CHANGE AT THE TOP: HEADMASTERS' PERSPECTIVES ON TECHNOLOGY INTEGRATION AND INDEPENDENT SCHOOL LEADERSHIP

by

MICHAEL RYAN BERENS

(Under the Direction of Sally J. Zepeda)

ABSTRACT

Given the current educational climate regarding the use of technology in schools, the purpose of this study was to discover the perspectives of four headmasters as to the effect of technology integration on independent school leadership. This qualitative case study sought to draw from headmasters' experiences and interactions with others to explore how technology integration had influenced leadership roles and decisions. An interpretive approach was used to discover how and why headmasters developed their perspectives. Through the lens of symbolic interactionism, case study methods were used to analyze data from interviews, fieldnotes, and other artifacts. The constant comparison method supported the emergence of themes based on findings.

Four themes emerged concerning the effect of technology integration on independent school education. Three themes specifically related to changes in leadership roles and practices included: 1) the need to alter leadership roles to encompass additional responsibilities from technology integration; 2) the change in the role of the headmaster is largely dependent on the school and the individual in the headmaster's role; and 3) the importance of proper communication when engaging in technology integration. The

fourth theme described the importance of engaging in 21st century learning activities in independent schools.

Findings have implications for further research, particularly in the area of communications related to educational change. Implications for school leaders include the need to develop and sustain a school culture conducive to technology use and the need to communicate with transparency to all stakeholders.

INDEX WORDS: 21st Century learning and leadership for headmasters; Independent school headmaster; Independent school leadership; Role and change theory; Technology integration

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DEDICATION

This dissertation is dedicated to those people that are the most important to me and have in turn been the greatest inspiration- my family. Carmen, you have been the most supportive wife a husband could ask for and have put up with the late nights and trips out of state. You have been the greatest mother to our child and taken on additional responsibilities in allowing me time to research and write. I couldn't ask for a better wife and partner through this process and look forward to spending many hours catching up now that this process is complete. Claire, I know you are still young, but a father could not be more proud of a three year old. You are so beautiful and smart, and I hope that my work toward this degree inspires you to continue to learn throughout your life.

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CHAPTER 1

INTRODUCTION

Public demands for increased productivity for teachers and accessibility for students have caused a surge in the capabilities and availability of technological devices in schools. Today's students are surrounded by these computing devices in every aspect of their life except for when they are at school (NCSL.org, 2013). As a result, technology integration or the incorporation of technology resources and technology-based practices has in recent years become a necessary part of preK-12 education (National Center for Educational Statistics, 2002, 2012). According to the National Center for Educational Statistics (NCES) (2012), in 2000, schools averaged 110 instructional computers per school for a ratio of 7 students per computer. In 2008, that number rose to an average of 189 computers per school for a ratio of 3 students per computer.

According to the Evergreen Education Group's report, *Keeping Pace with K-12 Online Learning*, as of fall 2012, 27 states had state sponsored virtual schools and over 275,000 students attended full-time online schools. Several states including Maine and Michigan have enacted large-scale laptop programs and an even larger contingent of states have begun to redefine the term "textbook" to include digital content and the devices through which that content can be experienced (Waters, 2007). Outfitting schools with a higher computer to student ratio and digital content has required a large monetary investment which, in turn, has necessitated a major change in the manner and frequency in which technology is used in schools. A report by Project Red (2010), found that the

return on investment for the purchase of computers and digital content drastically increases through the daily use of the technology.

The influx of educational technology over the past 10 years has brought with it terms such as 21st Century Learning and Digital Learning Environments as coined by Prensky (2001). The construct of 21st century classrooms has caused educators and administrators to examine the progression of teaching and the processes through which students learn. McLeod, Bathon, and Richardson (2011) explained that technologies in the classroom were causing disruptive changes that, in turn, require a rethinking of nearly all elements of the educational system. As this educational disruption has occurred, it has also necessitated changes in the roles of school-level and district-level administrators.

Technology integration is often defined based on the needs of the entity providing the definition. The term technology integration is often a combination of technology that is available and the perceived goal of the definition provider. For the purpose of this study, technology integration will take on a generic definition similar to the one provided by the National Center for Educational Statistics (2012), which stated, "Technology integration is the incorporation of technology resources and technology-based practices into the daily routines, work, and management of schools" (para. 3).

One of the major issues with the rapid move toward technology integration in education is the lack of technology-savvy leaders (McLeod et al., 2011). Rivard (2010) stated, "Without basic technology competency, it stands to reason that most school leaders lack the ability to understand the various policy and planning issues related to the successful implementation of technology" (p. 11).

Successful 21st century administrators must know how to navigate both the educational and the technological realm, and they must be capable of changing as quickly as the technology changes. From the beginning, it was noted that leadership is the single most important factor affecting successful technology integration (Byrom & Bingham, 2001). Hayes (2006) agreed noting that an administrator's ability to lead is a significant factor in the successful implementation of new technology, and the results of Project Red (2010) underscored that within the school, the principal is one of the most important variables across their 11 education success measures.

From a historical perspective in 2001, a consortium of educational and technological leaders created a set of technology standards that address the needs of school leaders (Brooks-Young, 2009). The National Educational Technology Standards for Administrators (NETS-A) created in 2001 by the International Society for Technology in Education (ISTE) provided guidelines for how school leaders should integrate and react to technology (ISTE, 2011). In the 2011 revision of the NETS-A, the title of the standards was renamed to the ISTE standards for administrators. The adoption of the ISTE standards for administrators validates the idea that school leaders now understand that technology is creating new challenges and opportunities (Bonk, 2009: Christensen, 2008).

Additional research on the former NETS-A by Afshari, Bakar, Luan, Samah, and Fooi (2008) provided four main areas that a successful school administrator must be competent. First, a school leader must be able to inspire others and to create a shared vision. Next, they must be able to demonstrate effective uses of technology in the areas of learning and teaching. Third, the school administrator must be able to incorporate

technology in the support, management, and operation of the school and finally, administrators must actively involve themselves in the assessment and evaluation of technology in the school.

McLeod et al. (2011) explained that school technology leadership generally falls into one of three domains. The first domain discussed how technology was used to teach traditional educational leadership content. The second domain spoke about how to better use educational technologies, and the third domain focused on preparing school administrators to be stronger technology leaders. McLeod et al. (2011) pointed out that "little research or preparation yet exists regarding the third domain, which is the most important and impactful of the three" (p. 296). One of the few programs that focused on the third domain is "Selecting and Developing 21st Century Leaders" sponsored by the National Association of Secondary School Principals (NASSP). According to the NASSP website, this program engages prospective principals through a battery of authentic and interrelated activities that simulate the work of a principal and then provides an assessment and report back to the principal and the school or system (2013). Project Red (2010) also suggested that change leadership training for principals involved in large-scale technology implementations is of paramount importance.

For the purpose of better understanding the scope of this study, it is also important to define the phenomenon of technology integration. Research into technology integration breaks the phenomenon into two areas, the physical integration of computing devices and the integration of those devices into curriculum and every day learning activities. In regards to the physical side of technology integration, a study by Toledo (2005) explained that integration undergoes a five-step process that includes, pre-

integration, transition, development, expansion, and system wide integration. The other side of technology integration involves teachers learning to use the technology to change the way curriculum is delivered. According to Sandholtz, Ringstaff, and Dwyer (1997), technology integration for teachers includes five stages: entry, adoption, adaptation, appropriation, and invention. Others including Heick (2013) and Catapano (2014) use a four-step model that divides the steps of technology integration into ways the learner is using the technology. For example, Heick (2013) uses four steps including directed learning, accessible learning, mobile learning, and self-directed learning.

A search of NCES, the National Association of Independent Schools (NAIS), and the Independent Schools of the Southwest (ISASW) databases for statistics regarding independent schools and technology produced no useable data other than the median salary for technology directors. However, through examining the content of listserv communication and attendance of members of NAIS at conferences, a sizable number of Independent Schools are seeing the value of incorporating technology into classrooms.

The present study was designed to learn more about headmaster leadership in independent schools related to technology leaders who had experience with technology integration. Independent schools are private educational institutions that serve students in grades PK-12. Headmasters, who typically lead independent schools, often assume the responsibilities and roles of a superintendent and/or principal as found in public school settings. Regardless of type of school, leadership is necessary, and accordingly, Creighton (2003) explained, leading by example is obligatory for those integrating technology into their schools and that those unable to effectively use technology will have difficulty inspiring others to use technology to enhance student learning.

A review of headmaster job descriptions, from 10 independent schools in the southern United States in 2013, revealed that independent school administrators assume roles that are not part of the public school administrator's prescribed activities. For example, according to Ashley Academy (2013), an independent school in Johnson City, Tennessee, the headmaster must assume the role of instructional leader, supervisor, and manager while also leading the accounting department, the foundation's board, and student recruitment.

The present study was framed by questions the researcher had related to technology integration and school leadership. How does a headmaster provide funding for technology integration while also being the instructional leader? How does the headmaster divide time between fiscal operations, student recruitment, and spending time observing teachers and the providing feedback? How is professional learning decided on and whom does the headmaster choose to lead it? What role does the headmaster play in technology related decisions? These questions and previous research on leadership reflect the importance of understanding what changes by a headmaster are made before, during, and after a major implementation of technology.

Background

In 1946, the first computers for educational purposes began operating as a tool for math and science studies and included the MARK1 at Harvard and the ENIAC at the University of Pennsylvania (Molnar, 1997). Between 1950 and 1965, a joint effort between the Federal Communications Commission and the Ford Foundation provided a platform through which teachers could use the television to deliver instruction (Reiser, 2001). In 1981, IBM introduced the personal computer, creating a more affordable option

and providing educational entities with the opportunity to make computers readily available to more students (Aslan & Reigheluth, 2011).

