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Principals Roles and Responsibilities in Technology Integration in Rural Georgia

Christie Dunham

PRINCIPALS ROLES AND RESPONSIBILITIES IN TECHNOLOGY INTERGRATION IN

RURAL GEORGIA

by

CHRISTIE DUNHAM

(Under the Direction of Linda M. Arthur)

ABSTRACT

The purpose of this qualitative study was to describe the elementary school principal's roles and responsibilities in the use of technology for instructional purposes in Title I rural schools. Three principals, three technology coordinators and 8 teachers in the Southeastern area of Georgia participated in the study. Interview questions for the participants were created after a careful review of the literature on the subject and with input from leadership professors at Georgia Southern University. An analysis was conducted on data provided by the participants from the interview questionnaire and analyzed as separate entities to authenticate results.

Data from principals' interviews were analyzed and three themes emerged that principals felt were their roles and responsibilities: (a) technology training opportunities for faculty and staff, (b) prevalence of technology use for instructional purposes, and (c) comprehensive school planning for integration of technology with regard to principal responsibility. Three themes emerged from interviews with technology coordinators: (a) availability of technology resources for faculty, (b) support in technology integration for teachers, and (c) comprehensive planning for technology instruction. Three themes emerged in the teachers interviews for the principals' roles and responsibilities in these areas: (a) availability of technology resources for instruction, (b) support from the principal in the integration of technology, and (c) planning for the use of technology in the classroom for instructional purposes. A common theme for all participants

included planning at the classroom level, school building level, and district wide level. Technology coordinators and teachers themes demonstrated that their views on the principals' roles and responsibilities for technology integration were consistent with one another. All categories were compared to the International Society for Technology in Education (ISTE) standards for principals.

Data on the obstacles of technology integration for instruction was analyzed from principals, technology coordinators, and teachers. A concern for principals was how to allocate funds for technology resources. Technology coordinators concern was not having enough maintenance personnel. Teachers felt the biggest obstacles to technology integration were these: (1) lack of training, (2) outdated equipment, (3) large classroom size, (4) need for more challenging software, and (5) service limitations in technology maintenance.

INDEX WORDS: Technology integration, Principals, Title I Rural schools

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DEDICATION

I would like to dedicate this research study to the Heavenly Father above, as well as to my husband Parker and my wonderful family. The Lord's guidance was a constant reassuring presents throughout this process. I am truly blessed to have my husband and family to have endured selflessly the time taken away from them for me to reach my ultimate goal.

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CHAPTER ONE

INTRODUCTION

Technology has become an integral part of everyday life. It has changed the way in which people communicate, work, and live. Due to the changes brought about by the proliferation of technology, schools have turned their attention to students' technological readiness for effective participation in the 21st century. As far back as 1983, in a report entitled *Nation at Risk* (U. S. Department of Education, 2002), the National Commission for Educational Excellence acknowledged *computer proficiency* as a new group of basic skills necessary for workplace readiness. This call for action demonstrated the essential need for increased emphasis on using technology in schools. Now, nearly 30 years later, the need for integration of technology in schools continues (Warschauer, 2010).

Concerns have been raised about the impact and quality of educational technology uses for instruction. The field of educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources (Richey, 2008). Nolen (2009) concluded from an analysis of the content of 758 educational psychology studies published in leading journals that technology instruction lagged behind other topics such as classroom achievement, learning and memory, motivation, and cognition.

The oldest and most researched application of educational technology is *computer assisted technology* (CAI) (Kulik, 2009). Modern CAI programs provide tutorial lessons and drill-and-practice exercises adapted to students' needs. Graphics and animation make the materials more engaging and interesting than textbooks and workbooks.

After three decades of technology initiatives in the U.S., high levels of technology integration into classroom learning remains much more the exception than the rule (Lowther, Inan, Strahl, & Ross, 2008). A survey of more than 400 U. S. employers showed that high school graduates are entering today's workforce deficient in most of the 21st century knowledge and skills needed to pursue successful careers (Casner-Lotto & Barrington, 2010). A recent report from the U.S. Department of Commerce (2009) revealed that education is ranked as the least technology-intensive enterprise among 55 U.S. industry sectors.

Despite conflicting research and reports on the effectiveness of instructional technology use in school environments, educational policy makers and administrators have made a combined effort to increase the use of technology in classrooms (Kay, 2009). In many schools, principals have become technology instructional leaders (Warschauer, 2010). Teachers use technology to bring a wide range of resources to the classroom to motivate learners, provide new teaching tools for instruction, and accommodate individual learning styles (Gahala, 2009). Nationally and internationally, educators are coming together around a common meaning of what students need to know (Warschauer, 2010).

One of the most prevalent issues among schools is how to use budgeted funds for technology. Schools with higher funding levels use technology for activities such as creating web sites and multimedia presentations. These schools generally utilize technology more often and in higher-level thinking skills, such as Internet use, data collection, analysis, and research projects (Kennedy & Weiner, 2010). On the other hand, schools with limited funds for technology tend to use it for minor skills like drill and practice and test taking strategies (Warschauer, 2010). Technology is used less in Title I rural schools than in better funded schools, and when used in Title I rural settings, word processing is the predominant use.

Although there are many gaps in performance between well-funded schools and schools with limited funding, the technology gap is one that may have a huge impact on students' access to the global world (Hardre & Sullivan, 2008). The one person in a school responsible for and empowered to ensure effective implementation of technology for instruction is the principal (Sergiovanni, 2009). The principal is the key catalyst in implementation of technology devices used for instruction in school environments (National Center for Education Statistics, 2010). Principals are responsible for implementing technology devices that assist in performing tasks faster and better, including computer hardware, software, and peripherals (Grabe & Grabe, 2008). Sergiovanni (2009) maintains that technology leadership is necessary in all schools because educational policy makers and administrators are focusing efforts on increasing the use of technology in the classroom. The purpose of this study was to describe the elementary school principal's role and responsibility in the use of technology for instructional purposes in rural schools.

Statement of the Problem

Principals have been described as having the greatest impact on the use of technology for instructional use in schools (Sergiovanni, 2009). In order for principals to promote technology implementation effectively, administrators should create a technology plan to support teachers and students (Green, 2009). As schools have become more complex, principals' roles and responsibilities in schools have increased (NCES, 2002). Principals' involvement in implementation of technology for instructional use involves three major functions: (a) leading technology literacy; (b) support of teachers; and (c) technology planning. Principals must include teachers and students in the development and implementation of a technology plan (Cherian & Daniel, 2008).

Principals in rural schools face the challenge of closing an apparent gap in instructional uses of technology (Henke, 2010). While better funded schools serve students who have opportunities to develop skills that will enhance learning for future endeavors needed to progress into the working world, the same is not true for students in Title I rural schools (National Center for Education Statistics, 2010). Students in better funded schools may have more opportunities to use technology in creative ways, but many students in Title I rural schools are confined to using technology to reinforce the skills needed to pass standardized tests (Rodriguez, 2008).

Technology leadership is vital in today's schools to prevent a technology gap between well-funded schools and Title I rural funded schools (Henke, 2010). The principal is charged with leadership of the school, and technology leadership involves specific functions, including planning, supporting, and implementing literacy growth. Understanding how principals in Title I rural areas with low economic status use technology to perform these functions and describing the barriers they face may provide insight into technology leadership for principals new to Title I rural schools. Therefore, the purpose of this study was to investigate elementary school principals' roles and responsibilities in the use of technology for instructional purposes in Title I rural schools.

Research Questions

The overarching question investigated was this: What are the roles and responsibilities of elementary school principals in how technology is used for instructional purposes in Title I rural schools? The following sub questions guided the study:

1. How do elementary school principals describe their roles and responsibilities for instructional use of technology in their schools?

2. How do technology coordinators view the roles and responsibilities of elementary principals in the use of instructional technology?

3. How do teachers view the roles and responsibilities of elementary school principals in the use of instructional technology?

4. What obstacles do elementary school principals, teachers, and technology coordinators identify in the use of technology for instructional purposes in the classroom?

Significance of the Study

Research has shown that Title I/rural schools use technology for remediation purposes or to ensure repetition of concepts learned in the classroom (Hardre & Sullivan, 2008). This use of technology leaves students behind in developing 21st century skills needed to be successful in future endeavors (Warschauer, 2010). The focus of this study was to determine elementary school principals' roles and responsibilities in technology use for instruction. The study may provide insight into the specific duties and performance of principals especially in Title I/rural school settings.

The significance of the study describes how principals lead technology integration for instruction and how Title I/rural schools can close the technology gap for students who attend these schools. As a teacher in a Title I/rural school, the researcher hoped to shed light on best leadership practices for technology instruction in Title I/rural schools. It is imperative that principals are aware of the importance of becoming leaders who promote positive changes for students who will function in the 21st century world of technological devices (Britten, Clausen, & Lecklider, 2009). Therefore, the researcher investigated the roles and responsibilities elementary principals are fulfilling to provide technology leadership in rural schools.

Procedures

The researcher conducted a qualitative study in order to answer the research questions posed. To better understand roles and responsibilities of principals in Title I/rural schools pertaining to the use of technology for instructional purposes, the researcher designed a study that would allow data gathering through interviews and field notes in three schools. This in-depth investigation of principals and their roles and responsibilities was descriptive in order for the researcher to explain instructional technology leadership in Title I/rural schools.

Specifically, the qualitative study was a multi-case design. According to Tellis (1997), a multi-case study investigates a current experience within its real-life context, especially when boundaries between experiences and context are not clearly evident. In this study, the researcher selected three cases to study the roles and responsibilities of the principal. The sample for this study was comprised of principals, technology coordinators, and teachers located in southeast Georgia. Gall, Gall, and Borg (2007) recognized this type of sampling strategy as convenient sampling being the researcher conducted the study in her local area. The researcher interviewed selected principals who voluntarily agreed to participate, a technology coordinator from each school site, and two or three teachers who worked at the school.

Interview questions for the elementary school principals, technology coordinators, and teachers were created after a careful review of the literature and with the input of leadership professors at Georgia Southern University. The interview questions sought input about principals' implementation of instructional technology in the school curricula and daily use of technology in the classroom. Participants were informed of the interview protocol. Interviews were recorded, and transcribed at a later date. All information will be held securely to ensure the participants' confidentiality.

After responses were collected and reviewed, data was analyzed and the researcher formulated conclusions. The researcher used themes and patterns to form the categorical data (Gall, Gall, & Borg, 2007). Results of this study were presented in the descriptive narrative form to ensure clarification and understanding of the research.

Limitations/Delimitations

In order to focus on the elementary school principal's roles and responsibilities for technology implementation for instruction in Title I rural schools, interviews were conducted with Georgia elementary school principals, technology coordinators, and teachers who agreed to participate. As a result, generalizations may not be made for other states or school districts.

The researcher focused the study in southeastern Georgia. Therefore, it could be disputed that funding of Title I rural schools in this area is not comparable to funding for the rest of the nation's schools receiving average funding. This does not limit the study's significance, but may be considered a factor in the credibility of the research.

Research data was gathered from elementary schools only; middle schools or high schools were not included. Including middle schools and/or high schools would have introduced different factors that would redirect the study.

Definition of Key Terms

Educational technology: The study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources (Richey, 2008).

Elementary schools: For the purpose of this study, elementary schools were schools with grades K, 1, 2, 3, and/or 4, 5.

Technology devices: Tools that assist in performing tasks more efficiently or with higher quality, including computer-related hardware, software, and peripherals (Grabe & Grabe, 2008).

Instructional technology: A field dedicated to the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning (Richey, 2008).

Technology integration: The seamless use of technology as a tool to accomplish a given task in a disciplined study that promotes higher order thinking skills (Antifaiff, 2010).

Title I Rural schools: For the purpose of this study, rural schools were schools that have less than 1300 studnets, serve only students in counties that have a population density of fewer than 10 persons per square mile, and where 40% of the students have parents with incomes below the poverty line (National Center for Educational Statistics, 2008).

Chapter Summary

American schools have made access to technology a priority in the last 25 years. Now that technology is so prevalent in schools, it is critical that principals take an active role to ensure the best use of technological devices by implementing and planning for a 21st century learning environment. Even though schools have technology, this does not mean technology is being implemented effectively. Differences have been shown between Title I rural funded schools and better funded schools in the use of technology for instructional purposes. An understanding of how principals make decisions and the barriers encountered in Title I rural schools with respect to use of technology funds will assist principals of Title I rural schools.

CHAPTER TWO

REVIEW OF THE LITERATURE

The invention of radios, telephones, and televisions brought excitement to the 20th century and began expanding the global community. With these new tools, communication that once took days, weeks, or even months, could be made in a matter of hours or minutes (Thomas, 2009). The pace of technological advancement accelerated; the first computer was developed and at the same time researchers began shrinking the size of electronic components which, in turn, led to more sophisticated and faster devices. This explosion of technology has had a profound effect on daily life, especially education. Today's environment is filled with computers, iPods, VCRs, DVDs, SMART boards, software, hardware, and a plethora of other electronic devices that are part of everyday life (Warschauer, 2010). As a result, technology is an integral part of society and has become an essential component in education.

Today's schools strive to integrate cutting edge technology in instructional curricula (Duhaney, 2009). Technology can be used as a tool for instruction or as a presentation device to create innovative and interactive learning environments. Educators also benefit from technology by using it for administrative tasks such as electronic reporting and monitoring student achievement. Technology provides educators with a vast array of resources and helps them accommodate students' individual needs.

Technology dramatically changed the world outside schools and is now changing the learning and teaching environment inside classrooms. Today's students are comfortable in the age of the Internet (Thomas, 2009); however, in order for educators and students to fully acquire and realize the benefits of technology, its use must be supported and modeled by school educators. The support of school administrators has been described by the National Center for

Education Statistics (2002) as being the most important factor affecting the use of technology in schools. Students should be prepared in the classroom for the technological world through integration of technology in the curricula (Duhaney, 2009). Technology integration must be implemented in a meaningful, practical manner in order for its benefits to be realized, and educational leaders must work to reduce barriers to technology in the classroom.

Educational technology for instruction is viewed as an agent of change and as an innovation linked to school improvement and restructuring. However, implementation of technology for instruction differs in well-funded schools versus Title I rural schools (Warschauer, 2010). Regrettably, the pedagogical divide is reflected in the use of technology for instructional purposes. Title I rural schools frequently use technology for drill and practice, while better funded schools use technology for higher-order thinking skills (Randall, 2010). For example, students in Title I rural funded schools commonly use technology for lower-order tasks, such as drill, practice, and test taking, whereas students in well-funded schools have more opportunity to create web sites and multimedia presentations (Reid, 2009). Randall (2010) found that students in Title I rural schools use computers for "drill-n-skill" purposes.

