills like research skills, technology skills, and organizational skills.

Students were not just creating PowerPoints to create research papers, turn in homework, or for student guided instruction. Students were creating interactive games within PowerPoint. Participant G had a student guiding the class teaching the four types of sentences using an interactive PowerPoint game the student had created at home. Participant G stated, "My student had gone home and created this wonderful PowerPoint game that was very thorough and asked me if he could share it with the class. When I looked it over I was really surprised that it was a learning game, so of course I was going to let him share with the class. The entire class really enjoyed it."

Progress Monitoring

Progress monitoring is used to assess students' academic performance and evaluate the effectiveness of instruction. Teachers have to progress monitor their students using either weekly or biweekly assessments depending on their students' intervention

level. The teachers use the data from progress monitoring to help guide their instruction. There are several different methods and technology processes that the teachers use to progress monitor their students. Participant J stated, "I use a spreadsheet to keep up with all of my students' district assessment results. I include the standards that the students are weak in; I then use this information to help me differentiate my instruction for each student in the area of need."

Participant A told me that there are several progress monitoring programs that teachers can find online that are free. She stated, "I really rely on my progress monitoring data to help me monitor my students' areas of weakness. I love changing up the types of progress monitoring formats because they seem to offer me a different view of my students' needs. I then use the information to help me form my small groups."

Most of the participants told me that during their data day meetings with their administrators, they are asked to show how they are progress monitoring their students and how they are using that information to help their students. Participant C stated, "I am so glad that there are so many free resources online for progress monitoring. One site that I love to check for ways of progress monitoring is Teachers Pay Teachers." Teachers Pay Teachers is an online marketplace where teachers sell their original lesson plans and other course materials to other teachers. The majority of the materials found on Teachers Pay, teachers have to purchase, but there are available resources for teachers to download at no charge. Teachers use the progress monitoring information to help differentiate instruction for their students. Having accessible, free, and online resources encourages the use of a technology as a tool to help guide instruction.

Integration of technology has not only enhanced student learning, it has also helped teachers have more access to student data which helps plan instruction. Participant F explained, "Because of all the technology available to teachers, we are now creating countywide testing. Once testing is complete, we are able to access the data and see exactly which standards students did not master and differentiate our instruction to revisit those standards. Technology has definitely been a tool that I utilize to its fullest." Schools involved in this study were within the same school district and have access to the same data systems for their students.

Results of Classroom Observations

In all the classrooms observed, the teachers had a Smart-board that they used for delivering their lessons. All of the teachers observed used the Smart-board with fidelity. In a few of the classrooms when a teacher was not sure where to find something within the Smart-board tools, a student instructed the teacher in finding where it was. All the Smart-boards in each classroom were wall mounted over an existing white-board.

In three of the classrooms, I witnessed students taking a quiz via Classroom Performance System (CPS) clickers. . The teachers explained to the students that they were going to take a quiz and to make sure they did not randomly make a selection and click on a letter/number because the quiz was going to count as a grade. When the prompt was shown, the students would read the question to themselves and then select and indicate their answer by pressing their answer choices on their CPS clickers. There was a colored scale on the Smart-board that showed numbers, which represented each student clicker. The teachers could see when everyone made their choices and would proceed to

the next question. The teacher received immediate feedback from student responses and would show the class a bar graph on the screen that represented the percentage of students who picked answer A, B, C, or D, plus the correct answer. The students in all three classes were very much engaged in finding out how they performed as a class.

In one classroom, the students were using an interactive software program. The board had words listed in boxes, and pictures showing people, places, and things. The students had to go to the board and choose a picture, then look for the adjective that described the picture they chose. When they found the adjective the student had to place their finger on the word they chose and move the word onto the picture by keeping their finger pressed to the board, and gently gliding the word to the picture they chose. The students were raising their hands to participate which indicated their desire to be active participants. All of the classrooms observed were also equipped with audiovisual equipment such as projectors, and an electronic visual document camera and projection system, this school system uses the ELMO brand. In all the classrooms, there were lesson plan binders on the corner of the teachers' desks. Even though they created their lesson plans on the computer, they had to keep a hard copy of their lesson plans on their desk for administrators to locate when they would come for observations.