In 1991, Tim Berners-Lee advanced previous text sharing applications to create what became known as the World Wide Web. Initially only altered by those knowing HTML code, the Internet is now the most used information-sharing tool (Richardson 2010). Following the creation of the World Wide Web, companies have begun to capitalize on its immediacy and plethora of information. The availability of the internet allowed for the creation of advanced applications like wikis, blogs, and learning management systems and tools like the smartphone and tablet that allow users access anywhere (Richardson, 2010).

The statement made by John Dewey in 1915 "If we teach today like we taught yesterday, we rob our kids of tomorrow," exemplifies the reason for which the use of instructional technology has become such an important topic in education (p. 18). Strengthening this point was the No Child Left Behind Act (NCLB) of 2001 section Title II D – Enhancing Education Through Technology. NCLB has had a major effect on education in the 21st century and one of its primary goals as outlined in Title IID included "to improve student academic achievement through the use of technology in elementary schools and secondary schools" (United States Department of Education, 2013). The two additional goals of this section of Title IID included:

1. to assist every student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finishes the eighth grade, regardless of the student's race, ethnicity, gender, family income, geographic location, or disability.

2. to encourage the effective integration of technology resources and systems with teacher training and curriculum development to establish research-based instructional methods that can be widely implemented as best practices by State

> educational agencies and local educational agencies. (United States Department of Education, 2013, para. 4).

In 2009, the American Reinvestment and Recovery Act allotted additional funding through title IID for further purchase of instructional technology and technology related professional learning (United States Department of Education, 2009).

Through these initiatives and legislative acts, schools have begun to see the potential of technology in the classroom when it is rolled out in an efficient manner and is accompanied by purposeful professional learning and coaching (Dede, 2011). As schools begin to implement technology in the classroom, it becomes apparent that school leaders must play a major role in any initiative that will effect instruction in the school. Zepeda (2013) explained principals must be in a position to continuously promote the learning and development of teachers. This is particularly important when technology is involved.

Statement of Problem

Literature regarding instructional technology, technology in schools, and school leadership is abundant and constantly increasing as technology becomes more prevalent in schools. Entire journals like *Technological Horizons in Education* (T.H.E.) and *Educational Administrator Quarterly* (EAQ) focus on the topics of educational technology and educational leadership and often have information that intermingle the two. ISTE is a non-profit organization whose focus is on all aspects of technology in education. However, when examining the topic of independent school administration, the amount of research decreases considerably and comes mainly from those in the business of Independent schools. For example, the National Association of Independent Schools' *Independent School Magazine* and the *Private School Review* are journals that focus on the independent school education and provide articles on independent school leadership.

A simple search run on March 17, 2014 on the Educational Resources Information Center (ERIC) database provides 31,233 peer reviewed articles on the topic of educational technology and 13,910 peer reviewed articles on educational administration. The same search using the terms private school administration and independent school administration produced a combined 555 peer reviewed articles. Similarly a search including both the terms school administration and technology provided 632 articles while the search combining either headmaster and technology or independent/private school leadership and technology produced zero peer-reviewed articles.

According to Hall (2001), school leaders are drivers of school improvement, determiners of achievement focus, and leaders of the school community. The most recent study completed by the Council for Private American Education (CAPE) in 2010 found that 25% of schools in the United States are private or independent schools and that 10% of students in America attend private or independent schools. The importance of school administration and technology in schools is evident by the volume of research done on these two topics. However, the lack of research specific to independent school administration and the role of the independent school administrator regarding technology is bothersome considering its effect on 25% of schools in the United States. The importance of leadership on school success and the importance of technology integration on student engagement should highlight the need for independent schools to be concerned about how the role of the independent school leader effects technology integration and changes as a result of technology integration.

Purpose of the Study

Zepeda (2007) explained that school leaders, in sum, set forth the conditions necessary for teachers to implement change, the integral component of the school improvement process. As independent schools find it necessary to integrate technology into their classroom environments, it will also become important for the school leadership to know more about this process, the work involved, and to see how leadership roles may change or not.

The purpose of this study was to examine the perspectives of four headmasters of independent schools to determine the changes, both real and perceived, in the role of the administration and leadership related to technology integration. To further define this study, headmasters at four independent schools in the Southeastern United States that had led schools through technology integration were interviewed to glean their perspectives about technology integration and its effect on independent school leadership.

The goal of the present study was to understand the phenomenon of independent school technology integration and the headmaster's approach to major change. The major change related to this study is limited to technology integration and the effect of technology integration on the roles of the administration of the independent school. This study of independent school leadership related to technology integration is limited to the experiences of the Headmaster as the greatest understanding about technology integration and independent school leadership should conceivably come from the experiences of headmasters. Given the dearth of literature related to independent or private school leadership and technology integration, this study is timely.

This study examined the experiences and perspectives of headmasters who implemented technology integration in independent schools. For the purpose of this study, technology integration involves a school-wide implementation of one to one computing. The researcher was interested in studying the extent to which the roles of the independent school administration was altered. A study of this nature begs many questions, including, for example: What was the relative importance driving technology integration? How did the head master approach technology integration? What role did the administrative team play in technology integration? What changes resulted in the hierarchy and roles of the individuals on the school administrative team?

Research Questions

Technology integration is a process that in total affects all aspects of the educational process including curriculum, finances, professional learning, teaching practices, and leadership. It is important to understand how a school leader facilitates each of these changes. Independent schools, often rely on headmasters to understand and to fulfill the role of superintendent and principal simultaneously. The headmaster has a role in all aspects of technology integration from teacher hiring and professional learning to adjusting financial expenditures and redefining the roles of the faculty and staff of the school. The purpose of this study was to determine the changes, both real and perceived, in the role of the administration and leadership of independent schools related to technology integration. Questions this study sought to answer included:

1. How vital is technology integration to the success of an independent school?
2. Does the headmaster influence determining how technology integration is approached?

3. Do changes occur in the headmaster's leadership role during technology integration?
4. What changes in leadership responsibilities do headmasters report as a result of technology integration?

Theoretical Framework

This study was situated through perspective-seeking research methods, the experiences of independent school headmasters that had led major technology initiatives. To best illustrate the role of the headmaster in the technology initiative and to illuminate the changes that occurred in these roles necessitated a qualitative inquiry approach. Denzin and Lincoln (2005) explained, "Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices. These practices transform the world" (p. 3). The goal of this study was to interpret the data in a manner that explained independent schools within the realm of technology and the leadership and roles of the headmaster. Denzin and Lincoln (2005) also stated that the interpretive material practices:

> turn the world into a series of representations, including fieldnotes, interviews, conversations, photographs, recordings, and memos to the self. At this level qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. (p. 3)

This study as with all qualitative research is based on interpretation (Marshall & Rossman, 2006). This study used a symbolic interactionist approach as described by Bogdan and Biklen (2006) and Blumer (1969).

Bogdan and Biklen (2006) described the symbolic interactionism framework as a process of interpreting experiences and interactions with others allowing individuals to

develop perspectives and to assign definitions to objects, people, situations, and events. Blumer's (1986) expansion of social interactionism included reactions based on developed meanings, meaning as developed through interactions with others and meaning developed through things encountered (Blumer, 1969). The goal of this study was to use qualitative inquiry grounded in symbolic interactionism to seek understanding for how independent school administrators experienced technology integration.

Overview of Research Procedures

The research began with an investigation of the current literature discussing educational technology integration, the 21st century learner and learning environment, 21st century leadership, and laws and regulations governing independent schools. Following the literature review, research questions were generated in an attempt to address the gap in literature focused on independent school leadership's influence on technology integration and technology integrations influence on independent school leadership.

To stay focused on the phenomena outlined by the purpose and the overall research questions, a case study approach was used to set boundaries (Stake, 1995). The most common methods of the case study methods include interviews, coding, and interpretation (Stake 2006). A semi-structured interview protocol supported more open-ended questioning as an approach to learn as much as possible from the four headmasters of independent schools. Each of the four participants in this study was interviewed twice providing 10 transcripts of data.

According to Yin (2009), "A case study is an empirical inquiry that investigates contemporary phenomena in depth and within its real life context" (p. 19). The process

through which the data produced by this study were analyzed included systematic coding of each piece of data through which patterns and themes emerged. Triangulation of fieldnotes, artifacts, and interview transcripts helped to further validate the findings and to confirm or reveal inconsistencies generated by the data (Patton, 2002). The case study was then written according to the analysis of the data.

Significance of the Study

The integration of technology and classroom activities to increase student engagement and further student learning has been an educational theme since the use of the MARK1 and ENIAC. Following the invention of the personal computer by IBM in 1981, computing in schools became a more affordable and realistic opportunity (Molnar, 1997). As these inventions began to shape the landscape of education, educational leaders evolved into instructional leaders and to become more involved in the events that affect curriculum and teaching in schools. The effect of technology integration on independent school leadership has not been studied in the context of the nature of the experiences of those that have participated in the leadership of such integration. Through experience, it is evident that the focus and the role of the independent school leader is similar, but not exactly the same as that of combination of public school leadership roles. The independent school leader includes a greater emphasis on student recruitment, fundraising, and alumni relations while spending less time on federal oversight and guidelines and state mandated assessments.

Recent understandings of the effect of school leadership together with the emergence of the importance of technology integration has created a need to study the nature of the role of the independent school leader through the lens of technology

integration. This study is timely given the rapid occurrence of technology in independent schools and the dearth of independent school leadership that has experienced technology integration. Declining to participate in student and system engagement through the use of technology may perpetuate a problem related to student recruitment and retention for that independent school.

Studies on school leadership and technology have to date focused on the generic idea of school leadership or principalship. A study by Peck, Mullen, Lashay, and Eldridge (2011) found that school administrators and teachers dealt with three main technology related issues including, troublesome support structures, conflicting instructor roles, and a pervasive youth digital media culture. The study also presents five recommendations that included the need for schools to plan early, plan for long-term support, determine teacher needs, create informal support networks, showcase successful instructional models, and to create a set of personal device appropriate use guidelines. A study by Thomas (2010) looked at the role of the administrator as an instructional leader in two public elementary schools. Thomas explained that leaders with success in technology integration cast vision, support and model a high degree of technology expectations, understand implications of technology integration, and have a strong sense of distributed leadership.