Sergiovanni (2009) credits school principals as being the most influential change agents. The purpose of this study, therefore, was to investigate principals' roles and responsibilities for technology implementation and integration into the curriculum in Title I rural elementary schools. The literature review conducted for this research project looked at three major areas. First, the researcher presents findings on the prevalence and benefits of technology use in schools. Second, the researcher presents barriers to technology integration in schools. Last, the researcher describes the principal's role and responsibilities as leader in implementing technology in instruction. Because principals are the most important factor affecting use of

technology in schools, they may benefit from a study of the process needed for teachers and students to effectively integrate technology into the curriculum, instruction, and learning in Title I rural elementary schools (National Center for Education Statistics, 2010).

Prevalence and Benefits of Technology Use in Schools

Educators believe students who have been surrounded by digital technology are different than students from even one generation ago (Randall, 2010). Other research indicated that students learn best in powerful learning environments such as those provided through technological means. Penuel (2008) stated that these differences have changed the very ways that children's brains function, and because most educators think and teach in a way that was designed for educating previous generations, our current educational system was simply not designed to teach this new generation of students.

Students

The magnitude of human knowledge, globalization, and the accelerating rate of change due to technology necessitate a shift in education at all levels. The North Central Regional Educational Laboratory and Metiri Group (2008) report that today's students are the latest model of human beings and are the evolutionary future. More than half the people in the United States and 65% percent of students are now online. There are two million users per month, with students and teens being the fastest growing group of new users. Students with broadband access at home report spending more time online (65%) and less time watching television (37%) (Economics and Statistics Administration, National Communication and Information Administration, & U. S. Department of Commerce, 2010). Students with access to computers exhibit improvement in their academic grades compared to students without access (Bausell & Klemech, 2010).

According to Warschauer (2010), today, virtually every school with access to computers has Internet access (99%) compared to only 35% of schools in 1994. In 1994, 3% of public school classrooms had Internet access compared with 93% in 2003. Between 1998 and 2003, the student-to-computer ratio went from every 12 students sharing the use of one computer to every 12 students sharing four computers. In 1983, the ratio was 92 students per computer (at school); 5 years later, the ratio decreased to 27 students per computer; 10 years later, the ratio was just under six students for each computer (Reid, 2010). The overall ratio of students to instructional computers with Internet access in U.S. public schools as of fall 2008 was 3 to 1 per computer (Warschauer, 2010).

A recent survey conducted by the Pew Internet and American Life Project (Lesusko & Wright, 2007) found that roughly 21 million youth between ages 12 and 17, approximately 87% of the entire age bracket, use the Internet and, of those 21 million online teens, 78% use the Internet at school (Warschauer, 2010). The survey also found that 86% of teens believe the Internet helps in becoming more successful in school. Seventy-one percent of teens relied mostly on Internet sources for big projects assigned at school, and 34% of students ages 12 to 17 download study aids from the Internet. Fifty-seven percent of all students ages 7 to 17 use a home computer to complete school assignments. Three quarters of teens use instant messaging, representing close to 16 million students. Of those 16 million, 78% report they use instant messaging from time to time to talk about homework, tests, or schoolwork (Basell & Klemech, 2007).

Research by Penuel (2008) found that technology tools in the classroom have increased and promoted student learning. As a result, principals need to investigate how technology for instructional use will benefit all students and teachers in classrooms (Warschauer, 2010).

Students in technology-rich environments experience positive effects on achievement in all subject areas. A research study conducted by Sivin-Kachala and Bialo (2009) analyzed 311 research studies on the effectiveness of technology on student instruction. The findings revealed positive and consistent patterns when students were engaged in technology rich environments, including significant gains and achievement in all subject areas, increased achievement in preschool to high school for both regular and special needs students, improved attitudes toward learning, and increased self-esteem. O'Dwyer, Russell, Bebell, and Tucker-Seeley (2009), controlling for both prior instruction and socioeconomic status, found that fourth grade students who reported greater frequency of technology use at school to edit papers were likely to have higher total English/Language Arts test scores and higher writing scores on the fourth grade Massachusetts Comprehensive Assessment System English/Language Arts Test.

Students learn and enhance their knowledge with assistive technology devices (Henke, 2010). Video content and digital moviemaking, laptop computing, and handheld technologies are all being used in classroom instruction, and new uses of technology, such as podcasting, are constantly emerging. Technology available to students ranges from simple tool-based applications, such as word processors, to online storage of scientific data and historical documents. Devices include computers, closed-circuit television channels, and two-way distance learning classrooms. Even cell phones can be used in the learning process (Warschauer, 2010). Through the use of interactive video conferencing, students are exposed to experts from around the world (Livingston, 2008). Students from around the globe share living history lessons, just the way students shared the 9/11 experience with concerned students globally. This allows students to engage in the lost art of human interaction (Kennedy & Wiener, 2010). Video conferencing is an exceptional tool which encourages students to use basic communication and

social skills such as listening, speaking, appreciation of cultural diversity, leadership, willingness to accept responsibility as well as thinking skills such as creative thinking, visualization, and problem solving, all critical for students' future success in the 21st century workplace.

Today the world is living in a new economy powered by technology, a continuous flow of information, and driven by knowledge (North Central Regional Educational Laboratory and Metiri Group, 2008). Eighty-five percent of jobs today require education beyond high school compared to 61% in 1991. Students' futures need to go beyond the classroom to the roles students will play when it is time to leave and become workers, parents, and citizens of a global society (Lowther, Inan, Strahl, & Ross, 2008).

Educators

Educators use technology in many different capacities to enhance knowledge of student learning. Seventeen percent of educators' use of technology consists of participating in online professional development (Duhaney, 2009). Twelve percent seek peer-to-peer advice or counseling outside the school community. Eleven percent use a school content portal, and 3% contribute to a blog or create a podcast.

For teacher or administrator professional learning, 28% of educators choose school or district-provided training while 20 percent choose peer-to-peer and study groups. Thirty percent of online courses are usually used by new educators. At least 46% of educators have taken online courses and at least 24% percent are interested in taking one. Fifty percent of educators interested in online professional development are considered to be technologically advanced. The less technologically proficient educator is less likely to have taken an online class or expressed interest in an online course (Duhaney, 2009).

Nationally, 75% of educators report that technology enhances student performance, and 58% specify enhanced engagement in learning (Henke, 2010). Sixty-three percent of educators encourage the use of technology in the classroom and 41% of educators encourage the use of laptops at home. This is followed by 42% of parents and educators encouraging use of communication tools by parents and educators, and 40% encouraging use of a website. Use of technology devices increases the communication between community, parents, and schools (Henke, 2010).

As educators continue to gain experience with technology, they discover ways to carry out varied duties better, faster, or more effectively (Warschauer, 2010). Telecommunication breaks down walls of isolation that obstruct professional growth and allows educators to converse with colleagues, the school office, experts in the field, parents, and others outside the boundaries of the school building. Technology leadership is necessary in all schools as educational policy makers and administrators focus efforts on increasing the use of technology in the classroom (Sergiovanni, 2009). Additionally, educators who are leaders in telecommunications and other technologies are demonstrating how technology can enhance formal and informal professional development.

Improving student learning is the ultimate goal of educators. The use of technology demonstrates excitement about the instructional benefits of technology and is often reflected immediately in measures of student learning (Gahala, 2009). Technology brings a wide range of resources to the classroom; it motivates learners, provides new teaching tools, accommodates individual learning styles, and even redefines the role of the educator. Educators, nationally and internationally, are coming together around a common meaning of what students need to know (Warschauer, 2010).

Technology Integration

Concerns have been raised about the impact and quality of educational technology use for instruction. Nolen (2009) concluded from an analysis of the content of 758 educational psychology studies published in leading journals that technology instruction lags behind other topics such as classroom achievement, learning and memory, motivation, and cognition. The oldest and most-researched application of educational technology is *computer-assisted instruction* (CAI) (Kulik, 2009). Modern CAI programs provide tutorial lessons and drill-and-practice exercises adapted to students' needs. Graphics and animation make the materials more engaging and interesting than textbooks and workbooks. Years of research suggest that both CAI and textbook instructional approaches generally produce similar results (Kulik, 2009). Although effective CAI programs use many evidence-based strategies (e.g., adaptive content, frequent testing, and immediate feedback), so do effective teachers. Conversely, poorly designed CAI programs and boring, disorganized lecturers tend to produce negative reactions from students (Dynarski et al., 2007).

After three decades of technology initiatives in the U.S., high levels of technology integration in classroom learning remain much more the exception than the rule (Casner-Lotto & Barrington, 2010). A recent report from the U.S. Department of Commerce revealed that education is ranked as the least technology-intensive enterprise among 55 U.S. industry sectors. A survey of more than 400 U.S. employers revealed that high school graduates are entering today's workforce deficient in most of the 21st century knowledge and skills needed to achieve successful careers (Casner-Lotto & Barrington, 2010).

Problems that occur can be eliminated when administrators include teachers in the technology planning and evaluation processes. Some schools train teachers to be the trainers and

leaders (Clark & Denton, 2009). Administrators, teachers, and school district officials must work together to collaboratively develop courses that increase the use of technology across the curriculum. The No Child Left Behind Act (2000) includes the National Technology Educational Plan in which educators are held accountable for student academic performance. Interventions to increase technology use throughout the curriculum include having adequate technology equipment, proper training for use of the equipment, and professional development for administrators, teachers, and school district officials (Georgia Department of Education, 2001).

Successful use of technological devices throughout the school environment ultimately depends on acceptance by teachers (Finn, 2008). In order for this to occur, principals must establish a school philosophy that includes a vision, mission, values, and beliefs for the school and advocate the purpose of this philosophy (Clark & Denton, 2009). Principals must ensure access to and productive use of technology by breaking down barriers and driving out fear of technology. Achieving higher levels of learning can be accomplished only when schools reconsider how students learn and teachers teach. Therefore, schools must create new standards for teaching and learning, and develop different approaches in the evaluation process that include conceptualizing the effective use of technology tools for instruction (Finn, 2008).

Successful technology integration for instruction requires three primary changes in how U.S. schools presently conduct teaching and learning (Gusby, 2009). School principals must sit down and develop a strategic plan outlining the goals they wish to achieve with technology integration. To make this plan successful, all faculty, administration, parents, and community members should be part of the planning process. Next, professional training for all involved in the implementation process will need to be addressed. Technology integration should be a life skill constantly being taught from the time teachers enter a university or college to begin study as

a teacher until the time they retire from teaching (Kervin, 2010). Professional development curriculums should be developed with a long-term goal in mind. This goal is the same goal found in the strategic plan. Universities and colleges should be part of formulating the strategic plan so they will have buy-in into the process. Universities and colleges should understand that improving the means in which they teach technology integration is a good thing (Gusby, 2009). The most important tool principals need is a plan that all levels support. Presently, everyone is pulling in a different direction and there is no movement. Leadership must establish a direction, and followers must follow (Green, 2009). If we, as a nation, do not create a viable plan, we are then doing nothing but pouring money down the drain because the purchases we have already made are doing nothing but collecting dust.

Barriers to Technology Integration in Schools

Schools have equipped classrooms with technological devices in order to enhance student learning. However, there are many barriers with implementation of technology for instructional purposes.

Students

Although technology offers advantages, research consistently demonstrates that few teachers use technology for instructional purposes (Schnittka & Bell, 2009). Schnittka and Bell (2009) conducted a study of two technology schools in California. The researchers found that more than half the classrooms had computers with Internet connectivity; yet, lesson planning, finding resources, communicating with colleagues, and browsing the Internet dominated classroom computer usage. Once in a while, this pattern was broken by occasional instances of teaching or learning with computers for instruction. The conclusion of the study stipulated that technology, while frequently used, had not had a significant impact on classroom instruction.

Pflaum (2008) found that technology tools were rarely used to facilitate and enhance instructional practice.

Students lack education in technology skills needed to enhance learning. Students need to become information literate (Lawless & Pellegrino, 2007). Call it information literacy, media literacy, or network literacy, the ability to access, evaluate, synthesize, and build on information and media are crucial skills. For example, students, while perfectly comfortable using technology, are not naturally adept at search strategies. Students depend on natural language to search rather than using keywords that will be more effective. Lawless & Pellegrino (2007) find that students tend to rely on a single search tool such as Yahoo or Google for obtaining information.

Schools need to equip students with the skills to master technology so they will be able to interact in a global environment. Simba Electronic Education (2007) states that although half the States have technology standards for students, few have measures to evaluate how students will meet the standards (Basell & Kelmick, 2007). In an era of accountability, it is important to have a measuring system, preferably a standards-based measuring system, to ensure student accountability (Penuel, 2008).

Technology skills are a must if students are to be effective in their careers and future endeavors. Fisch (2010) states that the most important jobs for 2010 did not exist in 2004; therefore, educators need to prepare students for jobs that are not even in existence and to be able to solve problems that have yet to become problems. The Simba Information Electronic Education Report (2007) indicates that parents and teachers who participated in the Project Tomorrow-NetDay believe schools are not doing a good job in preparing students to compete for jobs and careers requiring 21st century technological skills.

Internet use is increasing regardless of income, education, age, race, ethnicity, or gender. Students use technology and the Internet more than any other age group (North Central Regional Educational Laboratory and Metiri Group, 2008). Ninety percent of the students between the ages 5 and 17, or 48 million, now use technology. Seventy-five percent of students ages 14 to 17 and 65% of students ages 10 to 13 use the Internet.

Educators

Many school districts fail to provide proper training for school educators (Wetzel & Zambo, 2004). Educators are not sufficiently prepared to integrate instructional technology into classrooms and do not receive the technical support needed to impact student achievement (National Education Association, 2008). Therefore, without continuous technical support, technology integration in the classroom will never be satisfactorily achieved (Gahala, 2009). The research findings show that when administrators offer emotional and moral support by demonstrating interest in teachers' efforts to change the way the curriculum is taught to a more technology-based learning environment, there is a willingness on the part of the teachers to incorporate more technology in the student learning process.

However, resistance by faculty and administrators to technology use in the classroom is not uncommon. Educators tend to teach in the manner in which they were educated (Warschauer, 2010). Educators' ability and willingness to use technology and the Internet may depend, to some degree, on the schools and classrooms where the work is to take place (National Center for Education Statistics, 2010). This reaction can develop from the belief or fear that the ultimate goal of instructional technology is to reduce or even remove the human element of instruction. However, instructional technologists state that education will always require human intervention from instructors or facilitators.