Seven out of the 10 classrooms I observed showed their morning announcements on their Smart-boards. The other 3 schools had to view their announcements on a closed circuit television that was mounted on the wall. From my observations the teachers and students seemed to enjoy the announcements much better viewing them on the big screen because the students were more attentive to the announcements. The majority of students

in the rooms with the closed circuit televisions were talking, and not paying attention to the television. Four of the classrooms I observed the teachers used Google Chrome to search for the activity they were using in the classroom. Out of the 10 classroom observations, teachers from three of the observations were using a slate, a small pad that the teacher could use to operate the Smart-board. Using the slate gave her the freedom to walk around the room and actively engage with her students.

In all of the classrooms observed, there was at least one student working independently on a computer. The teacher used a reading or math software program that was adjusted to each student's individual academic level. One classroom I observed had a group of students return from the media center. They were using the computers in the media center to create a PowerPoint to present a project to the classroom. The media center cooperates with each teacher and allows students to come to the media center to use the computers without being with a teacher.

Integrated Lesson Plans

As part of this case study, technology integrated lessons plans were collected from each participant. All 10 participants integrated technology in their lesson plans. The types of technology integrated were laptops, desktops, software, and Smart-Boards in their plans. Participants E and H integrated the use of I-pads in their lessons and participant A integrated the use of an E-reader in her plans. None of the participants integrated I-phones, cell phones, or Active boards. One participant also used the computers in the media center by stating in her lesson plans that groups of students were to go to the media center to work on their PowerPoint project.

All of the participants' lesson plans included hands-on-learning activities that involved either students utilizing technology, or teachers using some type of technology within instruction. The objectives in the lesson plans included the Georgia Department of Educations' mandatory integration of the technology standards.

Summary

This section was a presentation of the study findings. After coding the data, several themes were evident. Themes that emerged for Research Question 1 were: (a) teachers felt there was a lack of time to prepare technology integrated lessons, (b) there was a lack of available resources, (c) there was a general lack of training in the area of integrating technology into curriculum, (d) teachers felt pressured to integrate technology, and (e) teachers felt technology did enhance instruction. There were four themes that emerged for Research Question 2: (a) Instructional videos, (b) PowerPoint guided lessons, (c) Student created PowerPoints, and (d) progress monitoring.

Teachers' perceptions of the process of integrating technology in their daily instruction varied, but overall perceptions were positive toward its use. Even though Georgia State Standards mandate teachers to integrate technology within instruction and hold them accountable for its use through their observational instrument, participants came to a realization that their teaching methods and student learning have become more engaging. All of the participants in the study noted that they integrate technology to the degree available at their school site and have become confident and proficient in its use.

They also recognized that although technology can engage student learning, and enhance teachers instruction, there are at times when barriers that prevent its use.

In Section 5, I will discuss the interpretation of the study's findings. I will also review limitations of scope and consider recommendations for further research. Implications for positive social change will be discussed and my reflections will conclude the section.

Section 5: Discussion, Conclusion, and Recommendations

Overview

Depending upon the context and the learning needs, educational technology serves both students and teachers in a variety of ways. Lever-Duffy and McDonald (2011) defined educational technology as "any technology used by educators in the support of the teaching and learning process" (p. 5). For example, teachers might use educational technology to enhance communication with their students. Teachers might employ a specific process or technology to address their students' learning styles or intelligences. They could incorporate computer programs such as PowerPoint, Safari Montage, Success Maker, and Skype into their instruction to motivate students to engage with complex content. Educational technologies, therefore, can be used to enhance and support the teaching-learning process at any point within the instructional process (Lever-Duffy & McDonals, year; Smaldino et al., 2011).

The increasing pace of technology use and innovations requires teachers in all disciplines to develop an understanding of how to become proficient in effectively planning, implementing, and evaluating instruction that can foster student success in technology-rich learning environments. It is important that teachers develop skills to effectively integrate these emerging classroom technologies and teach students who have grown up in this digital age of technology to compete and succeed in the workplace (Lever-Duffy & McDonald, 2011). The purpose of this qualitative case study was to examine teachers' perceptions of technology integration and to understand how K-5 teachers in a rural setting implement technology in their delivery of instruction. I brought

to light information about understanding how individual teacher traits, such as beliefs, perceptions, attitudes, concerns, and classroom instructional practices impact teacher technology integration for classroom instruction and student learning. Findings may lead to the improvement of technology integration strategies and teacher training through professional development courses; findings might be used to reveal common characteristics of exemplary technology use by teachers. A qualitative research method was used to better understand the following research questions:

1. How do K-5 teachers in a rural setting perceive the process of integrating technology into their daily instruction?

2. How do K-5 teachers in a rural setting implement technology in their delivery of instruction?

Through individual interviews, classroom observations, and documents, I collected data to gain insight into the teachers' perceptions and experiences with integrating technology within daily instruction. The participants were teachers who taught at the 10 research sites and identified themselves as effective in integrating technology in the classroom. Participants had at least seven years of teaching in all of the content areas.