The present study focused on the specific need to understand the role, instructional and managerial, of independent school leadership related to technology integration. As a case study, it inherently had limitations in generalization. However, this study did provide a way to examine and to understand how five independent school leaders experienced technology integration. In looking at the experiences of these leaders,

this study attempted to illustrate how independent school leaders can effect technology integration and perhaps see if technology integration can affect independent school leadership roles of the headmaster.

The findings of the present study have the ability to fill a void in the literature related to independent school leadership and technology integration. The findings may also provide insight for independent school leaders participating in future technology integration initiatives.

Assumptions of the Study

It was assumed in this study that all participants had experienced the phenomena of independent school technology integration. It was also assumed that this technology integration included one computing device per student and that the student had access to the device both at school and at home. It was also assumed that the participants in this study played a role in the planning of the technology integration. A further assumption was that as leaders of independent schools, the participants had a high level of knowledge concerning the needs and rules governing independent school teaching and learning.

Definition of Terms

The following key terms were defined to provide clarity for the reader and researcher and to establish a framework for recording the findings.

Independent School – A school that operates separate from the local public school system and that is not required to adhere to the local systems rules, procedures, and mandates.

Headmaster – In this study, the headmaster is the person responsible for leadership of the school including but not limited to teacher recruitment and replacement,

curriculum, discipline, fundraising, student recruitment, school culture and climate, community relations, and all aspects of school finance.

21st century learning – "generally used to refer to certain core competencies such as collaboration, digital literacy, critical thinking, and problem-solving that advocates believe schools need to teach to help students thrive in today's world" (Allington, 2010).

Technology Integration – the planning, purchase, professional learning, support, and teacher use and student use of technology most often, but not limited to, personal computing devices (laptops, tablets, phones), etc. (National Center for Educational Statistics, n.d.; Sun, 2000). For the purpose of this study, technology integration was defined as a school having implemented a ratio of one device per student.

Limitations of the Study

This study was limited to four individual case studies that included four participants. The study was also limited by the geography of the participants. The time and resources available for this study limited this study to independent school leaders within a certain region of the United States of America. Participants were chosen from Texas because of their proximity to the researcher. The study's participants were identified by their willingness to participate in the study, by the recentness of their technology implementation, and through recommendation to the researcher by the participant's peers. Participants must have participated in a technology initiative in their school within five years prior to the year of the study. Finally, the study was limited by its sample size. Each participant was interviewed twice limiting the data collected to the 10 interview transcripts, field notes, and procured documents representing four independent schools.

Organization of the Dissertation

Chapter 1 describes the background and rationale for the study, the statement of purpose, and the significance of the study including the research questions, relevant definitions, an overview of the procedures, and limitations and assumptions of the study. Chapter 2 provides a review of the related literature relevant to educational technology initiatives and school leadership during technology initiatives.

Chapter 3 presents the framework for the study including the research methods used and the overall scope of how the research was performed. Chapter 4 provides the data, the analysis of the case study and the findings of the case study. Chapter 5 provides a discussion of the findings including the results, implications and recommendations for those that may undertake an independent school technology initiative in the future.

CHAPTER 2

REVIEW OF THE RELATED LITERATURE

The use of educational technologies as a way to enhance 21st century teaching and learning has and continues to be an important part of the educational experience (Luu & Freeman, 2011; Windschlit, 2009). The purpose of this study was to examine the perspectives of four headmasters of independent schools to determine the changes, both real and perceived, in the role of the administration and leadership related to a technology integration process. To further define this study, headmasters at four independent schools in the Southeastern United States that had led schools through technology integration were interviewed to glean their perspectives about technology integration and its effect on independent school leadership. In recognition of the phenomenon of technology integration and its effect on independent school leadership, this study sought to address the following questions:

1. How vital is technology integration to the success of an independent school?
2. Does the headmaster influence determining how technology integration is approached?
3. Do changes occur in the headmaster's leadership role during technology integration?
4. What changes in leadership responsibilities do headmasters report as a result of technology integration?

The literature on technology integration is extensive and comprehensive; with

particular attention on the effects technology has on the classroom environment. There is also significant literature on school leadership with a portion of that literature examining the effects of technology integration on school leadership. There is however a dearth of literature examining the specific effect of technology integration and independent school leadership.

The following literature review examined the current literature that correlates with the four areas important to the understanding of the present study. This chapter presents literature pertaining to: (1) technology integration in educational settings, (2) 21st century learners and learning environments, (3) 21st century leadership, (4) laws and regulations governing independent schools.

This study is important and Table 2.1 shows the availability of literature as performed in the ERIC database in July 2014. An abundance of literature in recent years has been geared toward the phenomenon of educational technology or technology integration. Similarly, there is plethora of literature on the topic of educational administration. In combining the two topics, the amount of literature dwindles and a search of terms relating to independent school administration and technology provided no literature for review.

Table 2.1

Recent search for literature relevant to the study

Literature available on the Educational Resource Information Center Search Engine (ERIC)

Search Query (peer reviewed articles)	**Number of Articles as of July 2014**
Educational Technology	31,233
Educational Administration	13,910
Independent/Private School Administration	555

Table 2.1 Continued

Literature available on the Educational Resource Information Center Search Engine (ERIC)	
Search Query (peer reviewed articles)	**Number of Articles as of July 2014**
School Administration and Technology	632
Headmaster and Technology or Independent/Private School Administration and technology	0

The lack of literature regarding the specific topic of technology integration in independent schools, required an examination of individual topics including technology integration, 21st century learners and learning environments, 21st century leadership, and laws and regulations governing independent schools. In understanding the phenomena of technology integration and independent school leadership it is important to fully understand the process of technology integration.

Technology Integration

A search for the term technology integration provides a variety of results that are often consistent with the needs of the entity providing the definition. For instance, Baytak, Tarman, and Ayas (2012) performed a study examining the students' perspective of technology integration and found that students define technology integration as a motivational tool and as a way to make their lives easier. In research on teacher perspectives of technology integration, James (2009) found that teachers explained technology integration as a practice where computers were used to bring new ideas to students, a way to provide students with a different way of learning, and as a part of the learning process that brings computing into the classroom. According to Smith (2012), school administrators' define technology integration in terms of frequency of use, differentiated use, and engagement level of students.

Technology integration must also be defined by the availability of technology resources. Technology resources according to National Center for Educational Statistics (2012) are defined as "computers and specialized software, network-based communication systems, and other equipment and infrastructure" (para. 7). Thus, the resources a school is able to procure often limit the definition of technology integration. Schools that can provide teachers with interactive whiteboards and laptops may see technology integration as a teacher using technology to enhance presentation techniques including making interactive lectures, using video clips and having students participate in teacher lead activities. Schools able to provide all students with individual computing devices may determine that technology integration is a movement toward student directed learning and the opportunity to expand the learning process outside the classroom walls.

For the purpose of this study, it was deemed necessary to examine operational definitions of the term technology integration that were basic and generalized. Technology integration as stated by the National Center for Educational Statistics (2012, para. 2), "is the incorporation of technology resources and technology-based practices into the daily routines, work, and management of schools" Sun (2000) referred to technology integration in terms of outcomes rather than activities as he explained technology integration is, "the use of technology by students and teachers to enhance teaching and learning and to support existing curricular goals and objectives" (p. 55). Technology integration has also been described as a process, which entails teachers adopting technology and incorporating it readily and flexibly into their teaching practices to support curricular goals (Hadley & Sheingold, 1993; Pierson, 2000; Rogers, 2000). For

the purpose of this study, technology integration was operationally defined as providing technology to teachers and students for the purpose of enhancing learning opportunities.

Technology Integration as a Change Lever

The integration of technology in educational settings requires a form of change whether it involves teaching style, learning activity or curriculum adaptation. To achieve the kinds of technology uses required for 21st century teaching and learning, it is important for teachers to understand how to use technology to facilitate meaningful learning experiences (Lai, 2008; Law, 2008; Thomas & Knezek, 2008). While technology is often seen as a way to make current actions and learning processes easier, it also makes it possible to "adopt new and arguably better approaches to instruction and/or change the content or context of learning, instruction, and assessment" (Lawless & Pellegrino, 2007, p. 581).

Teaching with technology requires an expansion of pedagogical knowledge and practices in multiple areas including planning, implementation, and evaluation. Research performed by Coppola (2004) illustrated that when using technology as a pedagogical tool, teachers must know how to: develop plans for teaching applications to students, select appropriate applications to meet the instructional needs of the curriculum and the learning needs of their students, and manage technology resources. Webb and Cox (2003), reported that pedagogical knowledge will also need to expand to include ideas about how to develop students' collaborative abilities and how to help students take advantage of a technology rich learning environment. Cennamo, Ross, and Ertmer (2010) explained successful technology integration must:

1. Identify which technologies are needed to support specific curricular goals

2. Specify how the tools will be used to help students meet and demonstrate those goals
3. Enable students to use appropriate technologies in all phases of the learning process including exploration, analysis, and production
4. Select and use appropriate technologies to address needs, solve problems, and resolve issues related to their own professional practice and growth. (p. 10)

The list provided by Cennamo et al. (2010) provides schools with a basic outline from which a technology integration plan could be created.

Role Theory

In addition to changes in pedagogy and content, technology integration can facilitate change in the roles of the students, teachers, and administrators. Role theory is designed to explain how individuals in specific social positions are expected to act and how they expect others to act (Hindin, 2007). Park (1926), as cited by Stryker (2001), explained, "everyone is always and everywhere, more or less consciously, playing a role …" (p. 37). Through socialization, individuals learn societal expectations for the enactment of the roles associated with the status positions they occupy (Conrad, 2007). Harrison and Lynch (2005) explain that people are socialized to value the positions that hold the greatest amount of prestige, which can lead to conflict when certain roles are given greater preference than others. School systems have traditionally adhered to a prescribed set of roles in which the administrator manages and leads the school, the teacher provides information to the student, and the student receives the information. To show mastery of a concept, the student is given some form of assessment. The integration of technology can upset these traditional roles and rituals by expecting the student, teachers, and administrators to function in the capacity of all three roles.