Technology implementation and distribution efforts do not automatically ensure the best interests of the instructional curricula. Technology implementation is often little more than promoting painless technology installation without really changing the outcome of the learning environment; that is, technology implementation accommodates installation of technology but does not improve the classroom environment for student learning (Warschauer, 2010). This approach to putting technology in the classroom is often misguided and complicates rather than enhances computer use for instructional learning. The methods used to promote the use of computers in the classroom often guarantee failure instead of influencing how, when, or even if technology will bring genuine enhancement to the learning environment. Instead of promoting effective implementation and use of technology in the classroom, change is hindered due to the territorial, personal, and political threats posed by innovation.

The basic difference is in how well-funded schools and Title I/rural funded schools use technology for instruction. Well-funded schools use technology for activities such as creating websites and multimedia presentations. These schools generally utilize technology more often and in activities that require higher-level thinking skills, such as Internet use, data collection, analysis, and research projects (Kennedy & Wiener, 2010). Title I/rural schools tend to use technology for minor skills like drill and practice and test taking strategies (Warschauer, 2010). Technology instruction in this setting is used less and, when used, word processing is the predominant activity.

Although there are many differences in performance between well-funded and Title I/rural schools, the technology gap has a significant impact on students' access to the global community (Hardre & Sullivan, 2008). The school principal is the one person responsible for and empowered to manage the school to ensure effective implementation of technology for

instruction (Sergiovanni, 2009). The principal is the key catalyst in the implementation of technology devices in the school environment (National Center for Education Statistics, 2010). Sergiovanni (2009) states that technology leadership is necessary in all schools to guide and champion efforts to increase the use of technology for instruction. Much more will need to be accomplished in classrooms with technology in order to train educators to integrate technology into the curricula and involve parents in the use of technology.

Funding

According to the Consortium for School Networking (CoSN) (2012), while 38% of school leaders report increases in their technology funding, 33% are experiencing funding decreases, with more than half of these decreases being described as significant (Warschauer, 2010). Since 1990, the United States has invested more than $40 billion dollars to provide technology for K-12 classrooms. These federal dollars have come in various forms such as E-Rate funding, Technology Literacy Challenge Funds (TLCF), and Preparing Tomorrow's Teachers to Use Technology (PT3). Each funding source had a specific purpose for the use of technology (Finn, 2008). For example, E-Rate supplies funding to schools with the expectation that every student will have access to the Internet. The goal of the TLCF program was to provide computers in the classroom, and funding has been provided through PT3 to train pre-service teachers on the use of technology in the classroom (Economics and Statistics Administration, National Communication and Information Administration & U. S. Department of Commerce, 2010).

Integrating different technologies is not cheap (McDunnigan, 2011). Schools have to purchase the networking hardware and any necessary software to build the infrastructure for this integration. Additionally, after the initial purchase, schools need to employ technology personnel

who can perform day to day maintenance on the hardware and software systems, as well as fix any problems that arise. All of this costs money in the form of initial investments as well as the costs associated with technical maintenance. This isn't money that schools always have on hand (McDunnigan, 2011).

Insufficient funds can quickly impede successful integration of technology instruction. Without sufficient funding, schools cannot upgrade equipment, computers, phone systems, and technology devices. In some cases, school systems do not see improved technology as a worthy endeavor due to other higher priorities (McDunnigan, 2011). The high cost of improving technology means schools must have financial resources. Schools may wait to upgrade technology because of the high up-front cash expenditure. School budgets remain one of the biggest barriers to classroom technology access according to a national PBS Learning Media Survey (Penuel, 2008) of pre K-12 teachers.

Progression of Principals' Roles and Responsibilities

The school principal is the highest-ranking administrator in an elementary, middle, or high school (Sergiovanni, 2009). Principals typically report directly to the school superintendent, but may report to the superintendent's designee, usually an associate superintendent in larger school districts. However, schools have not always had principals. Around the beginning of the 20th century, as schools grew from one-room schoolhouses into schools with multiple grades and classrooms, the need arose for someone to manage these more complex organizations (Casner-Lotto & Barrington, 2010). This need was filled initially by teachers who continued to teach while also dealing with their schools' management needs. These teachers were called *principal teachers*. As schools continued to grow, principal teachers became full-time administrators in most schools.

Most principals soon stopped teaching because of the demands their management responsibilities placed on their time (Casner-Lotto & Barrington, 2010). As managers, principals were responsible for financial operations, building maintenance, student scheduling, personnel, public relations, school policy regarding discipline, coordination of the instructional program, and other school matters. The management role included some curriculum and instruction supervision, but school management was the primary role of principals until the early 1980s. As the accountability movement gained momentum, the role of the principal changed from school manager to school instruction leader and then to school reform leader (Cherian & Daniel, 2008). With this shift in roles, principals continued to retain their management role. Principals currently play multiple roles: school manager, instructional leader, and the leader of school reform. Principals are responsible for the overall operation of their schools. Some of their duties and responsibilities are delineated in state statutes. States and school districts also have set expectations for principals through the principal evaluation criteria and procedures.

During the latter part of the 20th century, as schools began to be held more accountable for student performance on national and state assessments, the duties and responsibilities of principals changed (Cherian & Daniel, 2008). Principals took on more responsibility for teaching and learning in their schools. In particular, their duty to monitor instruction increased along with their responsibility to help teachers improve their teaching. With this change in responsibilities, principals discovered the need to more effectively evaluate instruction and assist teachers as they worked to improve instructional techniques. The principal's duty to improve the school instructional program is mandated by legislation in some states (Lashway, 2007). Some state legislation requires removal of principals if schools are classified as low performing (students do

not meet achievement expectations) for a specified period of time. Therefore, schools are under pressure to perform and meet expectations set by state legislation.

In 1965, Congress established the Elementary and Secondary Education Act. The goals of the Title I program were to improve schooling in areas of high poverty and to advance the equality of educational outcomes (Borman, 2003). Since that time, the federal government has appropriated nearly $8 billion each year for Title I programs designed to assist economically disadvantaged students (Sanders & Simpson, 2011). Recently, the largest funding in history was appropriated to the Title I program, calling for stronger accountability mandates and holding schools and districts responsible for the achievement of minority students, low-income students, and English-language learners (Borman, 2003).

In Georgia, 1,023 schools are considered rural schools (Georgia Department of Education, 2008), many of which also hold Title I status. With extra support from the federal level, Title I schools receive funds to ensure all students have an equal opportunity for a high quality education. Title I funds target schools of high poverty (40% or more students from low economic status families) to raise achievement by improving instruction. These schools may receive extra funds to ensure availability of resources for enhanced instruction, but technological devices for instruction take a back seat to tutorial programs and materials for passing standardized tests (Cardilio, 2009).

It is essential for principals to consider how teachers and students use technology in the classroom (Britten, Clausen, & Lecklider, 2009). Although the administrator's role has become complex (Ronnkyist, Dexter, & Anderson, 2009), educational standards also require the principal to provide technology leadership. These standards include the Interstate School Leaders Licensure Consortium (ISLLC) standards, National Educational Technology Standards for

Administrators (NET-S-A), International Society for Technology in Education (ISTE), and Technology Standards for School Administrators (TSSA Collaborative). These standards provide a template that technology leaders follow to ensure effective implementation of technology for instruction.

Districts do have resources for the development of high-tech leadership plans and programs. In a standards-based age, current leadership visions can be easily found in the professional standards established by policymakers, practitioners, and university professors (Clifford, 2010). Foremost among these are the guidelines developed by the ISLLC (2009), which have gained rapid acceptance. The ISLLC was formed for the purpose of developing model standards and assessments for school leaders.

ISLLC's standards focus on high expectations of success for all students; the emphasis is on teaching and learning as the primary foundation for school leadership (Clifford, 2010). According to the Council of Chief State School Officers (1996), ISLLC standards were written by representatives from states and professional associations in partnership with the National Policy Board for Educational Administration in 1994-95. A 2005 survey was conducted to determine the number of states using standards for administrator certification and preparation programs. The results showed ISLLC standards are currently adopted or adapted by 41 of the 46 states that have leadership standards. Glatthorn and Jailall (2009) state, "In the decade since the Council published the ISLLC standards, they have become a national model and now serve as common language of leadership expectations across differences in state standards" (p. 3).

NETS for administrators is another set of administrative competencies developed through the TSSA Collaborative (2001). It identifies knowledge and skills that make up the basis of what every PK-12 administrator needs to know about and to be able to do with technology regardless

of specific job role. The International Society for Technology in Education (TSSA Collaborative, 2009) has embraced the TSSA standards as the national standard and extended the core skills and knowledge to include specific provisions for administrators in three job roles: superintendent and executive cabinet, district-level leaders for content-specific or other district programs, and campus-level leaders including principals and assistant principals (Sanders & Simpson, 2011). TSSA Collaborative (2009) standards have an underlying assumption that administrators should be competent users of information and technology tools common to information-age professionals.

ISTE standards (2009) outline what principals need to do in order to produce an effective learning environment. The beginning of the outline is the leadership and vision to motivate a shared vision for complete integration of technology and promote an environment and culture that will contribute to the accomplishment of the vision. To do this, principals assist in a shared vision with students, teachers, parents, and community members. Principals maintain a comprehensive process to develop, implement, and assess a vigorous long term and systemic technology that will achieve the vision. Principals take responsible risks and advocate policy development supporting technology use in the school. Data is used by principals to make leadership decisions.

Principals ensure that curriculum design, instructional strategies, and learning environments integrate appropriate technologies for the best learning and teaching environment possible (ISTE, 2009). To do this, principals identify, use, assess, and promote technology devices to enhance a standards-based curriculum and attain higher student achievement levels (ISTE, 2009). Principals facilitate and support collaborative technology-enhanced environments conducive to improved learning. Principals provide for individual-diverse learning environments,

improve instructional methods used in schools, make constant decisions, and use problem-solving skills. Principals ensure that faculty and staff take advantage of professional learning opportunities to enhance student learning.

Principals utilize technology to enhance the productivity of professional practices (ISTE, 2009). In order to do this principal's model, communicate, and collaborate with colleagues, students, parents, and community members. Principals create and participate in the learning process in order to stimulate, foster, and support technology use for productivity (ISTE, 2009). Principals continue to be aware of new technological devices and potential uses for these devices in education.

Principals ensure the integration of technology to support constructive systems for learning, professional development, and organization (ISTE, 2009). To do this, administrators develop, complement, and assess policies and guidelines to ensure compatibility with technological devices (ISTE, 2009). Principals implement plans for instruction and allocate funds to ensure complete and sustained resources to enhance the technology plan. School leaders implement and support continuous improvement plans for technological replacement and future development.

Principals utilize technology to plan and apply a complete system of assessment and evaluation (ISTE, 2009). To do this, principals assess technology resources, analyze data, interpret data results, and communicate knowledge learned from data to improve instructional practices and student learning (ISTE, 2009). Principals assess staff knowledge, skills, and performance in the use of technological devices and plan professional development accordingly. Principals use technological devices to evaluate and manage administrative operational methods.

Principals' are familiar with the social, legal, and ethical issues linked to technology and set an example for decision-making connected to these issues (ISTE, 2009). To do this, principals promote responsible use of technological devices that enforces social, legal, and ethical practices. Principals enforce privacy, security, and online safety for technology use. Principals develop policies that will clearly enforce the copyright laws and assign ownership of intellectual property developed with district resources.

Research has consistently shown that principals play a significant role in the school environment and learning (Sergiovanni, 2009). As the accountability movement gained momentum during the 1980s and 1990s, research on school effectiveness, generally referred to as effective schools research, focused on principals' roles. These studies consistently found that the principal was the key to an effective school. Research showed that the unique position principals hold, as the one person in a school responsible for and empowered to manage the entire school, places them in a powerful position to coordinate the entire school's operation and move it forward (Sergiovanni, 2009). Sergiovanni further revealed that the most effective principals had a clear vision of how the school could educate its students; had aligned resources and priorities with the vision; and could engage other key players, within and outside the school, in achieving the goals embedded in the vision. Other studies have supported the key roles principals play in their school's success and point to other leadership characteristics as critical to a principal's success (Warschauer, 2010). These characteristics include high energy, initiative, tolerance for ambiguity, sense of humor, analytical ability, and common sense. As society grows more diverse, researchers are beginning to look into the principal's role in leading schools that are increasingly diverse.

Warschauer's (2010) research on the principalship focused on the changing role of school leaders in a changing society. The research revealed that the principal is the key to a school's successful transition to adequately prepare students for global competitiveness. As society continues to change and technological advances change the tools available for teaching, the role of the principal will likely change as well. For example, the principal of an online school will perform in very different ways than the principal of a traditional school.

Finn (2008) report that principals of the future will be characterized by five essential leadership components: (a) moral purpose, (b) an understanding of the change process, (c) the ability to improve relationships, (d) knowledge creating and sharing, and (e) rationality making. Principals also make a difference in whether technology is used effectively for teaching and learning. Effective school principals provide leadership, resources, and professional development for teachers, setting the stage for technology use that supports instructional change and student learning. However, there is a lack of research about the relationship between principals' roles and their responsibilities for technology instruction in school environments (Finn, 2008).

Chapter Summary

Technological devices used for classroom instruction have changed the way schools enhance student learning. Students use technology to receive extra help in areas where they are struggling, to take classes not offered in their schools, and to prepare them for future endeavors, along with a multitude of other uses. Educators use technological devices to enhance student learning through the instructional process. Increased communication through avenues such as the Internet has opened doors to an abundance of information beyond the classroom that enhances knowledge.

However, there are barriers that need to be overcome. Title I rural schools have a tendency to use technology for remediation and drill and practice instruction. Principals in Title I

rural schools can eliminate problems that occur from resistance to effective technology implementation by including teachers in the technology planning and evaluation process. Principals also have standards that have been established by their state or at the federal level that will help ensure technology is implemented and used successfully for instruction in Title I rural schools.

Principals are responsible for implementation of technology for instructional use. The principal is authorized to lead the entire school. This places principals in a lead position to incorporate and advance their overall instructional curriculum. Therefore, to be effective, principals need a clear vision for the implementation of technology for instruction and a vision of how it can enhance the education of their students.

CHAPTER THREE

Methodology

Technology dramatically changed the world outside our schools and is now changing the learning and teaching environment inside classrooms. The change is increasing competition in the global economy. Students born in the age of the Internet must have technology skills if they are to be successful in the new economy (Thomas, 2009). However, in order for educators and students to fully obtain the benefits of technology, technology use must be incorporated into school curricula and modeled by school educators.