In Section 4, I presented narratives that addressed each research question from the data collected from the 10 elementary teachers in this case study. The data collected included a combination of structured interviews, classroom observations, and integrated technology lesson plans. The study took place during the months of November 2014-January of 2015. Interviews were conducted, and the data were entered in an Excel

spreadsheet then color-coded with regard to quotes, teaching strategies, skills, and technology tools that fell under each category.

A set of themes emerged around each research question. Teacher-based themes that emerged for Research Question 1 were (a) the lack of time to prepare technology integrated lessons, (b) there was a lack of available resources, (c) the lack of training integrating technology, (d) the pressure to integrate technology, and (e) technology enhances instruction. There were four themes that emerged for Research Question 2: (a) instructional videos, (b) PowerPoint guided lessons, (c) student-created PowerPoints, and (d) progress monitoring.

Interpretation of the Findings

The conceptual framework for this study was rooted in Prensky's (2011) work on the integration of technology in the classroom promoting student engagement and helping to develop their 21st century learning skills. This concept is related to Dewey's constructivist theory of learning, who issued this warning: "If we teach today as we taught yesterday, we rob our children of tomorrow" (Dewey, 1916, p. 99). Teachers' perceptions towards technology integration are factors in promoting technology-driven instruction. Teachers with positive attitudes and who understand the purpose of technology integration design instruction to engage students to learn.

Participant D summarized the study's findings regarding teachers' perceptions of the process of integrating technology. Teachers should extend their teaching practices to include technology to promote student engagement in the curriculum and to help prepare students for the technological 21st century workplace. All of the participants affirmed

positive perceptions of technology integration that impacts student engagement and student's attitudes towards learning.

Lack of Time

Teachers felt that there was a lack of time provided to them for preparing technology-integrated lessons. Twenty first century teachers need to collaborate with all sectors of the educational community in planning, managing, implementing, and evaluating programs (Shaikh & Khoja, 2011; Selvi 2010). Lin and Lu (2010) revealed that high levels of teacher self-efficacy resulted in increased time and commitment dedicated to integrating technology. For teachers to change their instruction, time is not the only factor that affects their decision. Attitudes, beliefs, and school culture are key to change (Tay, Lim, Lim, & Koh, 2012).

In practice, however, most teachers' perceptions of technology integration are that they neither have the time nor confidence to implement its use. This finding is consistent with the literature, as Ertmer (2012) and Richardson (1996) also revealed that teachers' attitude and pedagogical beliefs toward technology represent the most critical issues. The high uncertainty of new up-and-coming technologies makes it even more strenuous for teachers to find the time needed to develop the level of expertise to integrate technology in the classroom. The participants realize the challenges to find the extra time to integrate technology within instruction.

The participants' practices are consistent with the study's conceptual framework. Prensky (2011) believed that the integration of technology in the classroom promotes student engagement while at the same time helps to develop their 21st century learning

skills. It is important for teachers to use Prensky's framework because students will then

be engaged in hands-on experiences integrating technology. Teachers are likely to

integrate technology to engage students if they have the time for the planning, preparation

and implementation. This finding is consistent with the literature, as Yaratan and Kural

(2010) also found that teachers perceived that they did not have time to integrate

technology.

Lack of Available Resources

Teachers felt that they did not have the technology tools available to them to

integrate technology with fidelity. This finding is consistent with the literature, as Ogwu

(2010) acknowledged that teachers believed the lack of technology software and

unavailability and inaccessibility of the software tools was a barrier that prevented them

from integrating technology in the classroom. Teachers in this study pointed out that the

availability of computers in the classroom was a problem. One participant told me that

she had 25 students in her classroom and each student was expected to be on the

computer at least 15 minutes every day. The teacher only had two computers in her

classroom, therefore making this task hard to accomplish.