Educational roles in relation to technology integration are dependent on expectations placed on the individuals embodying each role. According to Huse (1980), a role is defined as:

> the set of activities that the individual is expected to perform and constitutes a psychological linkage between the individual and the organization. … Role behavior is caused by not only the characteristics of the individual, but also the expectations of others within the total system… Therefore, a role is the sum total of expectations placed on the individuals by supervisors, peers, subordinates, vendors, customers, and others, depending on the particular job. (p. 53)

Expectation is one of the deciding factors in the success of technology integration. Ashforth (2001) explained, "individuals are constantly in a state of becoming – exploring their roles and their personal resonance with them even as the roles evolve, and moving between roles over time" (p. 3).

The integration of technology in an educational setting requires role transition. According to Burr (1972), role transition requires a disengagement from one role and entry into another role. Ashforth (2001) describes the two types of role transitions as macro role transition and micro role transition. Macro role transition is understood as a major and permanent change to an individual's role. Micro role transition is defined as the frequent and reoccurring role transitions that occur on a daily basis. Technology integration in an educational setting requires that all individuals involved participate in numerous micro role transitions. For example, successful technology integration will see the role of the student evolve to include certain aspects of the teacher and administrator roles. Students should be expected to search for answers and solutions, share findings with peers and lead school activities. The teacher and administrator should be expected to maintain their current role regarding the facilitation of the learning process, and providing engaging learning activities. The teacher and

administrator should also embody the role of the student by learning and receiving information presented by students.

Technology integration requires the use of available devices in engaging students in the learning process and a change in the roles of all parties involved. Further understanding of the technology integration process can be achieved through the examination of integration models.

Technology Integration Models

Technology integration models provide the blueprint for use of technology devices and programs in the classroom. The integration of technology without an understanding of the steps involved creates a multitude of issues for teachers. The following models of technology integration have been thoroughly researched and used in numerous educational settings across the globe.

TPCK

As educational technology integration has increased so has the need for school leaders, technology integrators and teachers to have a framework or model from which to base their integration plans. One of the more widely used and adaptable models is the Technological Pedagogical Content Knowledge model or TPCK. The TPCK model grew out of Shulman's (1986) Pedagogical Content Knowledge model that was used to show the relationship between content knowledge and pedagogy. More recently, Koehler and Mishra (2008) expanded Shulman's framework by including technology (see Figure 2.1). Koehler and Mishra asserted that to fully understand teachers' knowledge of technology integration, it is important to understand all areas of intersection between content, pedagogy and technology.

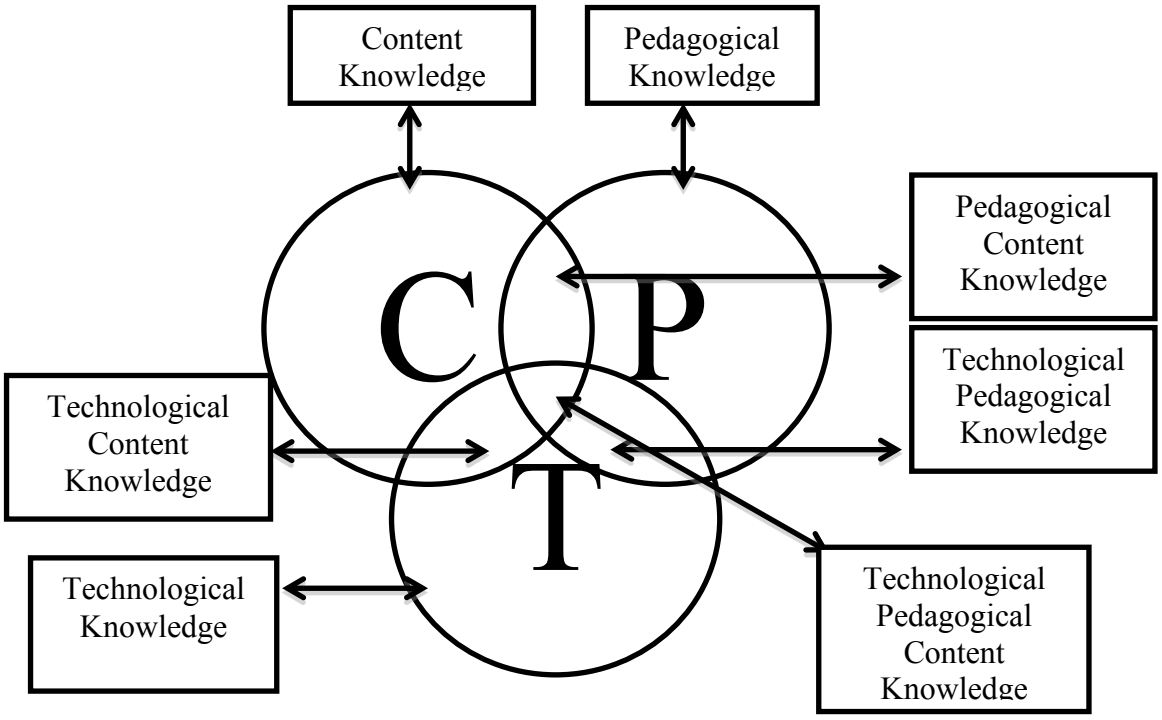

Figure 2.1.

Technological Pedagogical Content Knowledge (Koehler & Mishra, 2008, p. 12)

An example of TPCK in a classroom setting can be seen in Hofer and Swan's (2006) description of an Italian renaissance web-based digital archive. In their example, the successful teacher must have knowledge of the time period (Content Knowledge), ability to navigate the digital archive (Technological Knowledge) and the ability to create a learning environment in which the students conduct research (Pedagogical Knowledge). The teacher must also be able to guide and supervise web-based research (Technological Pedagogical Knowledge), understand the challenges of learning the specific content (Pedagogical Content Knowledge) and understand the limitations of reading historical texts online (Technological Content Knowledge). All of these areas of knowledge lead to the final project or the cumulative Technological Pedagogical Content Knowledge.

The basic idea behind the TPCK model is that effective technology integration requires the content one teaches and the way one teaches it to be aligned with the technology being used (Koehler and Mishra, 2008). This model can be used in any school setting and content area to provide the basis for successful teaching with technology.

In contrast to the TPCK model, which creates a theoretical approach to technology integration, is the Puentedura's SAMR model. SAMR provides a practical model through which teachers can increase and perfect technology integration.

SAMR

Puentedura's (2009) SAMR model intends to provide the framework for transforming learning with technology (see Figure 2.2). The SAMR model is broken into four categories that include Substitution, Augmentation, Modification, and Redefinition (Puentedura, 2009). At the lower or basic levels, technology tasks are used as a substitute for previously created activities like printed worksheets and to augment traditional face-to-face learning. In the higher levels, the teacher is asked to transform the learning experience through modification or redefinition. Figure 2.2 is a representation of Puentedura's version of the SAMR model.

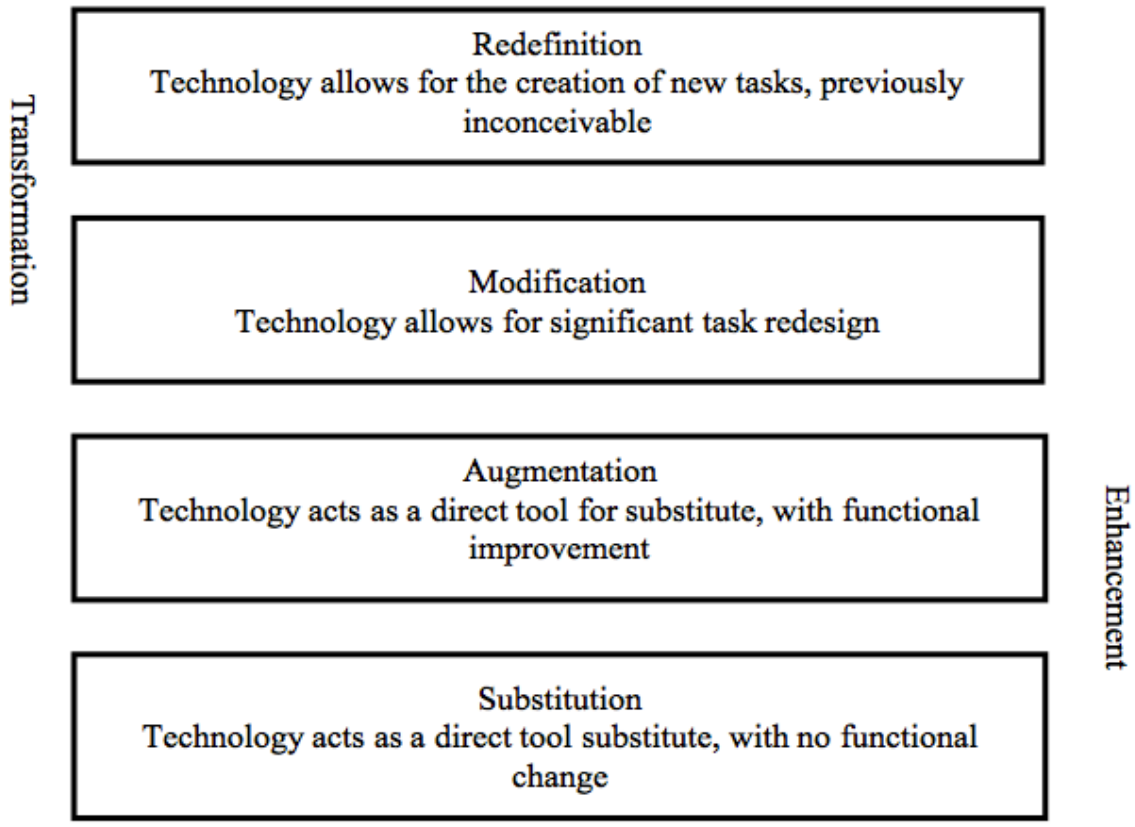

Figure 2.2

Puentedura's (2009) SAMR model (read from bottom to top)

Theisen (2013) explained that the tasks grouped under Enhancement, Substitution, and Augmentation serve the purpose of preparing teachers for technology use. Theisen explained that the tasks grouped under Transformation, Modification, and Redefinition, are provided only through the use of technology. An example of a transformational activity might be a shared document that is accessible to students both in and outside of school providing a continued collaborative writing opportunity. According to Kirkland (2014):

> The key to using the SAMR model is not to think of it as a progression to work through. Really using technology effectively means creating the kind of rich tasks that redesign traditional ways of learning and create opportunities that do not exist without the use of the technology. A

> Substitution or Augmentation task may serve a particular purpose, but chances are it does not leverage technology for richer learning experiences. (p. 3)

In comparison to the TPCK, which is most often used to frame thinking about the relevance of technology and learning, the SAMR model provides a framework for assessing the actual technology tasks (Kirkland, 2014).