The school principal has been described by the National Center for Education Statistics (2008) as the most important factor affecting technology instruction in a school. One major responsibility and role of the principal is to make sure students are being prepared for the technological world through integration of technology in the curricula (Duhaney, 2009). Removal of barriers and integration of technology into the teaching and learning environments must be implemented in a meaningful practical manner in order for students and teachers to realize the benefits.

Research Questions

The overarching question investigated was this: What are the roles and responsibilities of elementary school principals in how technology is used for instructional purposes in Title I rural schools? The following sub questions guided the study:

1. How do elementary school principals describe their roles and responsibilities for instructional use of technology in their schools?

2. How do technology coordinators view the roles and responsibilities of elementary school principals in the use of instructional technology?

3. How do teachers view the roles and responsibilities of elementary school principals in the use of instructional technology?

4. What obstacles do elementary school principals, teachers, and technology coordinators identify in the use of technology for instructional purposes in the classroom?

Research Design

The researcher conducted a qualitative study in order to answer the research questions. Qualitative research emphasizes content analysis which allows for patterns or themes to emerge from data collected with no prerequisite specifications (Johnson & La Montagne, 1993). The goal of qualitative research is to generate results that are understandable and credible, conceivably to help improve existing practices (Johnson & La Montagne, 1993).

The researcher desired to better understand roles and responsibilities of elementary school principals in Title I rural schools pertaining to the use of technology for instructional purposes, and designed a study that allowed data gathering through interviews on technology implementation for instruction in three schools. This in-depth investigation of principals' roles and responsibilities was descriptive in order for the researcher to explore instructional technology leadership in Title I rural schools.

More specifically, the study was a qualitative study. According to Tellis (1997), a qualitative study investigates a current experience within its real-life context, especially when boundaries between experiences and context are not clearly evident. Yin (2004) has stated that rational conclusions that independently takes place from these cases, as with experiments, will be better than a research study completed from a single case alone.

The dynamic nature of the interview process engages respondents more actively than is possible in a more structured survey (Creswell, 2008). The opportunity to probe and ask, "help me understand why you feel that way," enables the researcher to reach beyond initial responses and rationales. The opportunity to observe, record, and interpret non-verbal communication (e. g., body language and voice intonation) as part of a respondent's feedback is valuable during interviews or discussions and during analysis. The opportunity to engage respondents in play, such as projective techniques and exercises, reduces the self-consciousness that can inhibit spontaneous reactions and comments (Creswell, 2008).

Qualitative researchers typically rely on at least one of four methods for gathering information: (a) participating in the setting, (b) direct observation, (c) in-depth interviews, and (d) analysis of documents and materials. For the purpose of this study, the researcher will rely on in-depth interviews and documentation provided by the principals on technology implementation for instruction. This research employed a descriptive study using interviews and documentation from principals to obtain information about a principal's technological leadership roles and responsibilities for integrating technology in the curriculum.

Methods

Sampling and Sampling Techniques

The sample for this study was comprised of principals, technology coordinators, and teachers located in southeast Georgia. Gall, Gall, and Borg (2007) recognized this type of sampling strategy as convenient sampling. The Regional Educational Service Agency for southeast Georgia works with schools to enhance education and assisted with identifying principals who have successfully implemented technology in classroom instruction. RESA compiled a list of Title I/rural schools lead by principals recognized as strong leaders within their

schools. To ensure that the principals' school sites were similar, the following criteria for school selection were used:

1. The school had a grade span of kindergarten through third grade or fifth grade (K-3 or K-5).

2. The principal had a minimum of 3 years' experience as an administrator in the present district.

3. Elementary school principals, technology coordinators, and teachers were willing to participate.

4. School population was Title I/rural schools.

The staff from RESA evaluated principals using the International Society for Technology Education (ISTE, 2009) as a guide to ensure that each principal selected was highly qualified and a strong leader in the implementation of technology in instruction. The intensity sampling strategy was used to select principals for this study (Gall, Gall, & Borg, 2007). Following the intensity sampling strategy, principals were selected based on their successful implementation of technology instruction within classrooms. Upon completion of the study and if requested by a participating principal, the researcher may discuss the results of the study, emphasizing findings about the roles and responsibilities of principals' implementation of technology in instruction within Title I rural schools.

The researcher interviewed selected principals who voluntarily agreed to participate, the technology coordinator from each school, and two or three teachers who worked at the school. The principals' interviews lasted approximately 60 to 90 minutes each. Technology coordinators' and teachers' interviews lasted approximately 60 minutes each. Most schools have only one technology coordinator; therefore, technology coordinators who volunteered to participate were

interviewed. Teachers who volunteered to participate in the study were interviewed. If more than three teachers volunteered to participate, the researcher gave each teacher a coded number and randomly selected participants. To triangulate the data collected, the researcher collected data provided by principals documenting professional learning activities in technology for instruction in the classroom as well as other documents that illustrated implementation of technology for instruction in the classroom.

Instrumentation

Interview questions for the elementary school principals, technology coordinators, and teachers were created after a careful review of the literature on the subject and with help from leadership professors at Georgia Southern University. The interview questions sought input about implementation of instructional technology in school curricula and daily use of technology in the classroom. Participants were informed of the interview protocol. Interviews were recorded and transcribed at a later date. All information will be held securely to ensure the participants' confidentiality.

Data Collection

An introductory email invitation and a copy of the IRB approval form were sent to 10 Title I rural school principals who demonstrated strong leadership in technology implementation in their schools in southeastern Georgia. If principals did not responded in a timely manner, the researcher followed up with an email and telephone call. When all participants were selected and a sufficient sample size was achieved, each individual was contacted in order to set up a date, time, and place to conduct the interview.

Interviews are used frequently in educational research to collect data about phenomena that are directly observable, such as personal experience, opinions, values, and interests, as well

as similarities across these phenomena (Gall, Gall, & Borg, 2007). The data collected was also observable, can be considered a phenomena, and collection was more convenient than by direct observation.

Interviews with study participants were recorded and transcribed. Recording the interviews allowed for data collection by the researcher and transcription aided the researcher in presenting an unbiased view of the data. During the interviews the researcher took notes in addition to the audio recording of the interview. The researcher interviewed the elementary school principals and technology coordinators individually. The same approach was used for the elementary school teachers.

Data Analysis

The researcher used a coding/category system to analyze data for this study. The researcher used the grounded theory principles and method of constant comparison to compare entries within and across categories (Gall, Gall, & Borg, 2007). Constant comparison occurs when a researcher uses the responses from the initial interview to form categories and compares subsequent interviews to the categories established from the initial interview (Dick, 2005).

Coding is a progressive process of sorting and defining various sections of collected data (e.g., observation notes, interview transcripts, memos, documents, and notes from relevant literature) that are applicable to the research purpose (Glense, 2006). Open coding involves examination, comparison, conceptualization, and categorization of the data. Raw data was examined for similarities and differences, and initial conceptual categories or phenomena will be reviewed from data responses. From data analysis, the researcher was able to formulate conclusions concerning elementary principals' roles and responsibilities for using technology for instructional purposes in Title I rural schools.

In order to collect the data, the researcher began by assigning a code to each principal, technology coordinator, and teacher by school. This allowed for comparisons within a group that works together to implement technology for instruction. Next, comparisons between the principals, technology coordinators, and teachers were analyzed and recorded. This allowed for comparisons of the roles and responsibilities of different school principals pertaining to implementation of technology for instructional use as well as comparison of technology coordinators' and teachers' views of principals' roles and responsibilities.

Chapter Summary

Chapter Three presents research questions for the study, research design, instrumentation, procedures, participants, and method of analysis. The study used a qualitative method. Participants were purposefully recruited and selected from three rural Georgia elementary schools. The researcher conducted a semi-structured interview with principals, technology coordinators, and teachers, and asked questions about principals' roles and responsibilities for technology implementation in the instructional curricula. Transcribed audio-taped interviews were used to analyze the experiences described by principals, technology coordinators, and teachers.

CHAPTER FOUR

REPORT OF DATA AND DATA ANALYSIS

For effectiveness of instructional technology use in school environments, educational policy makers and administrators have made a combined effort to increase the use of technology in classrooms (Kay, 2009). In many schools, principals have become technology instructional leaders (Warschauer, 2010). In fact, the National Center for Education Statistics (2010) states that the principal was the key catalyst in integration of technological devices used in instruction in school environments. Principals are responsible for implementing technology devices that assist in performing tasks more efficiently or with higher quality, including computer-related hardware, software, and peripherals (Grabe & Grabe, 2008). Sergiovanni (2009) maintains that technology leadership is necessary in all schools because educational policy makers and administrators are focusing efforts on increasing the use of technology in the classroom. The purpose of this study was to describe the elementary principal's roles and responsibilities in the use of technology for instructional purposes in Title I rural schools.

Research Questions

The overarching question to be investigated was this: What are the roles and responsibilities of elementary school principals in how technology is used for instructional purposes in Title I/rural schools? The following sub-questions guided the study:

1. How do elementary school principals describe their roles and responsibilities for instructional use of technology in their schools?

2. How do technology coordinators view the roles and responsibilities of elementary principals in the use of instructional technology?

3. How do teachers view the roles and responsibilities of elementary school principals in the use of instructional technology?

4. What obstacles do elementary school principals, teachers, and technology coordinators identify in the use of technology for instructional purposes in the classroom?

Research Design

The researcher conducted a qualitative study in order to answer the research questions. Qualitative research emphasizes the flexibility of content analysis, which allowed for patterns or themes to emerge from data collected with no prerequisite specifications (Johnson & La Montagne, 1993). The sample for this study was comprised of principals, technology coordinators, and teachers located in the Southeast region of Georgia. Gall, Gall, and Borg (2007) recognized this type of sampling strategy as convenient sampling. Interview questions for the elementary principals, technology coordinators, and teachers were created after careful review of literature on subject and with the input of leadership professors of Georgia Southern University. An analysis was carried out on data provided by the principals, technology coordinators, and teachers from the interview questionnaire. The data given from the principals' interviews, technology coordinators' interviews, and teachers' interviews were analyzed as separate entities to authenticate results.

Respondents

To protect participants' confidentiality each participant and school was given an assumed name. Data collected first was from the school Cedar Falls Elementary School. The principal interviewed was Mr. Clint. The three teachers were Mrs. Combs, Mrs. Collins, and Mrs. Cole. The technology coordinator's name was Mrs. Corbin. The second school was Goldberg

Elementary School. The principal interviewed was Mrs. Glisson. The teachers from this school were Mrs. Gaskin, Mrs. Groover, and Mrs. Groesbeck. The technology coordinator's name was Mrs. Glasgow. The final school's name was Sumter Elementary School. The principal interviewed was Mr. Smith. The two teachers were Mr. Steinbeck and Mrs. Skylark. The technology coordinator's name was Mrs. Stillman.

At Cedar Falls Elementary School, Mr. Clint was the leader of the technology integration for use of instruction in this particular school. Before coming to Cedar Falls Elementary Mr. Clint served as a teacher for 20 years in the same school system but in the high school. He has served Cedar Falls Elementary for the past six years. Mrs. Combs, Mrs. Collins, and Mrs. Cole have been teaching at Cedar Falls Elementary for a total of three years, five years, and ten years consecutively. The technology coordinator Mrs. Corbin has served the school system for 16 years as the technology coordinator. Mrs. Collins was the only teacher from this group to have taught in a different school system.

At Goldberg Elementary school the principal there was Mrs. Glisson who has served three years at this particular school. She also served in several different capacities throughout the school system for 28 years. Mrs. Gaskin has been teaching at Goldberg Elementary for six years. Mrs. Groover has also taught at Goldberg Elementary for 10 years. Mrs. Groesbeck has been teaching for 16 years at Goldberg Elementary. All of these teachers have taught only at Goldberg Elementary. The technology coordinator, Mrs. Glasgow, has served in the school system for 11 years.

The final school participants were led by Principal Mr. Smith who implemented technology for instructional use in classrooms. He has served his entire educational career in this particular school system except for a brief period of one year. He began as a high school teacher

teaching the business courses. He then became the assistant principal for the high school and later transferred to Sumter Elementary school. His service in education totals approximately 12 years. He has served as principal for three years at Sumter Elementary School. Teachers interviewed from Sumter Elementary School were Mr. Steinbeck and Mrs. Skylark. Mr. Steinbeck briefly taught in another school system for three years before serving Sumter Elementary for 22 years. Mrs. Skylark has taught in this school system for eight years. She has not taught in a different school system. The technology coordinator, Mrs. Stillman, has been in service in this school system for six years. She taught high school science in another school system for seven years.

There was a total of one female principal and two male principals interviewed (Table 1). The total service in educational leadership for principals averaged to six years. Teacher interviews were with seven female teachers and one male teacher. The total of teaching experience averages to 10 years. All three of the technology coordinators were female. Experience in the technology departments averages to 11 years. All participants in this study were Caucasian. Table 1 (below) summarized information pertaining to respondents in this study.

Table 1:
Demographics of Selected Schools, Principals, Technology Coordinators, and Teachers
Represented in the Study.

Schools	Position Held	Participants	Race/Gender	Overall Experience	Number of years in School
Cedar Falls Elementary	Principal	Mr. Clint	W/M	26	6
	Technology Coordinator	Mrs. Corbin	W/F	16	16
	Teachers	Mrs. Combs Mrs. Collins Mrs. Cole	W/F W/F W/F	3 8 10	3 5 10
Goldberg Elementary	Principal	Mrs. Glisson	W/F	28	3
	Technology Coordinator	Mrs. Glasgow	W/F	11	11
	Teachers	Mrs. Gaskin Mrs. Groover Mrs. Groesbeck	W/F W/F W/F	6 10 16	6 10 16
Sumter Elementary	Principals	Mr. Smith	W/M	12	3
	Technology Coordinator	Mrs. Stillman	W/F	13	6
	Teachers	Mrs. Skylark Mr. Steinbeck	W/F W/M	8 22	8 19
			Race	Average Experience	
Totals	Principals		W/F 1 W/M 2	6 years	
	Technology Coordinators		W/F 3	11 years	
	Teachers		W/F 1 W/M 2	10 years	

Findings

Principals Analysis of Their Roles and Responsibilities

Guiding the research study were sub-questions to gain necessary data from principals, technology coordinators, and teachers on the roles and responsibilities of elementary school principals in how technology was used for instructional purposes in Title I rural schools. To the first sub-question on how elementary school principals describe their roles and responsibilities for instructional use of technology in their schools the principals responses demonstrated that there were three themes that emerged from the data that principals felt were their roles and responsibilities: (a) technology training opportunities for faculty and staff, (b) prevalence of technology use for instructional purposes, and (c) comprehensive school planning for integration of technology.