The finding were consistent to the literature where Chien (2013) acknowledged

all teachers indicated that they had at least one computer available in their classroom, but

some of them mainly used it for research purposes, not for classroom instruction.

Additionally, the participants mentioned that their schools had at least one computer lab,

but everyone had to sign up to use the lab and there are not enough time slots for each

teacher to use the resources. This finding is reinforced by Lacina, Matthews, and Nutt

(2011) who reported that, too often, teachers' commitment to integrate technology in the classroom is obstructed by the lack of availability of the essential technological tools and resources to facilitate learning.

Lack of Training

The findings indicated that there is a general lack of training in the area of integrating technology into daily instruction. This finding is consistent with the literature, as Keser (2011) also found individuals need to be trained as good consumers of knowledge who can access true and reliable knowledge in a short time, good producers of knowledge who can generate new knowledge from the information they have access to, and persons who can market the knowledge they have produced, converting the knowledge to power and money. Many participants stated that there were an insufficient amount of professional learning courses offered for teachers in the area of technology and computers. The available courses offered are courses that they personally do not want to attend nor need. Several of the participants felt that there should be an easy solution to this problem such as asking the teachers what type of training they would like to have.

The participants realized the challenges that they face with the lack of professional learning in the area of technology integration. Keser (2011) found that training information technologies trainers is a significant element in integration of technology to education. Further research by Smolin and Lawless (2011) supported the notion that professional development is essential to effective technology integration in classrooms. Most of the participants in this study did not have a problem with wanting to integrate technology; the problem they faced was not being trained in its use. Levin and

Schrum (2013) asserted that technology is vital for student learning in the 21st century; therefore, teachers must receive professional support essential for creating meaningful educational change, expansion, or growth. Participants recognized that their willingness and preparedness to integrate technology into their daily practices remain a key variable for transforming teaching and learning while creating technologically rich learning communities.

Pressure to Integrate

The next theme concerned the pressure felt by teachers to integrate technology. Several of the participants in this study indicated that in the beginning, teachers integrated technology into their curriculum because it was new, fun, and engaging for the students. The state of Georgia adopted a new teacher evaluation instrument, which requires teachers to integrate technology; teachers feel pressured to search for technology resources to include in their daily lesson plans. Most participants stressed that with state mandates for teachers to integrate technology and the workforce requiring technology use, administrators placed additional pressure on teachers to produce technology infused lessons. This finding is consistent with the literature, as Pellegrino and Quellmalz (2011) found that most school districts across the country must incorporate the advancing technologies to better serve students in a changing society.

The findings indicated that with the increasing pace of technology teachers in all disciplines are required to develop proficiency in effectively planning, implementing, and evaluating instruction that fosters student success in technology-rich learning environments. Participants shared how this emphasis has put pressure on them to

integrate technology for them to pass their teacher evaluation. This view is reinforced by current research which affirms that teachers develop skills to effectively integrate these emerging classroom technologies and teach students, who have grown up in this digital age of technology, to compete and succeed in the workplace (Lever-Duffy & McDonald, 2011).

Technology Does Enhance Instruction

The findings in this study on technology integration in schools indicated that teachers are the most valuable and relevant factor in attaining meaningful technology grounded educational reform. Participants in this study know that restructuring their planning and instruction using technology guided lessons may enhance and engage student learning. In essence, for effective technology integration to become common practice in today's classrooms, teachers must be cognizant of its purpose and function (Davies, 2011). Participants in this study want to integrate technology, but they have perceptual barriers which inhibit its use. Recent studies have come to a similar conclusion. To escalate teachers' integration of technology enhanced instruction, Ertmer and Ottenbreit-Leftwich (2010) argued that the emphasis should be placed on strengthening teachers' beliefs, perceptions, and technological skills by encouraging and providing opportunities for positive learning experiences with instructional technology.

Participants in this study expressed how they were always looking for ways to help engage their students in the learning process, and they expressed that they know that technology tends to increase student participation in their lessons. Teachers have a difficult time managing their schedules, and planning when, and how to integrate

technology into their daily lesson. Recent studies confirm this issue. Duran and Fossum (2010) promoted the view that teachers determine the ultimate success or failure of all technology integration initiatives. Teachers' willingness and preparedness to integrate technology into their daily practices remains a key factor in creating technologically rich learning communities (Duran and Fossum 2010).