Professional Learning

Professional learning is essential to the teaching profession as it allows teacher the opportunity to increase their knowledge and improve their instructional methods (Brooks & Gibson, 2012). The integration of technology into teaching practices further emphasizes the need for high quality professional learning for teachers. Brooks and Gibson (2012) explained that one of the biggest challenges facing schools involved in technology integration is determining what types of professional learning are most effective for improving teaching and learning. Over the years, professional learning has been delivered through many different outlets including workshops, conferences, face-to-face trainings, and presentations made by vendors. Fullan (1991) stated, "Nothing has promised so much and has been so frustratingly wasteful as the thousands of workshops and conferences that led to no significant change in practice" (p. 315). In a later article, Fullan (2006) expressed the need for professional learning to, "motivate people to put in the effort, individually and collectively, that is necessary to get results" (p. 8).

Recent research has exposed the need for professional learning to include certain components to improve the likelihood that teachers will gain enough knowledge to alter instructional methods. Professional learning should be ongoing, sustained, intensive, collaborative, supported through modeling and coaching, be integrated into the

curriculum and school environment, and allow for teachers to test knew ideas without fear of reprisal (Darling-Hammond, & McLaughlin, 1995; Fullan & Hargreaves, 2002; Garet et al., 2001; Killion & Williams, 2009). Zepeda (2012), explained that because teachers evolve and grow through the long term and day-to-day work they do, successful professional learning often can be achieved through job-embedded learning opportunities.

Additional research on professional learning suggests the need for professional learning to impact change in the culture of the school. Tienken and Stonaker (2007) explained that successful professional learning in their schools occurred when the culture of the school understood:

1. Teachers learn best outside the constraints of large group workshops.
2. Participants in learning activities should show mutual respect
3. Learning is an outcome of personal interactions
4. Teacher are motivated by participation in a community of learners where knowledge is created and shared amongst its members
5. Small groups facilitate communication and learning. (p. 25)

Research has also brought to light the value of online professional learning for teachers. Dede (2006) explained that the motivation for increased use of technology grew from the need to provide teachers with professional learning that was "tailored to teachers' busy schedules…(and) available to teachers at their convenience to provide just-in-time assistance" (p. 2).

Peery (2004) pointed out that professional learning happens when teachers are invested in the learning process and that investment can be cultivated through personalization. According to Fontichiaro (2008), "Web 2.0 professional development [is a] …more self-paced and flexibly responsive approach to individual interests and needs" (p. 30). Bonk (2009) explained that one of the most important aspects of online professional learning was the participation in collaborative, interactive online

discussions. A study by Jaffe, Moir, Swanson, and Wheeler (2006) proposed, "the writing and reading process of asynchronous online learning encourages reflection in a way that face-to-face experiences do not" (p. 93). That same study also pointed out that teachers were more apt to participate in online discussions because of the anonymity not available in face-to -face meetings. Brooks and Gibson (2012) explained that online professional learning can be rich in dialogue, ongoing, reflective and flexible to meet the needs of the teachers engaging in the learning.

21st Century Learner and Learning Environments

21st Century Learner

The current generation of student is often referred to as "Digital Natives" or the "igeneration" (Zur & Zur, 2011). Prensky (2001) explained that "Digital Natives" are the group of students that have grown up with digital devices and are "native speakers of the language of computers, video games, and the internet" (p. 1). Students in this generation learn differently from generations past in that they connect with graphics before text, process information quickly, and learn best through trial and error (Deubel, 2006; Prensky, 2001). Digital Natives have grown accustomed to flashy, interactive devices, the excitement of gaming, and they are constantly multitasking. A study by Rideout et al. (2010) found that 80% of middle grade students own iPods or MP3 players, 69% have cell phones, 69% own handheld gaming devices, and 27% have their own laptop. Students of this generation have access to instant answers through the use of Internet search engines, and they are able to learn new skills by watching streaming online videos. Constant and immediate contact and feedback is available through the use of online social media sites, chat sites, and texting (Zur & Zur, 2011).

The immediate and spontaneous learning that occurs through the use of technology differs from the type of learning that occurs in the traditional classroom. The use of technology in the classroom requires students to learn and use the 21st century skills of communication, collaboration, creativity, and critical thinking (Partnership For 21st Century Skills, 2009). A further explanation of 21st century skills for students can be found in the International Society for Technology in Education's Standards for Students (ISTE-S). ISTE breaks 21st century skills into six major areas including creativity and innovation, communication and collaboration, research and information fluency, critical thinking, problem solving, and decision-making, digital citizenship, and technology operations and concepts (International Society for Technology in Education, 2011).

According to the ISTE Standards for Students, the mastery of creativity and innovation is evident when a "student demonstrates creative thinking, constructs knowledge, and develops innovative products and processes using technology" (para. 1). The skills of creativity and communication are further described through the following sub-standards.

- Apply existing knowledge to generate new ideas, products, or processes
- Create original works as a means of personal or group expression
- Use models and simulations to explore complex systems and issues
- Identify trends and forecast possibilities. (para. 2)

Creativity and innovation are skills that most modern day employers are looking for when hiring new employees. It is important for 21st century students to be able to add to the company. Most employers are either looking to expand business or to find ways to do business more efficiently.

The second 21st century skill identified by ISTE involves communication and collaboration. According to ISTE (2011) communication and collaboration can be

realized through the student use of "digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others" (para. 3). Communication and collaboration sub-standards include:

- Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
- Communicate information and ideas effectively to multiple audiences using a variety of media and formats
- Develop cultural understanding and global awareness by engaging with learners of other cultures
- Contribute to project teams to produce original works or solve problems. (para. 4).

Beyond creativity and innovation the 21st century student must learn to communicate and collaborate with those around them. It is also very important for the 21st century learner to be able to communicate in a variety of ways that can include various forms of technology.

The third 21st century skill in ISTE's Standards for Students is research and information fluency. Research and information fluency has been taught in schools for many generations, but often through the guise of the research paper process. ISTE's idea of research and information fluency includes students using digital tools to gather, evaluate, and use information (para. 4). The sub-standards for this skill include:

- Plan strategies to guide inquiry
- Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
- Evaluate and select information sources and digital tools based on the appropriateness to specific tasks
- Process data and report results. (para. 5)

Research and information fluency is a skill that looks much different in the 21st century than it did for previous generations. Finding information is much easier with access to

the Internet and the 21st century learner must be able to determine what information is usable. They must also be able to use this information in the proper manner. Instead of going to first hand sources like books and journals in a library, the 21st century learner has access to websites and wikis that can compile needed information all in one place. The modern student needs to be able to take this information and apply it to the problem at hand.

Critical thinking, problem solving and decision-making are included in the fourth standard. ISTE explains that students need to "use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources" (para. 6). Realization of these skills occur through the following sub-standards:

- Identify and define authentic problems and significant questions for investigation
- Plan and manage activities to develop a solution or complete a project
- Collect and analyze data to identify solutions and/or make informed decisions
- Use multiple processes and diverse perspectives to explore alternative solutions. (para. 7)

An abundance of information is at the fingertips of the 21st century student. The skills presented in this standard speak to the ability of the learner to take that information and use it to expand the thought process and solve problems.

ISTE includes two 21st century skill categories that are not mentioned by the Partnership For 21st Century Skills. The first of these skills is digital citizenship and requires students to "understand human, cultural, and societal issues related to technology and practice legal and ethical behavior" (para. 8). The integration of technology and digital content in schools facilitates the importance of students understanding how to behave with proper digital citizenship. The sub-standards for this category include:

- Advocate and practice safe, legal, and responsible use of information and technology
- Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
- Demonstrate personal responsibility for lifelong learning
- Exhibit leadership for digital citizenship. (para. 9)

Responsible and ethical use of information and technology is an important part of modern society. 21st century students have the freedom to communicate and to share in ways that were previously unavailable. This freedom facilitates the need for the learner to understand the damage that can be caused by a lack of citizenship in this new frontier.

Interestingly, ISTE puts the 21st century skill of technology operations and concepts as its last standard. While technology is incorporated into all of the ISTE Standards for Students, the actual use and concept of technology is the last skill mentioned. Mastery of this standard provides "students demonstrate a sound understanding of technology concepts, systems, and operations" (para. 10). The sub-standards for technology operations and concepts include:

- Understand and use technology systems
- Select and use applications effectively and productively
- Troubleshoot systems and applications
- Transfer current knowledge to learning of new technologies. (para. 11)

The described 21st century skills are in stark contrast to the predetermined curriculum, prominence of textbooks, and emphasis on test scores of the traditional school setting (Prensky, 2001).