Technology Training Opportunities for Faculty and Staff

All administrators took Intech training that was required by the state of Georgia for all educators. However, only one principal had technology training through college courses or workshop. Mr. Smith stated that he acquired a business degree and had courses related to technology. The other two principals were "self-taught". Mr. Clint and Mrs. Glisson had careers based on an educational degree. Mr. Clint reported that he learned how to operate technology by using and gaining experience through the process. Mrs. Glisson stated that a high school course called typing, considered as keyboarding in this era, was taken. In college, a course of study in her educational studies incorporated the learning of technology equipment of the day. The technology equipment courses were typewriters, film projectors using a reel, opec projectors, televisions, reel tape recorders, and Polaroid cameras. Mrs. Glisson also took various technology

training in the use of Excel and Word software through Regional Education Service Agency (RESA).

Prevalence of Technology Use for Instructional Purposes

A common factor in the use of technology on a daily bases is the use of desk top computers, cell phones, and laptop computers for all of the administrators interviewed. Emails to faculty and staff and Power School for administrators account for majority of the need for the technology use each day. When the principals hold faculty meetings or other organizational meetings, the use of projectors to display main points to emphasize information or data projected for informational knowledge was used frequently. However, principals reported having less face-to-face faculty meetings and instead using email with school calendar reminders of what will be happening for the week. Mr. Smith stated that he created the Sumter News for each week and emails to all faculty and staff. Mrs. Glisson and Mrs. Smith use iPads for various tasks. Mr. Smith used his iPad on his formal and informal observations. However, all of the principals concur on the fact that professional training for teachers can be important for effective use of technology, but was less needed due to the fact that most teachers have acquired majority of the technology skills for effective use for instructional purposes. When professional development was needed, some schools used RESA or sent teachers or academic coaches to professional development training so that they can redeliver material learned. Also, in each school there were several teachers that were technology savvy enough to help others in need.

Principals felt responsible for making sure technology use for instructional purposes was used in all classrooms. As Mr. Smith pointed out "if technology is not being used for instructional purposes in the classroom you are behind". The technology tools classrooms use were SMART boards, Classroom Performance Systems (CPS's), projectors, televisions, and JET

writers. In two of the schools iPads were being piloted or used in limited capacitates in certain areas within the schools. Mr. Clint has started a rotation of acquiring a set of iPads for student use within Cedar Falls Elementary School. At Sumter Elementary a third grade classroom was piloting iPads for student use. Mrs. Glisson only used iPads for administrative duties. However, Goldberg Elementary did use the REDCAT for voice enhancement. The REDCAT was a technological device similar to a microphone teachers and students use to project their voice for better quality of sound.

These technology tools are implemented throughout the curriculum instruction in all subject areas. Mr. Clint observed teachers using SMART boards for actual teaching of instruction not "as a glorified overhead projectors". Observations were one of the best ways in which to carry out the roles and responsibilities of the principal in effective technology use in instruction. Mr. Clint, Mrs. Glisson, and Mr. Smith commented that the students being taught today grew up with technology. "The students love to play electronic games," responded Mr. Smith. "You give a student a SMART phone and I will bet that they can show you exactly how to use it," says Mr. Clint. Mrs. Glisson remarked, "I think in today's world and society in general students are technology oriented." The use of SMART boards and Elmo's gave the teacher the opportunity to create or acquire from other web-sites lessons that are interactive in nature, reported all principals. Mr. Clint stated that students and teachers create Power Points for lesson plans or project assignments. One principal committed that teachers will put up their standards being taught and essential questions using the SMART boards or televisions. A common factor principals state that lesson plans are created and placed on a file such as the "L" drive or "dropbox" for all teachers to share within their systems, thanks to their principals. Mrs. Glisson and Mr. Smith said that the teachers used other website resources to reinforce lessons taught on a

regular basis. Mrs. Glisson talked about the teachers using the REDCAT to enhance the teacher's voice as well as students use when delivering a class project. The three elementary schools used CPS's for formal and informal assessments. Principals observed that there was immediate feedback for teachers as well as data on particular weaknesses and strengths of concepts taught. Mr. Clint and Mr. Smith observed the use of iPads being used in their schools. The students used them for reinforcement, enhancement, and remediation purposes. Computers in the classrooms are mainly used for AR reading or remediation. All of the schools in the study had three computer labs. At least one computer lab was used mainly for remediation classes. However, Mr. Clint stated that next year one of his computer labs would be used for enhancement in science. Mrs. Glisson remarked that one of her computer labs was occupied by a check out system. The teacher can sign up to take a class in the lab for lessons taught.

  "I don't believe in using technology for technologies sake," stated Mrs. Glisson. Therefore, principals agreed that setting high expectations in the use of technology for instructional purposes was one of the main priorities. Teachers who were reluctant to use technology were given opportunities to learn and work with other teachers familiar in the use of technology tools to enhance upon classroom instruction. Once this has taken place, Mr. Smith would set up a time, with the teacher, to observe the use of technology to enhance instruction. Mr. Clint expressed that there were no problems, as far as teachers using technology. He continued to state that there was the expectation from administration and professional develop that was provided and would be in the future. Mrs. Glisson, Mr. Clint, and Mr. Smith checked on the use of technology in the classrooms by observing teachers during "walkthroughs" or during observations. Mrs. Glisson's philosophy was "Whatever you expect, you have to inspect". However, all of the principals agreed that majority of the teachers use technology in their

classrooms and that it was extremely rare for a teacher in this educational era not to use such 21st century tools.

Comprehensive Planning for Integration of Technology:

The principal's plan for technology was by receiving feedback from the teachers on what technology was needed. At Sumter Elementary there was a technology committee representing each grade level. All concerns and needs were relayed to their grade level representative on the committee. Committees are appointed by the principals. This committee works with the principal to enhance upon the integration of technology for instruction. This committee sends out "needs" assessments for technology to teachers from the school and county level. Principals, technology coordinators, and the committee of teachers made decisions on what was needed to enhance instruction with surveys received from the teachers.

Teachers understood that there where budget cuts for their schools and seemed surprised that technology was still a priority. Although majority of the Title I funds are used to provide teachers, Mrs. Glisson, Mr. Clint, and Mr. Smith had not felt as if there has been a budget cut due to planning technological needs by prioritizing. Each principal sets aside funds allotted for use in purchasing technology or funds for maintenance of the equipment needed to enhance student learning. Mrs. Glisson stated:

"I will just go back to the SMART board. The bulbs on a SMART board do not last long. So one of the things you have to plan for when you purchase them is the maintenance and up-keep. So the main obstacle I see is the cost of maintaining and making sure you would have plenty of bulbs for your SMART board, same for the printer cartilage. That is all tied in to technology and you have to make sure you have the funds to allocate."

When planning for technology the principals rely on teachers to let them know what is needed or even make a "wish list."

Future planning for these principals consists of related factors such as continuing to provide the technology needed for a 21st century classroom. Mr. Smith and Mr. Clint would like to continue to implement iPads in classrooms. Mrs. Glisson would like to make sure all technology continues to be utilized in the classrooms for instructional purposes.

Technology Coordinators Analysis of Principals Roles and Responsibilities

The second sub-question that guided this study was the technology coordinators' views of the roles and responsibilities of the principal in the use of technology for instructional purposes in the classroom. The analysis of the data reveals three themes with regard to principals responsibilities: (a) availability of technology resources for faculty, (b) principals' support in technology integration for teachers, and (c) comprehensive planning for technology instruction. Each school in the research study had only one technology coordinator for the entire school system.

        Availability of Technology Resources for Faculty

The technology coordinators viewed availability of technology resources as being the role and responsibility of the principals. Technology Coordinators' relied on the principals in order to purchase what the schools in the district may need in the way of technology. Mrs. Corbin remarked that principals were the main people that initiated successful integration of technology for instruction. Mrs. Corbin, and Mrs. Glasgow either purchased or located various programs and websites for their schools at principals' request.

Technology coordinators believed that principals have the role and responsibility of providing professional training for faculty. When principals needed to have professional training

in technology, the technology coordinators help to reassure the need was met by relating information on courses available requested by the principals . Mrs. Stillman and Mrs. Corbin provide curriculum coaches training so they are able to serve teachers in areas of need with technology instruction. This was also at the request of their principals. Mrs. Corbin and Mrs. Glasgow reported that most of their professional develop is provided by RESA. Mrs. Glasgow contended that the professional training provided for the Goldberg Elementary School District consist of SMART board, Digital storytelling, Formative Assessment Using Classroom Response System, Multimedia in the Classroom, Windows File Management, and other courses per principals' request.

Principals' Support in Technology Integration for Teachers

"Support from the principals should be a major factor in the use of technology instruction," stated Mrs. Corbin. Principals spend a lot of money from Title I funds in order to implement technology for instruction in the classrooms. Mrs. Glasgow restated that principals provide for professional training development, purchase technology and other resources according to budget and needs of classrooms, modeling technology use, and expectations for technology use in instruction from teachers apparent through observations of formal and informal visits. An example was given by the technology coordinator from Cedar Falls on principal's support of technology in instruction in the classroom versus no support for technology in the classroom.

Mrs. Corbin reported on the process of integration that technology went through at Cedar Falls Elementary. She remarked that not until five years ago the elementary school had a principal who was not supportive of technology for instruction in the classrooms. This particular principal had a program of study entitled *America's Choice* that involved paper and pencil work.

"Therefore, she did not see the value for technology," stated Mrs. Corbin. These strategies were used throughout the curriculum. There was success with *America's Choice* so Title I money was not used for the integration of technology because in her mind she was having success with what she had and did not see the reason for the technology. "So, it was a mindset of no." Mrs. Corbin went on to say that it was kind of one of those situations where you knew where things stood, and move on. Then the principal changed. The current principal embraces technology and really wants to see it in instruction.

Comprehensive Planning for Technology Instruction

Technology coordinators relayed data on the planning process in which some of the principals began their integration of technology. Approximately five years ago, Mr. Clint was hired as the principal of Cedar Falls. This principal came in and saw the need for technology use for instructional purposes in the classrooms. He began the integration of technology by providing technology tools and training for faculty and staff. Mrs. Corbin commented that Mr. Clint put the money from Title I funds into succeeding toward the integration of technology throughout the school. Technology coordinators viewed funding technology as a major role and responsibility of principals in planning comprehensively throughout their school. "They have to put their money (funds) where their mouth is," stated Mrs. Corbin. The other two school systems in the district do not have the same constraints. Even though the elementary school has made "great strides" in the integration of technology, they are behind and do not have as much technology as the other two schools.

There was a consensus with the technology coordinators responding to the topic of planning. The principals made decisions based on technology needs for their schools. Teachers would give the principals their needs for technology through needs assessment processes. Some

of the schools had teachers that represented the grade level. The principals would then prioritize the technology needs and budget necessary funding for the items. Mrs. Stillman reported sources of information on technology needs come from talking to principals, instructional coaches, and input from other aspects. The purchasing will go through the technology coordinator in order for all equipment or materials to make sure it has compatibility with the systems already in place in that district. The technology coordinator would inventory said equipment or materials before dispensing to the schools. This was to help in tracking equipment and materials that need to be up-dated at certain intervals in order to make sure the school system was current in technology use for instruction. Mrs. Stillman stated that the principals' and technology coordinators looked at their inventory and distinguish between what staff and faculty need and don't need in the use of technology for instructional purposes as well as administrative. However, principals are responsible for inventories and distinguishing "needs" versus "wants." It was explained that the technology coordinators did such inventories district wide and relied heavily on the principals for such information. Mrs. Corbin relayed information regarding the biggest influence in the planning of technology for instructional use, "primarily teachers and principals." She goes to the schools and set up meetings with principals and each grade level teacher to establish communication between the technology department and what is needed for teachers to succeed in having a 21st century classroom. Mrs. Corbin felt that when teachers closed the door to their classrooms the teachers were the main people that educated those students. In the meeting with the principal and teachers Mrs. Corbin listens to them and asks, "Tell me what is not working well. What technology tools that you do not have that you need? What if in your classroom –if I only had this?" It is not our only source but primary source remarked Mrs. Corbin. Mrs. Corbin then gave an example of one of her meetings with the grade level teachers. She stated that there

was one teacher in the meeting that seemed to feel she had a huge problem. The teacher commented on the fact that she could not move her laptop out of the corner due to the connection device to the Internet. Upon hearing this Mrs. Corbin offered to come by her room the next day to observe the problem. As Mrs. Corbin suspected the teacher needed only a fifty cent cord that would eliminate the frustration for this teacher. Mrs. Corbin analyzed the problem. She realized that something this simple can and will illuminate the use of technology. "So when I do my technology plan, whether it is the five year plan or SAC's plan, I can truthfully state I have spoken to all of the principals and teachers in the district," explained Mrs. Corbin. Mrs. Glasgow explained that in order for her to get input into the technology planning process that the principals and technology and media committees from the schools give her the information. The one person responsible for the information being accurate was the principals, agreed technology coordinators. Mrs. Glasgow went on to explain that selected teachers piloted some technology and programs that would perhaps enhance student learning, initiated by their principals.

Teachers Analysis of Principals Roles and Responsibilities

In the third sub-question that guided the study, the researcher sought data on teachers' views of the principals' roles and responsibilities in the integration of technology for instructional purposes. Teachers' data analysis revealed three themes that were believed to have been the principals' roles and responsibilities: (a) availability of technology resources for instruction, (b) support from the principal in the integration of technology, and (c) planning for the use of technology in the classroom for instructional purposes. Interviews consist of three teachers from Cedar Falls Elementary, three teachers from Goldberg Elementary, and two teachers from Sumter Elementary. Only one of the teachers was not a regular education teacher, but taught special education/gifted classes.

Availability of Technology Resources for Instruction

The availability of technology for teachers consists of positive comments about what technology tools in their classrooms that were used for instructional purposes provided by principals. Teachers felt that availability of technology was a role and responsibility of the principals. Without the technology in the classroom instruction would be outdated. This does not seem to be the case in the three schools studied. Mrs. Combs remarked, "Technology is very much available". Mrs. Collins stated that Mr. Clint was trying to provide every classroom with technology. "There was not a whole lot of technology when I first came to teach at Cedar Falls," stated Mrs. Collins. She went on to explain that within the last five years Mr. Clint has been implementing technology throughout the school. Mrs. Groover from Goldberg Elementary commented that anytime technology was needed it was there to use, thanks to the principal. Availability of technology for instructional use was answered by the majority of teachers explaining what technology they use every day or periodical. All of the classrooms in the schools had SMART boards, Elmo's, CPS devices, Projectors, Jet writers, and computers. Mrs. Gaskin remarked that the CPS was one of her favorite pieces of technology to use. Mrs. Combs replied that she felt "spoiled" with all the technology their principal made available for instructional use. Mrs. Collins stated that if the teacher wanted her whole class to do a project using laptops or computers they were available. The cart of laptops could be checked out and the computer lab could accommodate a class of students when signed up for by the teacher. Mr. Steinbeck made the statement that Sumter Elementary had a lot of technology compared to other school systems that where of Title I rural status. Overall teachers viewed their schools as technologically equipped to enhance learning through principals that were determined to bring their schools into the 21st century.