Instructional Videos

Participants in this study advocated the use of instructional videos in their classrooms. Ajayi (2010) recognized the effective integration of video technology into instructional practices in a manner that prepares teachers to meet the diverse needs of today's learners.

Participants used instructional videos to activate prior knowledge and link that knowledge with the new information they were learning. Likewise, instructional videos serve well to summarize what is learned. After showing an instructional video, participants assessed student learning by administering a short common formative assessment. A common formative assessment (CFA) is a post-assessment teachers use to assess student understanding of the particular learning intentions. The results from the assessment would either support student learning or show the student did not understand the content of the video and the teacher would have to reteach the central concept or content. Participants indicated that their students became engaged in the content and retained the information much better than reading the same information in a book. Participants expressed the value of integrating instructional videos as a teaching tool.

Teacher participants used instructional videos to provide vicarious experiences for their students. Some of the participants used virtual tours of Greece, the American Museum of Natural History, the Holocaust Museum, the Great Wall of China, and Gettysburg to engage students with positive results. This finding is consistent with the literature as Ajayi (2010) recognized the effective integration of video technology into instructional practices in a manner that prepares teachers to meet the diverse needs of today's learners.

The findings of this study revealed that instructional videos are a resource for educators to engage, and enhance student learning. By integrating instructional videos students experience different historical time periods. One participant explained instructional videos provided her students with a better understanding of instructional content. Instructional videos were more engaging to the students than just having them read the content in a book, and her students seem to retain the information better than they did by using the textbook. A connection exists between teachers' perceptions of their ability to integrate technology and its use (Moore-Hayes, 2011). Participant perceptions were more positive towards technology integration once they saw increased student engagement.

PowerPoint Guided Lessons

In this study teachers and students consistently use PowerPoint presentations as an integral part of their daily instruction. Teachers used PowerPoint guided lessons and were used as an interactive piece of instruction for student participation. Participants like the use of PowerPoints because they can deliver their lessons with different types of

media such as images, sounds, animations, and videos. Teachers who use PowerPoints to help deliver instruction found that their students become more engaged in the learning and retain the information. Findings are consistent with the literature as (Lever-Duffy & McDonald, 2011; Smaldino et al., 2011) found educational technologies can be used to enhance and support the teaching-learning process at any point within the instructional process.

Participants in this study often used PowerPoints to guide their instruction. Most of the participants expressed what a powerful tool it was in helping deliver their lessons. Lever-Duffy and McDonald (2011) define educational technology as "any technology used by educators in the support of the teaching and learning process" (p. 448). All of the participants prepared a presentation days ahead of the actual day they would be using it, which provided for flexibility in preparation of their daily lesson. Teachers modified the content each day, which helped teachers use time more wisely.

In the right context and used correctly, PowerPoint can be an effective and powerful communication tool. The main strength is that it can visually represent concepts which helps engage the visual learner. You can use it to present material, and then insert a slide that has discussion questions to encourage class discussions and break the class into groups. Participants shared how they used PowerPoint to assess students' knowledge. They created a PowerPoint presentation as a Jeopardy quiz or multiple choice quiz, with teams or individuals in a competition. Infusing creativity in a PowerPoint presentation can enhance the teaching and learning experience.

Progress Monitoring

Progress monitoring is implemented by teachers to follow the performance of individual students who have learning difficulties. The findings indicated that all the teachers progress monitor their students either weekly or bi-weekly depending on their students' intervention level to track academic performance. Progress monitoring is used to assess students' academic performance and evaluate the effectiveness of instruction. Teachers use technology to collect the data from progress monitoring to help guide their instruction. They use available software to help make the task of progress monitoring their students a much simpler task. Lever-Duffy and McDonald (2011) held that assessment software, such as Moby Max, can be used to enhance and support the teaching-learning process at any point within the instructional process.

Participants noted that there are free online assessment tools and resources available that can be used to progress monitor their students. Software such as Moby Max, Brain Pop, and Cool Math are just a few free programs available for teachers to use to gather data for progress monitoring. This finding is consistent with Hechter and Vermette, (2012) who explained that instructional technologies are academic tools available to teachers for the purposes of presenting and sharing information and lessons, and to progress monitor their students. Teachers determine what does and does not occur in the classroom (Ertmer & Ottenbreit-Leftwich, 2010). Depending upon the context and the learning needs, educational technology serves both students and teachers in a variety of ways.