Schools that have integrated technology and teach 21st century skills have begun to use the term engagement as a measuring tool for success. According to Schlechty (2005), engagement is described as students being attracted to their work, continuing the learning process despite obstacles and challenges, and showing visible pride in

accomplishing the assigned task. Buckingham (2008) explained that the key to creating engagement is using technology to bridge the gap between a student's in-school and out-of-school lives. In a study completed by Downes and Bishop (2012), one student explained:

> The general idea of having technology in school is really a good thing. … [It] makes kids engaged because nowadays kids are more using technology at home, like video games, going on Facebook. So bringing technology to the school where they're doing it at home all the time, it's, like, really helpful and engaging, and it's, like, fun. It's what they do during the day when they're not at school, so I think bringing the technology to school makes them more engaged. (p. 9)

Engagement through the use of technology is needed to peak the interest of the "Digital Native." The use of prior teaching methods and textbooks can insight boredom and disengagement in the classroom.

Understanding that 21st century students learn through different means and are expected to obtain different skills than students of previous generations is only part of the battle. Christensen, Johnson, and Horn (2010) explained that the current educational system was designed during a time when standardization was important and that this approach does not serve the needs of the 21st century learner. Christensen et al. (2010) added, "every student learns in a different way… a key step to making schools intrinsically motivating is to customize education to match the way each child best learns" (p. 10). The introduction of technology into curriculum and pedagogy provides teachers with numerous additional tools. The teacher is thus expected to understand the best way to engage each individual 21st century learner and to provide a learning environment that activates engagement (Leer & Ivanov, 2103).

21st century learning environments

Engagement of 21st century learners is a process that starts with alterations to pedagogy and curriculum. Changes to these areas however are not enough to provide students with the optimum opportunity to master 21st century skills and to use technology to realize the expected content knowledge. Alterations to the environments in which students learn should be a major component of 21st century education.

One of the most obvious changes can occur through alteration, redistribution, or complete overhaul of classroom furniture. An article in eSchool News (2011) describing classroom furniture, explained that as technology has changed, the furniture and overall classroom environment has likely remained the same. Hassell (2011) explained that classroom furniture should meet the needs of different size students and should be flexible to best fit all learning styles. Hassell (2011) added the integration of technology has helped to create an engaging learning experience that is often stifled by the stationary furniture that can confine students to one area of the classroom. Hassell (2011) also stated, mobile furniture can be used to create the proper environment for the learning activity and can combat the confinement of classroom space. Cornell (2003) described classroom furniture as not only a part of the learning environment, but as a tool that can be used for engagement.

An additional change to the classroom environment can be achieved through the integration of technology. In moving toward 21st century classrooms, schools have been equipping teachers with tools like interactive whiteboards and student response systems. Schools are also allowing students to participate in bring your own device programs to combat the cost of providing each student with a device. For the purpose of this study, it

was important to examine literature that related to one device per student or one to one computing environments.

Providing students with an environment that puts a device in the hand of each student can stimulate learning opportunities that venture beyond the limits of the classroom walls and beyond the information available in textbooks (Lancaster & Topper, 2011; Lei & Zhao, 2008). Morrison, Ross and Kemp (2004) explained that access to the internet prompts students to retrieve information, investigate problems, and search for answers that can open classroom discussions and extend learning opportunities. One to one computing environments can also alter student interactions and communication both inside and outside the classroom (Light, McDermott, & Honey 2002). Research by Lei and Zhao(2008), Silvernail (2008), Newhouse and Rennie (2001), and Zucker and McGhee (2005) found that one to one environments provide the occasion for around the clock communication and collaboration between students and teachers. Additional research by Morrison (2007) and Silvernail and Lane (2004) perpetuated the notion of increased student to student and student to teacher interaction and collaboration. Lei and Zhao (2008) presented findings that showed one to one environments could encourage safe communication for students that may not have felt comfortable participating in classroom discussions and activities. According to Shapley, Sheehan, Maloney, and Carnikas-Walker (2010), one to one computing can transform school culture in three main ways:

1. By increasing students' interaction in both quantity and quality
2. By fostering student engagement for better learning experiences

3. By changing classroom culture to a more convenient and encouraging environment. (p. 27)

There are some researchers that have presented problems created through the use of one to one computing environments, but the majority of the research on this topic has shown that students respond positively.

21st Century Educational Leadership

Educational leaders in the 21st century should embody certain leadership characteristics that were not necessary found in educational settings of the past two decades (Viviano, 2012). Viviano pointed out, 21st century leaders should be leaders more than managers because a manager controls while a leader inspires and encourages a collaborative approach. Viviano (2012) also explained that technology's impact on how students learn and how teachers teach requires educational leaders to help teachers find more innovative ways to present and assess curriculum.

The importance of 21st century leadership was most recently manifested in the 2011 revision of the International Society of Technology in Education's Standards for Administrators (ISTE-A) (International Society for Technology in Education, 2011). The ISTE-A provides school administrators with five standards that can be used to guide them towards successful 21st century leadership. The first of the five ISTE-A standards involves visionary leadership. According to the ISTE website visionary leadership involves inspiring and leading the "development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization"(para. 1). This can be achieved through the following steps.

- Inspire and facilitate among all stakeholders a shared vision of purposeful change that maximizes use of digital-age resources to meet and exceed learning goals, support effective instructional practice, and maximize performance of district and school leaders
- Engage in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision
- Advocate on local, state and national levels for policies, programs, and funding to support implementation of a technology-infused vision and strategic plan. (ISTE, 2011, para. 2)

Providing vision and direction is an important part of any leadership role. It is necessary for modern educational leaders to understand the current state of technology use and to facilitate its inclusion in the mission of the school. Stating direction can help those being lead understand what is expected of them and provides a goal for which to strive.

The second ISTE-A standard provides guidance on creating a digital age learning culture. According to ISTE (2011), 21st century leaders, "create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students" (para. 3). The following sub-standards provide an outline for successful leadership of a digital age learning culture:

- Ensure instructional innovation focused on continuous improvement of digital-age learning
- Model and promote the frequent and effective use of technology for learning
- Provide learner-centered environments equipped with technology and learning resources to meet the individual, diverse needs of all learners
- Ensure effective practice in the study of technology and its infusion across the curriculum
- Promote and participate in local, national, and global learning communities that stimulate innovation, creativity, and digital age collaboration. (ISTE, 2011, para. 4)

The 21st century leader must model the same skills that are expected of the 21st century learner. The ability to provide innovative learning experiences and to teach digital citizenship is necessary components of a successful 21st century educator and administrator.

The third ISTE-A standard provides instruction on excellence of professional practice. ISTE (2011) pointed out that administrators must promote professional learning and innovation that provides an environment for teachers to improve student learning through technology and digital resources (para. 5). In achieving excellence of professional practice a school administrator needs to adhere to the following sub-standards:

- Allocate time, resources, and access to ensure ongoing professional growth in technology fluency and integration
- Facilitate and participate in learning communities that stimulate, nurture and support administrators, faculty, and staff in the study and use of technology
- Promote and model effective communication and collaboration among stakeholders using digital age tools
- Stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning. (ISTE, 2011, para. 6)

This standard is one of the most important in regards to leaders that are attempting to integrate technology into the educational experience. Teachers must be given the opportunity to learn new ways to engage students and feel safe to try and fail using new techniques.

According to the fourth ISTE-A standard, systemic improvement, "Educational Administrators provide digital age leadership and management to continuously improve the organization through the effective use of information and technology resources" (para. 7). To achieve systemic improvement in a 21st century learning environment, ISTE provides the following five sub-standards:

- Lead purposeful change to maximize the achievement of learning goals through the appropriate use of technology and media-rich resources
- Collaborate to establish metrics, collect and analyze data, interpret results, and share findings to improve staff performance and student learning
- Recruit and retain highly competent personnel who use technology creatively and proficiently to advance academic and operational goals

- Establish and leverage strategic partnerships to support systemic improvement
- Establish and maintain a robust infrastructure for technology including integrated, interoperable technology systems to support management, operations, teaching, and learning. (ISTE, 2011, para. 8)

Educational change should always be combined with the goal or need to improve students learning. 21st century leaders must have a vision for increasing achievement or engagement when undertaking any major program that will alter the way education in performed within a school.

The final ISTE-A standard involves an administrator's ability to ensure and model digital citizenship. Digital citizenship for administrators involves modeling, facilitating, and understanding of "social, ethical and legal issues and responsibilities related to an evolving digital culture" (para. 9). The digital citizenship sub-standards include:

- Ensure equitable access to appropriate digital tools and resources to meet the needs of all learners
- Promote, model and establish policies for safe, legal, and ethical use of digital information and technology
- Promote and model responsible social interactions related to the use of technology and information
- Model and facilitate the development of a shared cultural understanding and involvement in global issues through the use of contemporary communication and collaboration tools. (ISTE, 2011, para, 10)

All members of a school faculty, student body and administration should practice digital Citizenship. The 21st century leader must be cognizant of modeling behaviors that exude socially and ethically acceptable behavior.

In providing the ISTE-A standards, the ISTE board believes that administrators that follow the guidelines can provide enhanced and successful 21st century learning environments. As schools evolve and integrate 21st century learning, change encompasses every aspect of the educational environment especially the role of the educational leader.

The job of an educational leader has become increasingly complex (Fullan, 1998). Fullan explained that educational leaders are becoming dependent on context due to the two interrelated factors of overload and vulnerability to packaged solutions. According to Fullan, the role of the principal in the implementation of innovation consists of being on the receiving end of "extremely initiated changes" (p. 6). In overcoming this dependency, Fullan positioned that the principal must first give up the idea of the silver bullet, and then the principal must create an environment of collaboration by following four steps:

1. Respect those you want to silence
2. Move toward the danger in forming new alliances
3. Manage emotionally as well as rationally
4. Fight for lost causes. (Fullan, 1998, p. 8)

The need to overcome dependency is extremely important for a 21st century leader as the number of innovations in a school increase and the ability to manage these innovations requires a form of distributed leadership. It is also necessary to provide teachers with an environment that fosters understanding as these teachers are mandated to teach using cutting edge pedagogy.