Support from the Principal in the Integration of Technology

The second theme from the teachers interviews consist of support from principals. Principals support teachers in various ways, according to the data provided. Teachers felt that without principal support technology would not be effectively integrated into instruction. When a principal showed support teachers felt acceptance and reassurance with their teaching strategies and continue to learn, grow, and create with the use of technology. Teachers felt that support in the way of technology for instruction was an important role and responsibility for principals to adopt and distribute among the faculty in order for them to except changes that occur in schools.

The support of principals throughout their schools was evident. Through the purchase of technology, teacher's views of the principals support of technology for instructional use reinforced principal's eagerness to enhance 21st century learning. At Goldberg Elementary the principal demonstrated that use of technology was of a high priority. Mrs. Groesbeck enthusiastically stated, "What is most inspiring about her (Mrs. Glisson) is that if you tell her something that you may need she will get it for you if you really need it and convince her that you really need it she will get it". She further explained that the teachers only receive one cartilage for printers per year. Mrs. Groesbeck commented that the ink cartilages cost "about $100.00 a pop". Some of the teachers had run out of ink. So Mrs. Groesbeck emailed Mrs. Glasgow that she desperately needed another ink cartilage. Mrs. Groesbeck asks Mrs. Glisson, "Could she purchase or find the money to buy more cartilages and she did. She is just that type of principal." Mrs. Skylark and Mr. Steinbeck agree that if there is something needed Mr. Smith will try his best to purchase. Mrs. Combs remarked that a special education student that had autistism demonstrated difficulty with writing. Mr. Clint saw the need for this student to have his own laptop and made sure the student received what was needed for him to be able to function in

the classroom. The student's fine-motor skills were underdeveloped. In class the student would try to write the assignment and showed a poor penmanship. If the student felt it was unsatisfactory he would erase and continue to erase until he destroyed the paper he was writing on. Mrs. Combs stated, "With a laptop provided he could just type his written assignment and was able to move on in the lesson." The support from the principals continues in other ways as each teacher discussed professional development as meaningful to the process of integration.

At Cedar Falls Elementary school the professional development provided by the principal included training in SMART boards, software materials to incorporate in lessons based on standards to be taught, and websites that are educational and enhance upon student learning. Mrs. Combs made the remark, "Mr. Clint has been great about giving us professional development courses in technology." Mrs. Combs remarked that Mr. Clint was constantly watching the use of technology and reassuring teachers "to not be afraid" and will provide necessary professional learning courses. Teachers receive professional development through RESA, Academic Coaches, and teachers that redeliver information learned from going to professional development courses provided by their principals. Two years ago Mr. Clint noticed that the CPS's were not being used commented Mrs. Combs and Mrs. Cole. He inquired why the technology was not being used and found out that most of the teachers did not understand the full potential of the CPS. Mr. Clint arranged for a substitute teacher to come in half a day to take teachers classes and brought in a RESA consultant to do professional training. The RESA consultant demonstrated how to use the CPS for assessments and how to retrieve data on student progress. Mrs. Combs and Mrs. Cole also mentioned that Mr. Clint sent two teachers to a professional training on Notebook technology so that they could come back and deliver to the rest of the faculty. Mrs. Collins elaborated further by stating that professional development courses were targeted to problems

with technology that teachers may experience and hinder them for use of technology for instruction. Mr. Smith from Sumter Elementary offered professional development for iPads according to Mrs. Skylark. The principals also demonstrate support for technology by modeling the use of technology through various ways. Mrs. Collins, Mrs. Combs, and Mrs. Cole mentioned that Mr. Clint will use technology during faculty meetings. He uses projectors and Power Point presentations to demonstrate data or key points to remember. Mr. Clint has also demonstrated the use of CPS devises. Mrs. Cole talked about the time a teacher had to step out of the classroom for an emergency. Mr. Clint went in her classroom and took her place. The lesson involved using the SMART board. He was able to continue the lesson as that particular teacher would have using the SMART board. Mrs. Gaskin discussed Mrs. Glisson's encouragement, "She encourages us by asking what we need that they can get for us." "That is the best kind of motivation because if we know we have to have it, it is available," commented Mr. Steinbeck.

Planning for the Use of Technology in the Classroom for Instructional Purposes

The third category that was prevalent from sub-question three was that principals were responsible for the planning for the technology throughout the curriculum. A Cedar Falls Elementary, Mr. Clint scheduled teachers time to plan collaboratively with their grades levels once a week and plan content areas once a week. Teachers felt that this was a key element in the principals' role and responsibility toward technology for instructional use. Mrs. Combs recalled the teachers in her grade level incorporate technology in every aspect of the curriculum using the collaboration time. She went on to state that at the third grade level many of the lessons contain so many numbers or words that was not enticing and looked boring. So what they would do was to reconstruct more lessons using Power Points. If Mr. Clint had not scheduled time to create and plan for technology teachers would not have the time to learn and use technology to enhance

student learning. The CPS was used weekly according to Mrs. Combs. The use of the CPS would

inform teachers of the need to remediate or to enrich the activity of concepts taught. Mrs. Collins

mentioned that a lot of lessons planned where with SMART boards. She stated that the SMART

boards were not just "overhead projectors" but where used to have student interact with concepts

being learned. This was all due to the fact that there was time actually given to the teachers to

strengthen and enhance in their creativity and knowledge by principals. "Our principal wants to

see the students engaged actively with technology in order to enhance learning," stated Mrs.

Collins. Another way principals helped teachers to plan for technology integration was to acquire

software so that teachers could literally share lessons by placing created lessons on the server

called the "dropbox" or "L" drive. Teachers are able to access the information from school or at

home. Mrs. Cole discusses planning and sharing with other teachers by submitting it to the

"drop box" or "L" drives. Other teachers from the system could go into the files and pull up

lessons from various teachers. The shared lesson plans could be used by appropriate grade levels

or scaled in appropriate levels of instruction in order for another grade to use. Mrs. Cole also

mentioned that her principal came up with an idea for teachers to plan for the math lesson and

someone else plan for the reading lesson to cut down on planning time. This way instead of

planning for both academic areas the person plans for one and then shares. Mrs. Gaskin from

Goldberg Elementary remarked that as far as planning the principal allowed teachers to plan

whatever was needed in their classrooms. They could create a Power Point or enter MODO. She

learned to make a Power Point and save them as jpegs then uploaded into a MODO to make

digital stories and presentations. This was also a way students can help with the planning process

in their own lessons. Sometimes students would create a digital story or do a presentation on

concepts learned. Mrs. Groover and Mrs. Groesbeck stated that the principal and teachers were

the people who wrote the Student Improvement Plan for Goldberg Elementary. The technology was incorporated into the language arts, math, science, and social studies areas. Mrs. Groover also mentioned that principals were interested in their ideals, needs, and wants by teachers filling out a needs assessment to help in the process of technology planning for the school and system wide. Mrs. Groesbeck believed that the principal included teachers actively in the technology planning process for the school. She stated that, "as a matter of fact at the grade and content level meetings it was encouraged by the principal that everyone bring artifacts of something they have created using technology from a lesson taught or a lesson going to be taught". This helped other teachers to expand upon their knowledge through each other. Mrs. Skylark responded to technology planning in the classroom as a committee called the Sumter Instructional Committee (SIT) that is represented by principal, grade level teachers, and departments. This committee would write the plan based on a needs assessment submitted by principals, all teachers from the various grade levels and departments. Also Mrs. Skylark mentioned that the principal used data on student scores to also provide further information in the planning of technology throughout the curriculum. Mr. Steinbeck agreed with Mrs. Skylark on the planning for technology at Sumter Elementary. He did state that although the "teachers are more involved than they ever have been" in the planning process, students had little or no input into the technology planning.

Analysis of Obstacles Identified

The last sub-question inquired about obstacles elementary school teachers, technology coordinators, and principals identified in the use of technology for instructional purposes in the classroom. To answer this sub-question efficiently the researcher analyzed data by categorized the data in the following sections: (a) teachers, (b) technology coordinators, and (c) principals.

Findings were made of analysis from all three levels: data from all principals; data from all technology; and, data from all teachers.

Teachers.

Teachers felt that the biggest obstacles to technology integration were these: (1) lack of training, (2) outdated equipment, (3) large classroom size, (4) need for more challenging software, and (5) service limitations in technology maintenance. Teachers in the study began the discussion with past events that occurred before technology was integrated into their schools. However, these obstacles were in the past and have since been corrected by the technology oriented principals.

Mrs. Combs began by stating that the biggest obstacle encountered was about six years ago when technology first began to be put in the classrooms. She received a SMART board. There was no training, so trying to learn how to use the SMART board with 22 students waiting was difficult. Therefore, she ended up using it like a "glorified overhead". "The biggest obstacle was trying to figure out how to use the technology to explore potential instead of just passing it out and making a Power Point which was what I use to do in school," remarked Mrs. Combs. Mrs. Collins also remembered when Cedar Falls Elementary began to receive the technology in the classrooms. Her previous school was a technology rich environment. Upon entering this teaching position at Cedar Falls she discovered that this learning environment lacked the necessary technology for instruction in a 21st century classroom. "To me this was new. I had to learn how to use the outdated equipment. It was hard to adjust coming for a place that used a lot of technology to one that had very little technology." Mrs. Combs stated that another obstacle was the amount of standards to be taught to students throughout the year with the allotted time of school hours. "We are teaching standards that are out of date. For example, we still teach

students about the encyclopedia and how to use it. Why?" She remarked that we teach standards

no longer relevant and that we need to teach 21st century standards like technology skills.

Mrs. Collins commented that the uses of the computers in the labs were used strictly for

remediation purposes. There were not enough of a variety for remediation materials and

materials were outdated. She continued to say that the students are bored with what was used for

remediation. The labs had games and application materials that have been used over and over.

The students were bored. Teachers also wanted materials that would challenge the students.

Teachers want students thinking at a higher level not just coming in sitting down and playing

games. Mrs. Cole elaborated even further by stating that some sites that are indeed educational

are actually "blocked" and cannot be utilized. Mrs. Cole further stated that she would plan

lessons at home and get to school and it will not work because of the limitations of websites.

At Goldberg Elementary Mrs. Gaskin and Mrs. Groover stated that there were always

issues with technology. "There are the batteries that die." With the laptops there were only seven

so small groups had to be utilized. Then there were laptops messing up. In the computer lab

those computers messed up or the printer didn't work. Mrs. Gaskin further explained that there

was a person hired to do technology repairs but that he had seven schools to service. This meant

that the person repairing technology equipment could only come once a week to repair major

issues with technology. "The minor things just kind of get pushed to the side," continued Mrs.

Gaskin. Teachers had to wait for needed help for someone from technology to come fix the

equipment and technology maintenance personnel came only once a week. Mrs. Groesbeck

mentioned the fact that she would like to learn how to "trouble shoot" and learn the skills in

order to be able to fix the technology equipment herself and to help the students learn the more

complicated skills in working with technology. Mrs. Skylark concluded that the major obstacle

for her classroom was also maintenance for technology. Sumter Elementary also shares the technology repair person with another school. However, the time it took to have repairs completed was in two to three days.

Mr. Steinbeck from Sumter Elementary stated that the biggest obstacle was the bandwidth. He felt that principals should be mindful of the amount of megabits allotted for their schools. His biggest complaint was that the school only had 63 megabits and with the usage of Internet users the whole infrastructure ran extremely slow at times. It was further explained that the three schools in the county all shared the same server. "We need to have our own server for each school instead of sharing one with mobile schools. Our share drive is with 63 megabits of share drive there is very little free space." This type of problem interferes with teacher productivity. The principal should have required more megabits for more efficient technology use. When teachers are planning lessons or using technology equipment and programs the effect of a slow Internet connection greatly makes an impact on the lesson or planning Mr. Steinbeck remarked. Mr. Steinbeck committed that there was a "disconnect" in communication between the schools and the technology coordinators. He explained their needs to be technology people provided to help with not only repairs and maintenance of technology equipment, but also in demonstrating curriculum instruction through the use of technology. Mr. Steinbeck explained that the technology in the school was coming alone but he really felt instead of technology coordinators that there needed to be more of a connect of having staff saying this is the lessons we need to provide, these are the lessons we need to share.

Technology Coordinators.

Mrs. Corbin began her discussion with an obstacle from the past experience with one of her principals. These past experiences lead her to appreciate principals' that do view technology

for instruction as a major role and responsibility. In the past at Cedar Falls Elementary, Mrs. Corbin began her career as technology coordinator with the obstacle of having an administrator who did not encourage technology use within the school. She explained that this issue lasted up to five or six years ago. The principal had a curriculum program called *America's Choice* that was paper and pencil produced and results were satisfactory as far as student achievement on test scores. Mrs. Corbin further explained that the principal did not see the value of technology for instructional purposes. With the success of *America's Choice* there was no reason to implement technology. So the Title I money was not used for that because in her mind she was having success with what she had and did not see the reason for the technology. Mrs. Corbin continued, "It was kind of one of those situations where you knew where things stood and moved on."

Her past experience with this particular principal taught her how to be a more effective technology coordinator and willingness to participate in the next principals' integration of technology within his school. Mrs. Corbin describes the progress of Cedar Falls Elementary by discussing the role of the principal and their support of and in technology that really makes a huge difference. She stated that Mr. Clint used his Title I funds to accomplish a beginning to the integration of technology throughout the elementary school. "The elementary school is making great, great strides and catching up. But still out of the three schools they have the least amount."

The technology coordinators in this study agreed that there should be more employees to cover maintenance and that the time consuming issues hindering technology departments were instructional coaching for technology, data processing personnel, and funding. Mrs. Corbin stated that these positions are not funded by the state. Therefore, most Title I schools are not equipped locally to handle the economic burden required for a more efficient technology department. "In some school systems there are not positions available that are not state or

federally funded claimed Mrs. Gaskin. Mrs. Gaskin remarked that there was not enough

"funding" and lack of "school level technology support". Mrs. Stillman committed, "The

inability of getting out there to work on, plan, getting other people trained in technology, I think

it would change a lot with the new help (employees) in the technology department."