Teachers can incorporate computer programs into their instruction to motivate students to engage with complex content. The increasing pace of technology use and

innovations requires teachers in all disciplines to develop an understanding of how to become proficient in effectively planning, implementing, and evaluating instruction that can foster student success in technology-rich learning environments. It is important that teachers develop skills to effectively integrate these emerging classroom technologies and teach students who have grown up in this digital age of technology to compete and succeed in the workplace (Lever-Duffy & McDonald, 2011).

Implications for Social Change

The implications for social change may be realized when teachers can infuse technology in planning and instruction that reflects best practices identified in research, policy, and reports. This endeavor may provide teachers the benefit of experience and confidence in technology use. Positive social change is bringing teachers together to teach teachers about the positive benefits of technology integration for their instructional practice, and to provide teachers with the technical skills to effectively integrate. The implication for social change is teachers' attitude towards learning and growing in their daily practice of integrating technology within instruction as well as to become more aware of the technology skills needed to improve practice. This study may help to promote constructive relationships between technology savvy teachers who engage and enable teachers to embrace technology integrations who do and teachers who for one reason or another do not integrate technology. These relationships can have a significant impact on students' engagement and academic success. The study's findings may enhance teachers' overall perceptions about technology integration by providing students with technology infused lessons to increase student interest and engagement.

Additionally, the study could provide insights and strategies to help teachers who are struggling to integrate technology within instruction. The teachers can learn from the insightful views of the participants who have been consistently successful with integrating technology within instruction.

The findings can add to the limited amount of literature about how teachers' pedagogical beliefs can be improved with proper training and availability of technology to them. Additionally, the study could provide insights and strategies to help teachers who are struggling to build their self confidence in using technology as a tool for instruction.

Recommendations for Action

For teachers to integrate technology into their daily classroom instruction, they must comprehend, convey, and integrate the skills in classroom planning and in daily instructional practices. The findings from this study have shown that teachers recognize the benefits of developing and maintaining a positive outlook and approach to integrating technology within instruction. I hope that with the knowledge, behaviors, and experiences displayed by teachers who are consistently effective in their use of the technological tools available to them, more teachers will employ a more positive attitude towards technology integration in the classroom. Furthermore, I hope this research will inform teachers that by improving their skills in the use of technology, their perceptions of its use will improve.

This study established that teachers recognize the benefits of integrating technology within instruction and the importance of being adequately trained in its use.

Positive perceptions are valuable for teachers, students, administrators, and stake holders since they shape the instructional culture of the school. I recommend that teachers who are consistently successful with integrating technology within their daily instruction help to develop training models for fellow teachers, or opportunities for teachers to observe each other in the process. Additionally, administrators should provide teachers with effective professional development opportunities in their area of need to learn strategies and methods that can be used to effectively integrate technology in the classroom. Based on the study's findings, I recommend that the technology coordinators promote opportunities for teachers to build on their skills in technology use by offering more professional development opportunities on site, which would make the training more accessible for their teachers.

Recommendations for Further Study

Teachers need time to become familiar with accessible products, software, and online resources. They also need time to collaborate with their peers about technology use. While there is empirical research about teachers' perceptions to learn and grow in their daily practice of integrating technology within instruction, there is a need for research that explores technology integration and professional development with time for teachers to observe, plan lessons with colleagues, and practice using technology to enhance instruction. For example, school administrators can arrange days of the month that are for professional learning for teachers within the instructional day. Teachers will use these days to receive professional learning in the area of technology integration and for finding resources for instruction. Teachers can also use these dates to practice

implementation of the technology resources they want to integrate into their lessons. A descriptive quantitative research design could be used to study school administrator's opinions about finding time for teachers to receive training, and to be able to practice using technology tools during school hours.

Researcher's Reflection

During the course of this study, I investigated the perceptions, attitudes, and beliefs of teachers who have a positive outlook and approach to the integration of technology within instruction. Because of my expertise and experience, I have a well-rounded perspective on what technology integration in the classroom should look like and how it can support student achievement. To preserve the quality of the study, I made every attempt to devise methods of separating personal feelings and interpretations from the descriptions and perspectives provided by the participants. Information coding and brackets were included in field notes and a research journal to assist the researcher in reflecting on new information and to more effectively distinguish data from personal biases and views.