Developing a 21st century school is less about money and the actual technologies used and more about mindset (Blair, 2012). According to Blair, a successful implementation of programs in a 21st century school requires a proactive leader that embodies three main characteristics. These three characteristics include:

- Making the needs of the 21st century leader a priority

- Deliberately empowering teachers to innovatively craft digital learning experiences that promote discovery and creation
- Establishing a shared vision and unique plan for students and teachers. (p. 13)

Successful 21st century leaders must understand that technology integration requires an investment from teachers and students. Including teachers and students in all phases of technology integration allows for all parties to form a sense of pride and ownership.

Blair (2012) stated that it is important for a 21st century leader to first assemble a team consisting of administrators, technology specialists, educators, parents and students that can come together to create a shared vision for the school. Once the vision is prepared, the team must then perform a needs assessment to determine the areas of weakness. According to the areas of need the team should then create a plan for implementation. Blair (2012) finally stressed the need for leadership to cultivate a group of teachers to serve as trail blazers. These trailblazers should be willing to test new technologies and methodologies before implementation is spread to the entirety of the school.

Technology Leadership

One of the most important aspects of technology integration is leadership. Research findings have shown that technology leadership is an important part of and positively influences the leadership skills of school administration (Dexter, 2011; McLeod & Richardson, 2011). Regardless of whom is tasked with leading technology integration, it has been determined that for successful technology integration school administration must understand, believe in, and lead any major change that is occurring in their schools (Dawon & Rakes 2003; Schiller, 2003). A study examining principals'

technology leadership characteristics completed by Anderson and Dexter (2005) found that administrators' technology leadership was even more important than the actual technology infrastructure. A study by Afshari, Kamariah, Wong, and Saedah (2012) reported similar results as they explained effective technology integration was the result of leadership modeling the uses of technology, providing professional learning, and supporting teachers during the change process.

One of the major tenets of successful technology leadership is an administrators' ability to model the use of technology. Stuart, Mills, and Remus (2009) found a correlation between an administrator's competence and frequency of technology use and the perceived success of a school's technology integration. Afshari et al. (2012) stated:

> It is important that principals understand and learn how to utilize new technologies in education. If leaders use technology and realize the advantages of its use in education, then technology use in school is more likely… Leaders need to model the use of technology to show how it can positively impact the school environment. In order to improve principals' levels of proficiency in computer use, professional development programs should be provided for them. (Afshari et al., 2012, p.166)

Anderson and Dexter, (2000) also explained that administrators with the necessary skills of technology leadership are more likely to facilitate all stages of instruction and school management by effectively integrating educational technologies into school life.

Successful technology leadership also necessitates the inclusion of all stakeholders involved in the educational experience (Prensky, 2008). Prensky outlined a number of activities that an administrator could use to facilitate an environment of inclusion rather than exclusion related to technology implementation. The list of activities includes:

- Announce that henceforth students will have a meaningful voice in setting all school policy regarding technology use. Hold assemblies that include

teachers, students, parents, administrators, and technologists to hear all points of view and establish school policies regarding such issues as blocked Web sites and use of cell phones.

- Make it your business to eliminate boredom from your school — make 100 percent engagement the goal. Poll students as to which of their teachers and classes are engaging and which are boring and why. Investigate and take action.
- Talk with 2-4 students each day for at least one-half hour about their learning. If you feel you can't spare that time to engage with kids, you may need to rethink your priorities.
- Work with both students and teachers to implement the new "kids teaching themselves with guidance" model. Eliminate lectures and busywork from your school. Ask teachers who use active learning to share their practices with their colleagues.
- Orient your school toward the future. Offer classes in programming, robotics, long-distance collaboration, and cutting-edge science.
- Keep the computer lab open late and on weekends, especially in areas with limited technology access.
- Have students share your school's most effective practices and results with the world via YouTube. (p. 43)

Activities similar to these not only provide all stakeholders with a voice, but these activities can also provide insight into which activities and teaching practices are proving to have the greatest impact and success. A single individual cannot undertake 21st century leadership, as a task. It is necessary to have individuals in the school that can help with the technology integration process. The following literature examines the educational technology specialist, a role that has evolved as the use of technology in education has increased.

Educational Technology Specialist

Coinciding with the increased use of technology integration in schools was the creation of a new role within school systems often called the educational or instructional technology specialist (Moursund, 1992). The titles given to this particular role are also referred to as technology coordinators, technology integration specialists, technology support specialists, instructional technology coordinators, technology mentor teachers,

curriculum technology partners, educational technologists, coaches, expert trainers, technology support coordinators, and site-based technology facilitators (Hoffer, Chamberlin, & Scott, 2004). Moursund explained that the work of the early instructional technology specialist was to provide professional learning to teachers, help students and teachers with technical and instructional assistance, and to maintain technology equipment. As technology has become more prevalent, the work of these specialists has become more curriculum oriented (Reilly, 2001).

A study by Ausband (2006) examined the relationship between the role of the instructional technology specialist and curriculum through the perspectives of those in the instructional technology specialist role. Ausband's study found that the instructional technology specialist role included helping teachers to integrate technology through professional learning, helping teachers develop lesson plans, and supporting teachers as they developed technology portfolios. The study further reported that several barriers such as exclusion from decision-making, a lack of time spent in schools and classrooms, and the relationships with leadership as preventing further inclusion in curriculum work. The creation and evolution of this new position is not the final piece to successful technology integration; however, it does serve to tie technology closer to curriculum by providing the teachers with the support needed to change their instruction (Hofferman, Chamberlin, & Scott, 2004).

Laws and Regulations Governing Independent Schools

The infusion of technology into the educational landscape has created the need for rules and laws to govern how schools and systems purchase, implement, and supervise certain technologies. A number of Federal guidelines including the Family Educational

Rights and Privacy Act (1974) and the Children's Internet Protection Act (2001) are not required in private and independent schools, but are often used as governance or guidelines (United States Department of Education, n.d.). Additional independent school governance can be found in the individual state guidelines on non-public schools (Friedman's Foundation, n.d.). The purpose of this section of the literature review is to provide background on the rules and regulations of independent schools that may pertain to the purchase, implementation, and governance of technology.

Federal Guidelines

Independent schools for the most part are free to operate outside the guidelines of federal laws governing education in pk-12 grade schools. The only instance in which observation of federal laws is required in independent schools is when the particular school receives funding from a federal program or the federal law is specifically cited in the state governance.

The No Child Left Behind Act of 2001 (NCLB) is one of the most recent and overarching Federal Acts governing education in the United States. Part of NCLB reauthorized the Elementary and Secondary Education Act, which, in turn, provides 12 programs that oblige public schools to provide services and benefits to independent schools on an equitable basis (No Child Left Behind Act, 2001). Independent schools may choose to participate in these programs and receive equitable funding and services or they may opt out of the programs. Those schools that choose to participate in the federal programs must then follow the federal guidelines as outlined in the program requirements (NCLB, 2001).

According to a study done by the United States Department of Education (2007), 44% of independent schools had at least one participant in an ESEA program. In examining each of the 12 programs individually, there were no more than 20% of independent schools participating in one specific program. The programs with the highest percentage of participation were the State Grants for Innovative Programs and the Improving Teacher Quality State Grants (Christensen, Cohodes, Fernandes, Klasik, Loss, & Segeritz, 2007). According to the documentation provided as part of these programs, independent school participants are required to adhere to federal guidelines that include Family Educational Rights and Privacy Act (FERPA) and the Children's Internet Protection Act (CIPA) (Federal Communications Commission, 2001).

FERPA was enacted in 1974 and was put in place to protect the privacy of a student's educational records. FERPA also provides certain rights for the parents of students related to educational records. Some of the rights included in the FERPA guidelines include the right to inspect a student's record at any time, the right to ask for a student's records to be corrected if inaccurate, and the need for schools to have written permission to release a student's records to an outside party (United States Department of Education, n.d.)

E-Rate Program and CIPA

The e-rate program was designed to provide schools with discounted products and services related to telecommunications. According to a report by Harrington (2012), since 1998 the e-rate has provided 2.25 billion dollars annually for schools to acquire telecommunication services, Internet connectivity, and technology equipment. In the same report, it states that independent and religious schools are only eligible for e-rate

funding if they have an endowment of less than 50 million dollars. The e-rate program is designed to provide discounts based on the number of students qualifying for the Free or Reduced Lunch Program, which takes into account a family's socio-economic status. A district or school may qualify for a discount between 20 percent and 90 percent. For example, a school qualifying for a 90 percent discount on an eligible service or technology equipment would pay for 10 percent of the cost while e-rate would cover the remaining 90 percent (CDWG, n.d.). A search for data on the ratio of independent schools receiving e-rate funding provided no results.

State Regulations

According to a study completed by the United States Department of Education (n.d.), none of the 50 states regulates independent schools (referred to in text as non-public schools) in exactly the same way. A website created by the Friedman Foundation for Educational Choice and the United States Department of Education website provides documentation outlining the state regulations governing independent schools in each of the 50 states. Because the present study will include participants from independent school administrators in Texas, a closer examination of the regulations in these two states will provide the most pertinent background.

Texas

Texas provisions regarding non-public schools as outlined by the United States Department of Education (n.d.) are less stringent than those governing most other states regarding non-public schools. A non-public school in Texas is not required to register with the state, does not require licensing, and does not need to be approved by the state. Texas has set up the Texas Independent School Accreditation Commission (TEPSAC) to

handle accreditation for independent schools (United States Department of Education). Schools seeking accreditation through the state of Texas can do so through a letter of understanding sent to TEPSAC. The letter must include information outlining financial resources, professional management of resources, a philosophy and the ability to implement the philosophy, and facilities to support the outlined program. The school must also participate in a self-study outlining its strengths and weaknesses to include achievement of school goals and compliance with state Board of Education rules (Friendman's Foundation, n.d.).