>**Principals.**

>The main obstacle encountered by the principals was not enough "funding." At Cedar

Falls Elementary and Sumter Elementary the training for technology instruction was provided by

RESA or other teachers within the school. This cut down on having to fund professional training

personnel. Mrs. Glisson did continue on to explain that the principals had to plan efficiently for

the effectiveness of technology. "There are just things you have to consider and plan for in order

to have effective use of technology, so the main obstacle I see is the cost of maintaining and

making sure you would have plenty of blubs for your SMART board, same for the printer

cartilage. This all tied in to technology and you have to make sure you have the funds to

allocate," said Mrs. Glisson. Mr. Smith stated that another obstacle might be reluctance of some

teachers to use technology. "Even though we have the training provided and one of my teachers

is familiar with all of it and could help there still seems to be some hesitance," commented Mr.

Smith. When confronting this issue the procedure Mr. Smith took was to make sure that the

teacher or teachers have had the necessary professional development. Next, Mr. Smith would

have these teachers to go into various technologies based instructional classrooms to observe

other peers. Lastly Mr. Smith would have had a meeting with the teachers to encourage each to

set up a time to be observed using what technology instructional skills they have learned.

Chapter Summary

Participants for this study consist of three principals, three technology coordinators, and eight teachers from the elementary level in Title I rural schools. A data analysis was performed on the principals illustrating three categories that principals felt was their roles and responsibilities: (a) technology training opportunities for faculty and staff, (b) prevalence of technology use for instructional purposes, and (c) comprehensive school planning for integration of technology. Three themes emerged from interviews with technology coordinators with regard to principals' roles and responsibilities: (a) availability of technology resources for faculty, (b) principals' support in technology integration for teachers, and (c) comprehensive planning for technology instruction. There were also three themes that emerged in the teachers interviews who believed it was the principals' roles and responsibilities: (a) availability of technology resources for instruction, (b) support from the principal in the integration of technology, and (c) planning for the use of technology in the classroom for instructional purposes. Comprehensive school planning emerged in all three groups of respondents as an important role and responsibility. Support from the principals emerged from the technology coordinators and teachers as an important role and responsibility for principals.

Obstacles that seemed to be main issues in the integration of technology were maintenance limitations of the technology, outdated software programs, blocked educational websites, and trying to plan for new equipment and resources versus replacing outdated equipment and resources. There are not a whole lot of obstacles as far as implementing technology throughout the school environment. "Only good planning needs to occur," stated Mrs. Glisson. However, each principal did remark that there have been budget cuts; funds for

technology were taken from such programs as Title I and Title II-D, Educational Special Local Option Sales Tax (E-SPLOST), e-rate for schools of poverty, and various grants applied for.

A data analysis within each elementary school comparing principal, technology coordinator, and teacher's data was performed. The last data analysis was performed throughout the schools comparing principals with other principals, technology coordinators with other technology coordinators, and teachers with teachers' views on principals' roles and responsibilities in the integration of technology for instruction. A common theme for all participants included planning at the classroom level, school building level, and district wide level. This type of planning built upon the other to create comprehensive planning for instruction within and throughout the schools. Technology coordinators and teachers themes demonstrated that their views on the principals' roles and responsibilities for technology integration were consistent with one another. All categories were linked to the foundation of International Society for Technology in Education (ISTE) for principals' roles and responsibilities in the integration of technology for instructional use in the classroom.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Summary

Technology changed the way people communicate in the 21st century. Due to the prevalence of technology, schools have focused attention on the integration of technology for instruction in the classroom (Warschauer, 2010). The National Commission for Educational Excellence identified *computer proficiency* as a new group of basic skills necessary to be successful in the workplace (U. S. Department of Education, 2002). Nolan (2009) discovered, through an analysis of the content of 758 educational psychology studies published in leading journals, that technology instruction, in terms of frequency, trailed other areas such as academic achievement, learning and memory, motivation, and cognition.

Nationally and internationally educators were agreeing on what students need to know (Warschauer, 2010). Teachers use technology to bring modern resources to the classroom in order to motivate students and teach to learners' individual learning styles (Gahala, 2009). Sergiovanni (2009) maintained that technology leadership was necessary in all schools because educational policy makers and administrators are focusing efforts on increasing the use of technology in the classroom. As a result, technology leadership in many schools has fallen to the principal (Sergiovanni, 2009). The principal is the key catalyst in implementation of technology devices used for instruction in school environments (National Center for Education Statistics, 2010). Principals are entrusted with the integration of software, hardware, and peripherals (Grabe & Grabe, 2008).

The purpose of this study was to describe the elementary school principal's roles and responsibilities for the use of technology for instructional purposes in Title I/rural schools. The

schools in the study held Title I rural status in Southeastern Georgia and were led by principals considered to be effective technology leaders. The study examined the roles and responsibilities of principals in bringing about effective integration of technology for instruction.

Data were gathered using a qualitative study. In this qualitative study a multi-case study design and purposeful intensified sampling were combined using a standard, open-ended interview format (Gall et al., 2007). Three principals, three technology coordinators, and eight teachers completed an interviewed session using questions created from a literature review and input from Georgia Southern University professors. The findings were triangulated to authenticate the data. Principals approved individual teachers to participate in the study. It was important that each participating principal had two or three teachers took part as well, so that data within these groups (principals, technology coordinators, and teachers) and sets (principals, technology coordinators, and teachers from the same school) could be compared and triangulated.

The overarching question for this study asked: What are the roles and responsibilities of elementary school principals in how technology is used for instructional purposes in Title I rural schools? The following sub-questions guided the study:

1. How do elementary school principals describe their roles and responsibilities for instructional use of technology in their schools?

2. How do technology coordinators view the roles and responsibilities of elementary school principals in the use of instructional technology?

3. How do teachers view the roles and responsibilities of elementary school principals in the use of instructional technology?

4. What obstacles do elementary school teachers, technology coordinators, and principals identify in the use of technology for instructional purposes in the classroom?

Analysis of Research Findings

Analysis of the principals' interviews revealed that they relied on three themes to effectively integrate technology for instruction in the classroom principals' felt were their roles and responsibilities: (a) technology training opportunities for faculty and staff, (b) prevalence of technology use for instructional purposes, and (c) comprehensive school planning for integration of technology. Analysis of data from the technology coordinators revealed three themes regard to principals' roles and responsibilities: (a) availability of technology resources for faculty, (b) principals' support in technology integration for teachers, and (c) comprehensive planning for technology instruction. Technology coordinators encouraged principals to use Title I funds to purchase technology resources and update older outdated technology devices and resources. This in itself demonstrates technological support from principals. Planning for technology from the technology coordinators' point of view was identifying purchases needed to create a 21st century learning environment.

The teacher's view of principals' roles and responsibilities showed three themes with regard to principals' roles and responsibilities: (a) availability of technology resources for instruction, (b) support from the principal in the integration of technology, and (c) planning for the use of technology in the classroom for instructional purposes. Teachers' views of a principal's roles and responsibilities for integration of technology depended on the technology available to enhance learning, principals demonstrating that they want to have teacher input for

technology resources needed to enhance learning, and planning with the principals on what is actually needed to ensure integration of technology throughout the curriculum.

The obstacles encountered were concerns all of the schools indicated would interfere with technology use for instructional purposes in the classrooms. A main concern for principals is how to allocate funds in order to provide the best use of monies for technology materials and resources. Trying to plan for new equipment and resources versus replacing outdated equipment and resources was an issue. This dilemma exists in many schools. Priorities assigned to the principals' budgets usually consist of new equipment, replacing older equipment, and leaving some funding in the budget for miscellaneous use. This limits technology acquisition and maintenance that could help schools purchase and maintain the resources needed to create an instructional environment for student learning. Technology coordinators sometimes encountered a principal who did not see the need to encourage technology integration. Lack of technology integration means students will not be ready for future success in the workforce. Although schools focus on acquiring and updating their technology resources, technology coordinators observed that the funding does not include technology maintenance personnel. As a result, funds for maintenance would need to come from local funding. Repair of technology equipment was a major obstacle encountered by teachers as well. Technology maintenance personnel were extremely limited in the three schools that participated in this study. For technology to be effective, it must work. Technology that isn't working often leads to altered classroom instruction that may not be effective for the students learning process. Teachers experienced difficulties when technology was placed in the classroom without any type of technology or professional training. Learning to operate technology while trying to teach was difficult and resulted in poor use of technology. For example, without training, SMART boards were used as

a glorified overhead projector. Further, some technology used for remediation, enrichment, and reinforcement skills are out of date. Schools have difficulty keeping up with the latest technology. Funding is an essential factor in being able to keep technology resources current. Schools often block websites to ensure Internet safety. Even though this is a safety issue, some teachers find this inconvenient. The lesson planned at home may not be useable at school because the school blocks website access to a particular site.

Analysis of the data identified themes from participants that overlapped, authenticating elementary principals' roles and responsibilities for effective integration of technology in instruction. Principals, technology coordinators, and teachers agreed that planning for technology was essential. Technology coordinators and teachers had similar concerns, such as availability of technology resources, principal support, and planning at various levels. Principals' viewpoints differed from those of technology coordinators and teachers in terms of providing opportunities for professional development, prevalence of technology use, and comprehensive school and district planning for the integration of technology. The differences emerged from the study demonstrating principals are responsible for planning at the school building and district level while technology coordinators plan at the district level, and teachers plan for the classroom level. Technology coordinators and teachers were similar in their views of the roles and responsibilities of the principal including principal support. Technology coordinators expect principals to support the integration of technology by providing necessary technological resources to create the 21st century classroom. Teachers need the same support identified by technology coordinators, but also need verbal and emotional support as well as encouragement from their principals to validate their contribution toward integration of technology for their students.

Discussion of Research Findings

Technology is an essential tool for the way in which we live, communicate, and work in general. Due to the changes brought about by the proliferation of technology, schools have turned their attention to students' technological readiness for effective participation in the 21st century (Casner-Lotto & Barrington, 2010). In many schools, principals have become technology instructional leaders (Warschauer, 2010). Teachers use technology to bring a wide range of resources to the classroom, to motivate learners, to provide new teaching tools for instruction, and to accommodate individual learning styles (Gahala. 2009). Principals technology coordinators, and teachers nationally and internationally, are coming together around a common meaning of what students need to know (Warschauer, 2010).

Through extensive research on principals' roles and responsibilities for technology integration for instructional use in classrooms, the International Society for Technology in Education (2009) (ISTE) standards, currently adopted by 46 states in the United States, came from five standards that demonstrate effective principals' integration of technology. To assess the findings of this study, the ISTE standards (2009) were compared.

The first ISTE (2009) standard compared was the vision or ultimate goal for technology integration that principals demonstrate in planning. Principals, technology coordinators, and teachers who participated in this study agreed that planning was essential for successful technology integration. Now that technology is so prevalent in schools, it is critical that principals take an active role to ensure the best use of technological devices by implementing and planning for a 21st century learning environment (Cherian & Daniel, 2008). A clear set of goals are established. Principals planned budgets, identify resource materials, technological devices, and maintenance needed, and identify instructional uses for the technology.

Participants in all three schools perceived that planning was a major step in the integration of technology. Technology coordinators make sure the technology devices needed or purchased accommodate the infrastructure of the district's technology base. They help plan and fulfill principals' requests for professional development training for faculty. The principals initiate the integration of technology for instructional purposes. The technology coordinators are more of a support system for the principals and help them integrate technology for instructional use. Principals encourage and support teachers in the planning of instruction using technological devices that will enhance student learning. Principals expect teachers to create lessons that incorporate technological devices. Principals plan school and district wide, technology coordinators plan district-wide, and teachers plan for the classroom environment. Each level of planning was necessary for the integration of technologies comprehensive plan for instructional purposes. Although principals, teachers, and technology coordinators in all three schools shared responsibility for implementation of technology for instructional use, the principal was the primary influential person in the effective integration of technology throughout the school.

The second ISTE standard reviewed included curriculum design, instructional strategies, and learning environments for integration of the appropriate technologies for the best learning and teaching environment possible (ISTE, 2009). Sivin-Kachala and Bialo (2009) observed positive and consistent patterns when students were engaged in technology rich environments, including significant gains and achievement in all subject areas, increased achievement in preschool to high school for both regular and special needs students, improved attitudes toward learning, and increased self-esteem.

In this study principals' roles and responsibilities created and sustained an environment that supports integration of educational technology use into instructional teaching and learning

within the three Title I rural schools studied. Principals' decisions on technology purchases were of great importance. The principals studied spent a large amount of their Title I funds on technology. The classrooms were equipped with Self-Monitoring, Analysis and Reporting Technology (SMART boards), iPads, computers, Roy and Edna Disney Cal Arts Theater (REDCATs), and other such resources. Mr. Smith stated that if technology was not being used in the classrooms for instructional purposes, then we are behind in the educational development of our students.

Another role and responsibility for principals was support for the integration of technology for instructional purposes. In turn, the technology coordinators support the principals to ensure technology devices and materials installed in the schools are compatible with the infrastructure of the school district. This further supports principals by ensuring technology devices are up and running. However, principals must be the key person to make sure technology coordinators follow through with what was requested for the integration of technology to be effective in their schools. All of the teachers in this study used technology for instructional purposes to improve and increase student learning in their classrooms. They reported that technological devices and materials were a must in daily teaching and learning processes. Support from the principal was one of the roles and responsibilities teachers stated was important. Without this type of support there would be no 21st century classroom that utilizes technology to enhance learning.

Professional development curriculums should be developed with a long-term goal in mind (Kervin, 2010). The principals in this study included professional training for teachers in the budget. Principals made sure their teachers were trained not only on how to use the technology devices, but also on how to incorporate technology resources and materials to

enhance instruction in the classroom. Not only did these principals provide training for teachers, they modeled the use of technological devices, and supported and expected teachers and staff to integrate technology throughout the curriculum. This demonstrates the third ISTE standard for principals.

It is essential for principals to consider how teachers and students use technology in the classroom (Britten, Clausen, & Lecklider, 2009). Teachers' use of technological devices to enhance instruction was apparent in all three of the Title I rural schools studied. The participating principals demonstrated their enthusiasm for technology by modeling the use of technology, purchasing technology resources with collaborative input from teachers and technology coordinators, and evaluating instructional use to enhance the learning process in the classroom. Principals' evaluations were critical for planning training, purchases, or replacing/updating technology devices, and maximizing the appropriate use of technology.

Teachers in the schools readily used technology to enhance student instruction. Classroom Project System (CPS) was an important tool for teachers to collect necessary data on knowledge students' learned on concepts taught. The data provided information on students for teachers to remediate, reteach, or enrich the lesson. This illustrates the fourth standard for effective integration of technology. All students feel comfortable enough to participate in this evaluation system because of the anonymous way in which their answers to questions were reported. Only the teacher knew which students answered correctly or incorrectly. This data provided the teachers with knowledge of who learned the objective that was taught.