As an instructional coach in this school district, conducting this study gave me an opportunity to investigate how teachers view their relationship with technology integration. I have experience in both the role as a teacher and as an administrator. My recognition of the benefits of integrating technology within instruction prompted me to conduct this study. I hoped that it would reveal effective ways to support positive teacher perceptions towards technology integration. Because of my professional relationship with teachers in the district, reflexivity was used to set aside personal biases that could have

affected data analysis. While certain biases were challenging, through reflexivity, I bracketed my biases to ensure data were analyzed fairly.

Learning to design and conduct research was a new experience. The process was extremely enlightening. I enjoyed encountering teachers and learning about their passion and drive when it came to engaging their students in the learning process through the creative integration of technology. The results of my study were insightful and revealing, providing the impetus for instructional change and further study.

Conclusion

Overall, my study's findings were consistent with the literature which revealed that teachers' perceptions in the use of technology within instruction vary. This study raised concerns regarding the perceptions of teachers who integrate technology into the classroom curriculum. Even though teachers showed a high degree of technology integration within instruction, teachers' perceptions of its use varied. The participants shared their perspectives and insights from the opportunities they had with integrating technology. Their responses reflected their perspectives of why and how they use or do not use technology within their daily lessons.

Teachers from this study agreed that for them to be efficient in the new technologies, professional learning needs to be readily available. Understanding the motivation and perceptions of teachers who have been successful with the integration of technology in the classroom might help to create learning opportunities for teachers who have yet to take full advantage of technology in the classroom. Teachers who are consistently successful with integrating technology and maintain a positive attitude

towards its use realize that technology driven instruction plays an integral role in increasing growth in student learning outcomes.

Technology resources have significantly expanded, but the integration of technology in the classroom is often still deficient (U.S. Department of Education, 2010 2011). Teachers' perceptions of technology integration can affect its implementation in a positive or negative way. This study has shown that teachers who have a positive attitude towards technology integration use the tools almost daily to help increase student engagement and learning.

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Appendix A: Consent Form Interview

You are invited to take part in a case study of Elementary School Teachers' Perceptions of the Process of Integrating Technology. The researcher is inviting certified elementary teachers to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Diana Thompson who is a doctoral student at Walden University. You may already know the researcher as a teacher at Satilla Marsh Elementary School, but this study is separate from that role. Your thoughts and experiences in using technology in the classroom are important to the researcher and to the study.

Background Information:
The purpose of this study will be to investigate how teachers perceive the process of integrating technology into their daily instruction.

Procedures:
If you agree to be in this study, you will be asked to:
- Participate in an audio-taped, face-to-face interview with the researcher lasting about 45-60 minutes
- Provide a technology infused lesson plan.
- Agree to be observed in the classroom for 45 minutes

Voluntary Nature of the Study:
Your participation in this study is voluntary. This means that your decision of whether or not you want to be in the study will be respected at all times and no one at any time or in any institution will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during the study and you may stop at any time. All efforts to protect your identity and keep information confidential will be taken.

Risks and Benefits of Being in the Study:
Risks for participation in this study are minimal and would not pose a risk to your safety or wellbeing.

The potential benefits of this study may be the ability for members of leadership to have a better understanding of teachers' needs and perceptions related to technology integration.

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this case study. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by keeping all information electronically and access will be password protected. Data will be kept for a period of at least 5 years, as required by the university.

Compensation:
Your experiences and input on this topic is very valuable to this research and your participation will be greatly appreciated. There will be no compensation provided for your participation in this study.

Contacts and Questions:
You may ask any questions you have now or if you have questions later, you may contact the researcher, Diana Thompson, via email at diana.thompson@waldenu.edu or by phone: 912-258-1420. If you want to talk privately about your rights as a participant, you can call the university's Research Participant Advocate at 1-800-925-3368 ext. 1210#, or email at irb@waldenu,edu.

Please print or save this consent form for your records.

Statement of Consent:
I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By replying to this email with the words "I consent", you are agreeing to the terms described above. Replying to this email does not waive any of your legal rights or alter your ability to stop participating at a later time.

*Electronic signatures are regulated by the Uniform Electronic Transactions Act. Legally, an "electronic signature" can be the person's typed name, their email address, or any other identifying marker. An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically.