The fifth standard addresses social, legal, and ethical issues linked to technology, and in this study these areas were dealt with mainly at the building and district level in all three schools. The technology coordinators interviewed remarked that they acquired safeguards for the

protection of students and staff from certain websites that are inappropriate for the school environment. The principals had parents or guardians sign an agreement protecting the school from legal actions. Students were required to have a form signed by a parent or guardian in order to use the Internet. Although the teachers never mentioned social, legal, or ethical issues, most teachers monitor students during learning time and would be aware of inappropriate material that might appear on a computer or other technological device.

Table 2

Comparisons of the ISTE Standards, Findings, and Analysis of Principals, Technology Coordinators, and Teachers.

ISTE Standard	Findings of Principals' Roles and Responsibilities (PRR)	Principals Analysis PRR	Technology Coordinators Analysis PRR	Teachers Analysis PRR
I. Leadership and Vision	Principals planned budgets, identify resource materials, technological devices, and maintenance needed, and identify instructional uses for the technology.	comprehensive school planning for integration of technology	comprehensive planning for technology instruction	planning for the use of technology in the classroom for instructional purposes
II. Learning and Teaching	The classrooms were equipped with Self-Monitoring, Analysis and Reporting Technology (SMART boards), iPads, computers, Roy and Edna Disney Cal Arts Theater (REDCATs), and other such resources.	prevalence of technology use for instructional purposes	availability of technology resources for faculty	availability of technology resources for faculty
III. Productivity and Professional Practice	Principals made sure their teachers were trained not only on how to use the technology devices, but also on how to incorporate technology resources and materials to enhance instruction in the classroom.	technology training opportunities for faculty and staff	principals' support in technology integration for teachers	support from the principal in the integration of technology
IV. Assessment and Evaluation	The principals demonstrated their enthusiasm for technology by modeling the use of technology, purchasing technology resources with collaborative input from teachers and technology coordinators, and evaluating instructional use to enhance the learning process in the classroom.	comprehensive school planning for integration of technology	comprehensive planning for technology instruction	planning for the use of technology in the classroom for instructional purposes
V. Social, Legal, and Ethical Issues	The principals had parents or guardians sign an agreement protecting the school from legal actions. Students were required to have a form signed by a parent or guardian in order to use the Internet.	prevalence of technology use for instructional purposes		

Conclusions

Data collected from principals', technology coordinators, and teachers interviews revealed that each relied on three themes they incorporated as their principals roles and responsibilities toward the integration of technology for instructional use. The analysis of the data demonstrates that all three sets of participants felt that comprehensive planning was an essential role and responsibility of the principal in integrating technology. Technology coordinators and teachers felt that support of the principal and availability of technological resources was also important to the integration of technology. The technology coordinators and teachers were in complete agreement on what they considered roles and responsibilities principals would need to exhibit in order to integrate technology successfully in their schools. There was one major difference that emerged in the analysis of the principals, technology coordinators, and teachers. The principals considered professional training as one of the roles and responsibilities that they would need to incorporate to be successful in their integration of technology.

Analysis of the data identified themes from participants that overlapped, confirming the importance of elementary school principals' roles and responsibilities for effective technology use in instruction. Planning for technology was the primary area identified as contributing to the efficiency of technology integration in the three schools. Principals, technology coordinators, and teachers experienced different levels of planning for technology integration throughout their instruction. Technology coordinators planned mostly at the district level, while principals planned at the building and district level, and teachers planned at the classroom level. Each level of planning was intertwined with and connected to the other planning levels, ensuring that the schools achieved the most effective integration of technology. However, all participants agreed

that planning for effective use of technology was, ultimately, the role and responsibility of the school principals.

This study found that Title I rural school principals' roles and responsibilities in the effective integration of technology reflect the ISTE standards (2010) established for administrators. Each principal had a vision and an ultimate goal for his or her school. Principals demonstrated effective leadership in the integration of technology through planning for technology purchases, professional training for teachers, supporting instructional technology throughout the curriculum, and demonstrating to teachers' expectations for technology resources to be utilized to enhance learning.

Principals were encouraged by the teachers' use of the technological resources provided. The technology was not just taking up space in the classroom. Teachers' responses to their principals' positive attitude toward integration of technology was contagious. Technology coordinators were encouraged by their principals' effective leadership in implementing and maintaining an ongoing process for technology integration. Professional training was provided for teachers not only so they would be able to use technological devices, but also to enhance the use of technology in everyday instruction. This helped eliminate the use of technology merely for skill and drill practices. Teachers readily attended professional training and felt that principals would provide any training necessary to keep instruction current.

Funding for technology was a concern for principals. However, maximizing use of Title I funds allowed for continuous growth in integration of technology in the three Title I rural schools. Funds were budgeted according to a principal's prioritized list. Principals received input from teachers and technology coordinators. Teachers' use of technology was observed by

their principals, and teachers requested necessary technological resources through

demonstrations with lesson plans and planning instruction throughout the curricula.

Implications

Principals truly are the catalyst for effective technology implementation in instruction.

The tone set by the principals effects the entire school environment. Therefore, principals who

effectively implement technology demonstrate vision, standards, and goals, thereby creating 21st

century classrooms that enhance learning for students. This study can serve educators, especially

administrators, by highlighting principals' roles and responsibilities in the effectiveness of

technology integration for instruction.

The roles and responsibilities principals adhere to are numerous. Principals now find that

it is not enough just to take care of the management duties of their schools; they are also

responsible for satisfying the instructional needs of students. To enhance instruction requires

detailed planning, support, and budgeting. Teachers depend on their principal's leadership in the

integration of technology. Effective principals search for proven strategies in order to

successfully fulfill the roles and responsibilities that encompass their duties.

Principals do have resources with in which to help in the endeavor provided by various

organizations. The International Society for Technology in Education (2009) presents a set of

standards. The principals in this study demonstrated that these standards do work. When

principals began to integrate technology, technology was placed in the classrooms for teachers to

learn how to operate and to incorporate the technology devices in the learning environment.

Technology was in the classroom, but was not used effectively. When it was used, it was mostly

for drill and practice, remediation, overheads, and other basic uses. Then principals began to

acknowledge research findings on academic achievement benefits. This encouraged principals to

embraced integration of technology as a serious component of instructional learning. Knowledge learned about the effective roles and responsibilities of principals in the quest to enhance learning with the use of technology should improve with continued understanding of what is needed for productive integration of technology instruction in the classroom.

Educating oneself is an ongoing process. To be an effective leader or principal, one should constantly look for ways in which to increase one's knowledge of productive changes that lead to enhancement of the learning environment for all students. Educational leadership for principals includes involvement in professional training courses to guide, build a network, and share ideas with peers. The findings and conclusions of this study will serve to educate principals about quality planning, professional learning for faculty, and the need to be an effective instructional leader

Recommendations

Principals' roles and responsibilities are constantly changing. Effective leadership for principals in the integration of technology is surely a priority for the education of students now and in the future. Therefore, the need for principals as leaders to further their knowledge and understand effective ways to integrate technology in the classroom must take on urgency in order to ensure the most effective use of technology to enhance the learning environment. Recommendations for further research on the role and responsibilities of elementary school principals are as follows:

1. Other populations in different demographic areas of Georgia, including middle and high schools, may expand upon this study.

2. Demographic areas around the country duplicating this study may report similar or different results.

3. A quantitative study soliciting the input of additional staff members could bring insight into principals' roles and responsibilities concerning technology.

Dissemination

Dissemination of this study will be published on the World Wide Web. There will also be a hardbound copy placed in the Zach S. Henderson library and in the Department of Leadership, Technology, and Human Development on the Georgia Southern University campus. The researcher has also provided participants and Regional Education Service Agencies (RESA) an electronic copy of a summary of findings from the research study.

Concluding Thoughts

Research stating that most Title I rural schools use of technology for instruction was basically for drill and practice and remediation tends to be untrue. The Title I rural schools studied in this research seem to illustrate the findings of other research that demonstrates that technology was used to enhance learning through higher level thinking skills. Students used technology for projects, evaluation, creativity, and communication skills. Although budgets were cut due to the economy, technological devices, resources, and updating resources for technology continues. Schools with more funding for resources may have accumulated technological devices and materials that schools with less funding were not able to purchase. However, this study demonstrates that schools with less funding seem to have planned effectively to increase technology and resources needed to enhance instruction throughout their curriculums.

Teachers have received technological training. However, training for technology will need to stay current as far as progression with changes that will occur as technology keeps evolving. Principals in this study provided opportunities for technology training for teachers. These principals have moved beyond training that consists of technology operations into

technology use in instruction. As principals became more adept at guiding technology integration, more efficient and effective technology use has become prevalent in schools. Principals increased knowledge in technology for instruction led to more support from the teachers infusing technology into their everyday teaching and learning.

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APPENDIX A

INTERVIEW QUESTION MATRIX

APPENDIX A
INTERVIEW QUESTION MATRIX

Principal's Interview Question	Research Question	Literature
1. Describe any training you have had in the use of technology?	R. Q. : 1	Duhaney, D. (2009).
2. What technology do you use regularly, either personally or professionally that most benefits you on a regular basis?	R. Q.: 1. 4	Duhaney, D. (2009).
3. What differences does the use or lack of use of technology make in the classroom?	R. Q.: 1. 4	Sektzer, M. (2011).
4. What obstacles exist that prevent implementation of instructional technology?	R. Q.: 4	Finn, R. W. (2008).
5. What can a principal do to influence the use of technology for instructional purposes in the classroom?	R. Q.: 1. 4	Sergoivanni, T. J. (2008).
6. How do your teachers use technology in the classroom?	R. Q.: 1. 4	Warschauer, M. (2010).
7. What training is provided to your teachers in the use of technology for instructional purposes in the classroom?	R. Q.: 1	Duhaney, D. (2009).
8. What is your role in fostering the use of instructional technology in the classroom?	R. Q.: 1, 4	Green, R. J. (2009).
9. How does your school district (system) decide what technology is needed for the classroom?	R. Q.: 1, 4	Nolen, A. J. (2009).
10. At what level are teachers and students involved with the planning of technology for the classroom?	R. Q.: 1, 4	Cherian, F. & Daniel, Y. (2008). Finn, R. W. (2008). Groff, J., & Mouza, C. (2008).
11. What are your future goals to ensure successful implementation and use of instructional technology in the classroom?	R. Q.: 1, 4	Sergoivanni, T. J. (2008).

APPENDIX A
INTERVIEW QUESTION MATRIX

Technology Coordinator's Interview Question	Research Question	Literature
1. What training is provided to your teachers in the use of technology for instructional purposes in the classroom?	R. Q.: 1	Duhaney, D. (2009).
2. What is your role in fostering the use of instructional technology in the classroom?	R. Q.: 1, 2, 4	Green, R. J. (2009).
3. What can a principal do to influence the use of technology for instructional purposes in the classroom?	R. Q.: 1, 2. 4	Sergoivanni, T. J. (2008).
4. What obstacles exist that prevent implementation of instructional technology?	R. Q.: 1, 2, 4	Finn, R. W. (2008).
5. How does your school district (system) decide what technology is needed for the classroom?	R. Q.: 1, 4	Nolen, A. J. (2009).
6. At what level are teachers and students involved with the planning of technology for the classroom?	R. Q.: 1, 2, 4	Cherian, F. & Daniel, Y. (2008). Finn, R. W. (2008).
7. What are your future goals to ensure successful implementation and use of instructional technology in the classroom?	R. Q.: 1, 2. 4	Sergoivanni, T. J. (2009).

APPENDIX A
INTERVIEW QUESTION MATRIX

Teacher's Interview Question	Research Question	Literature
1. How available is technology in your school for classroom instruction and student learning?	R. Q.: 1, 3, 4	Warschauer, M. (2010).
2. How is technology used to enhance instruction in the classrooms of your school? Provide one example.	R. Q.: 1, 3, 4	Livingston, A. (2008).
3. What obstacles do teachers encounter in instructional technology use in the classroom?	R. Q.: 3, 4	Finn, R. W. (2008).
4. What types of training does your school provide for technology instructional purposes?	R. Q.: 1, 3, 4	Duhaney, D. (2009).
5. How involved are teachers and students in the planning of technology for instructional use in your school?	R. Q.: 1, 3, 4	Cherian, F. & Daniel, Y. (2008). Finn, R. W. (2008). Groff, J., & Mouza, C. (2008).
6. How does your principal inspire teachers in the use of technology for instruction in the classroom?	R. Q.: 1, 3	Henke, K. (2010).

APPENDIX B

IRB Approval

APPENDIX B
IRB Approval

Georgia Southern University
Office of Research Services & Sponsored Programs

Institutional Review Board (IRB)

Phone: 912-478-0843		Veazey Hall 2021
		P.O. Box 8005
Fax: 912-478-0719	IRB@GeorgiaSouthern.edu	Statesboro, GA 30460

To: Christie Dunham
Dr. Linda Arthur

CC: Charles E. Patterson
Vice President for Research and Dean of the Graduate College

From: Office of Research Services and Sponsored Programs
Administrative Support Office for Research Oversight Committees
(IACUC/IBC/IRB)

Initial Approval Date: March 13, 2012
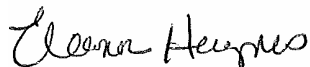
Expiration Date: May 31, 2012

Subject: Status of Application for Approval to Utilize Human Subjects in Research

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After a review of your proposed research project numbered **H12345** and titled **"Elementary Principal's Roles and responsibilities In uses of Technology for Instructional Purposes in Rural Georgia"** it appears that (1) the research subjects are at minimal risk, (2) appropriate safeguards are planned, and (3) the research activities involve only procedures which are allowable. You are authorized to enroll up to a maximum of **15** subjects.

Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that the Institutional Review Board has approved your proposed research.

If at the end of this approval period there have been no changes to the research protocol; you may request an extension of the approval period. Total project approval on this application may not exceed 36 months. If additional time is required, a new application may be submitted for continuing work. In the interim, please provide the IRB with any information concerning any significant adverse event, **whether or not it is believed to be related to the study**, within five working days of the event. In addition, if a change or modification of the approved methodology becomes necessary, you must notify the IRB Coordinator **prior** to initiating any such changes or modifications. At that time, an amended application for IRB approval may be submitted. Upon completion of your data collection, you are required to complete a *Research Study Termination* form to notify the IRB Coordinator, so your file may be closed.

Sincerely,

Eleanor Haynes
Compliance Officer