Appendix B: Interview Questions

Case Study on Elementary School Teachers' Perceptions of the Process of Integrating Technology

Interview questions for Teachers:

1. What are your experiences with integrating technology in the classroom setting?

2. How often do you use technology as an instructional tool?

3. Please describe in general the types of instructional activities you have used that involve technology?

4. Based on your experiences in using technology as an instructional tool, have you noticed any changes in student motivation? And if so, what changes have you noticed?

5. Based on your experiences in using technology as an instructional tool, have you noticed any changes in student achievement? And if so, what changes have you noticed?

6. How often do you use technology in educational settings for administrative purposes (such as grades, attendance, etc…)?

7. Describe your beliefs about technology based-instruction as a teaching and or learning tool?

8. How would you rate the impact of technology on education on a scale of 1 to 5, in which 1 means having a low impact and 5 having a great impact? Explain your reason for this rating.

9. What do you believe are the most significant factors that may promote or hinder the use of technology in educational settings?

10. How have your beliefs about the use of technology as a teaching tool changed over the past 3 years and if so how?

Appendix C: Observation Protocol

Technology Use:

☐ Yes

☐ No

Additional notes:

Types of Technology tools:

☐ Creating Websites

☐ Digital Communication

☐ Discussion boards

☐ Google Drive

☐ Google Sites

☐ Surveys

☐ Wikispaces

☐ SmartBoard

☐ Slate

☐ Elmo

☐ Classroom Performance System (CPS)

Are teachers using technology to teach the lesson?

☐ Yes

☐ No

Additional notes:

Are students using technology to learn?

☐ Yes

☐ No

Additional notes:

Are students using technology as a means of completing a task?

☐ Yes

☐ No

Additional notes:

Are students engaging in hands-on learning by using some type of technology resource?

☐ Yes

☐ No

Additional notes:

Are students engaged in problem-solving activities using technology resources?

☐ Yes

☐ No

Additional notes:

Are students asked to use creativity?

☐ Yes

☐ No

Additional notes:

Are students practicing effective communication?

☐ Yes

☐ No

Additional notes:

Are students engaging in cooperative learning?

☐ Yes

☐ No

Additional notes:

Appendix D: Lesson Plan Checklist

Technology Use:

☐ Yes
☐ No
    Additional notes:

Types of Technology:

☐ Laptops
☐ Desktops
☐ Ipads
☐ Iphones
☐ Cell Phones
☐ e-reader
☐ software program
☐ Active Board
☐ SmartBoard
☐ Additional notes:

Types of technology tools

☐ Creating Websites
☐ Digital Communication
☐ Discussion boards
☐ Google Drive
☐ Google Sites
☐ Surveys
☐ Wikispaces
☐ Safari Montage
☐ BrainPop   Additional notes:

Objectives include Common Core Georgia Performance Technology Standards:

☐ Yes

☐ No
    Additional notes:

The lesson includes technology use as a means of completing a task.

    ☐ Yes
    ☐ No
        Additional notes:

The lesson engages students in hands-on learning activities.

    ☐ Yes
    ☐ No
        Additional notes:

The lesson challenges students to problem-solving.

    ☐ Yes
    ☐ No
        Additional notes:

The lesson requires students to be creative.

    ☐ Yes
    ☐ No
        Additional notes:

The lesson promotes effective communication.

    ☐ Yes
    ☐ No
        Additional notes:

The designed lesson plan includes cooperative learning.

    ☐ Yes
    ☐ No
        Additional notes:

Appendix E: Letter of Cooperation

Research Site Name
Address

Date

Dear Diana Thompson,

Based on my review of your research proposal, I give permission for you to conduct the study entitled <u>Elementary School Teachers' Perception of the Process of Integrating Technology</u>. As part of this study, I authorize you to recruit participants, collect data via interviews, classroom observations, lesson plans, take field notes, and disseminate the results. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include providing a private room in which you may conduct interviews, and allow you access to teachers classrooms in order for you to conduct your observations. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting. I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the Walden University IRB.

Sincerely,

Walden University policy on electronic signatures: An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically. Electronic signatures are regulated by the Uniform Electronic Transactions Act. Electronic signatures are only valid when the signer is either (a) the sender of the email. Or (b) copies on the email containing the signed document. Legally an "electronic signature" can be the person's typed name, their email address, or any other identifying marker. Walden University staff verify any electronic signatures that do not originate from a password-protected source (i.e., an email address officially on file with Walden).