Curriculum requirements for non-public schools are minimal. Texas exempts students in non-public schools from the state's required attendance policy (United States Department of Education, n.d.). State accredited schools must have an outlined curricula and instructional time requirements. The curriculum for accredited schools must be comparable to the requirements outlined by the Texas Board of Education for a student to receive credits toward a state issued diploma. Texas has no prescribed provisions regarding the use or purchase of technology in non-public schools (Friendman's Foundation, n.d.).

Alternate Accreditation

Independent schools by nature differ from public schools. Each independent school was created with a specific mission through which the educational needs of students could best be met. In accordance with the independent nature of independent schools, it became important for these schools to find alternate routes through which they could become accredited. Independent schools often seek accreditation so that students in these schools may attend post-secondary institutions or transfer to public schools

(National Association of Independent Schools Accreditation Commission, n.d.). There are a number of accrediting establishments through which independent schools may seek their accreditation. For the purpose of this study, literature regarding the National Association of Independent Schools Accreditation Commission (NAISAC) and the Independent Schools Association of the Southwest was analyzed.

National Association of Independent Schools Accreditation Commission

The NAISAC was created in 2001 in response to desires of a number of independent schools and independent school accrediting associations. The Council was commissioned to create protocols through which the quality of independent school accrediting associations is examined. In response to the needs of its constituents the board created the Criteria for Effective Independent School Accreditation Practices which outlines the standards through which accreditation can be obtained. The practices summarized in the criteria provide a common ground through which accreditation associations are provided with best practices, policies and procedures. Each accrediting association is required to provide a self-study that examines its alignment with the outlined criteria (National Association of Independent Schools Accreditation Commission, n.d.).

Pertinent to this study, the NAISAC also promotes the Schools of the Future Guide that encourages independent schools to examine their ability to prepare students for a 21st century world. Using a quote from Christopher Dede of the Harvard school of Education," You can't just sprinkle 21st century skills on the 20th century doughnut. It requires a fundamental re-conception of what we're doing," the NAISAC extolls the need

for independent schools begin to use new pedagogy and instructional technology (National Association of Independent Schools Accreditation Commission).

Independent Schools Association of the Southwest (ISASW)

The independent school headmasters that have participated in this study lead schools that are governed by ISASW accreditation. The ISASW accrediting agency is a member of NAISAC and was initially created as the Association of Texas Independent Schools in 1952. It then changed its name to the Independent Schools Association in 1955. According to the mission on its website:

> The Independent Schools Association of the Southwest (ISAS) promotes the highest professional and ethical standards of educational excellence for independent schools in the region and recognizes by formal ongoing accreditation those schools which demonstrate adherence to its standards. As a collective voice of the independent schools of the Southwest, ISAS fosters collegial relations among its member schools and represents their interests. (Independent Schools Association of the Southwest, n.d.)

Membership in ISASW provides schools with governance through which accreditation may be achieved. This is important for schools that plan to provide certificates and diplomas that are accepted by post-secondary institutions around the world.

ISASW has outlined the steps through which interested schools may gain accreditation and membership in their standards for membership guide. The guide explains that member schools must be mission driven and need to prescribe goals through which that mission can be obtained. The member schools must also be independent legal entities and be granted 501(C)(3) status by the Internal Revenue Service. The school must also have a governing body that has independent decision-making authority in accordance with the school's by-laws. The governing body should be made up of a board of trustees that are commissioned to review the schools mission statement, policies and

procedures and financial stability. The board is also responsible for employing and evaluating the head of school (Independent Schools Association of the Southwest, n.d.).

Included in the Standards for Membership are the minimum requirements for teachers in member schools. ISASW explains that all teachers must have a four-year degree or experience in the area that they are assigned. It further states that all persons engaging students must have the appropriate training and understanding regarding the development of the appropriate age group and undergo a background check. The standards for membership regarding administration state, the administration must be responsive to the constituency and adhere to the ISASW Code of Ethics (Independent Schools Association of the Southwest).

Curriculum requirements in the ISASW Standards for Membership outline the specific requirements for compliance for nursery and toddler programs, early childhood programs, elementary programs and secondary programs. Schools that house more than one program are required to adhere to the standards outlined for all programs housed within the school. In general, the standards for these programs are basic and require curriculum that is developmentally appropriate for the age range. In two separate places, the elementary program and the secondary program, technology needs are specifically mentioned. The elementary program states that the school must "utilize technology to expand, enhance, and assist learning" (p. 6). The secondary program calls for a graduation requirement that includes a credit for technology (Independent Schools Association of the Southwest, n.d.).

The only place in the Standards for Membership, other than in the specific programs of study, in which technology is mentioned, involves E-Learning and Distance

Education Programs. This section states that all schools using e-learning or distance education programs must show that the program is compliant with all ISASW Standards. Furthermore, the program must be developed or endorsed by the ISASW school or be a supplemental program accredited by a regional accrediting agency. To remain in compliance, the school must have a monitoring process and obtain approval of that process through the ISASW. The school must also have a policy determining how much credit a student may receive through a distance-learning program. In regards to e-learning or distance program the school may be granted exception to ISASW standards involving facility, physical space and school sessions (Independent Schools Association of the Southwest, n.d.).

Chapter Summary

The literature available regarding the coverage of topics of technology integration and school leadership is abundant and constantly increasing as the focus on preparing students for the 21st century workforce escalates. The increased pressure to incorporate technology in all facets of the educational experience has created the need for additional research on the combination of technology integration and the role of the educational leader. The majority of literature regarding technology integration centers on the teacher and the changes in content, pedagogy, and classroom environment that technology integration requires. Models of technology integration similar to Koehler and Mishra's (2008) TPCK and Puentedura's (2009) SAMR, provides teachers with guidance on implementing technology in the classroom. However, these models lack insight on leading technology integration from a school administration standpoint.

Additional research has been done on the best practices for providing technology integration professional learning for teachers. Learning to integrate technology is much different than learning to implement other educational initiatives because it requires a hands-on approach. The literature regarding professional learning does provide school administrators with an important insight into successful technology integration.

The research and subsequent literature available concerning laws and regulations governing independent schools and technology integration is minimal. The main reason for the dearth in the literature is the lack of federal and state laws and regulations governing independent schools. The majority of independent school governance is reliant on independent accrediting associations. There is recent literature such as the NAISAC's "Schools of The Future Guide" pertaining to the need for independent schools to incorporate technology. There was no information found in the literature on independent school laws and regulations that tied leadership to technology integration.

The need for further research on technology integration and its effects are a result of the research that has already been done concerning the 21st century learner and 21st century learning environment. "Digital Natives" that are in a constant state of multitasking, expect information to be readily available and pleasing to the eye. They also expect a certain freedom of movement both physically and mentally that can be achieved through the use of flexible furniture and individual computing devices.

The literature that is most pertinent to this study came from the research available on 21st century leadership. Viviano's (2012) thought that 21st century leaders are needed to inspire rather than manage, is important as schools begin to hire administrators to lead their 21st century schools. The skills needed to create and maintain 21st century schools

are outlined in greater detail in the ISTE-A standards. Blair (2012) and Prensky (2008) provide administrators with actions that can be taken to meet the standards set forth in the ISTE-A standards. The literature available regarding 21st century educational leadership is informative and can be applied to independent school leadership. However, there was no mention of the specific needs regarding independent school leadership and 21st century schools.

Several recent studies have been completed that can be considered similar to this study. Berrett, Murphy, and Sullivan (2012) completed an exploratory case study focusing on administrator insights and reflections on technology integration in schools. Cakir (2012) studied technology integration and technology leadership in schools as learning organizations where through the use of a questionnaire. Suarez (2012) used a case study to examine the influence of technology on career and technical education administrators. The present study is needed to fill the void left by previous studies concerning the specific aspects of technology integration and independent school leadership.

CHAPTER 3

RESEARCH DESIGN and METHODOLOGY

A review of literature on leadership and technology implementation provides an abundance of information on each topic individually and a growing amount of written work concerning the combination of the two subjects. The increase in available information related to technology integration and leadership can be found in peer reviewed journals and published books, but also through practitioner writing found throughout the web on well-respected blog sites, wikis, and other web pages. Many of these web based publications focus less on the theory of technology integration and leadership, and more on the actual practice of technology integrations and the leadership needed to for successful integration. However, a dearth of information lies in the specificity within the current literature. One such gap in the literature consists of a combination of independent school leadership and technology implementation and the effect that each entity has on the other.

The purpose of this study was to examine the perspectives of four headmasters of independent schools to determine the changes, both real and perceived, in the role of the administration and leadership related to a technology integration process. To further define this study, headmasters at four independent schools in the Southeastern United States that had led schools through technology integration were interviewed to glean their perspectives about technology integration and its effect on independent school leadership.

A qualitative case study approach was used to uncover the headmasters' experiences and their perspectives about these experiences.

This chapter includes the research questions, the theoretical framework used to guide the research, the description of the research design, the rationale for the study, the data collection methods and data analysis used for the study, the viability of the study, and the limitations of the study.

Research Questions

Four school leaders from independent schools located geographically in one southeastern state participated in the study. There were two interview protocols used with each participant resulting in eight total interviews. Prior to the interview sessions, the background and relevance to the study of each participant was established. The first interview protocol was used to examine the experiences of the participants prior to and during the technology integration at the participant's schools. This protocol was important in discovering which aspects of the independent school were affected by the technology integration and what leadership actions the participants employed.

The second interview protocol focused on the experiences and perspectives of the participants after the initial technology integration and delved into statements made during the first interview to gain a greater understanding of how the process of technology integration affected the leadership of an independent school.

The research questions this study sought to answer included:

1. How vital is technology integration to the success of an independent school?
2. Does the headmaster influence determining how technology integration is approached?

3. Do changes occur in the headmaster's leadership role during technology integration?
4. What changes in leadership responsibilities do headmasters report as a result of technology integration?

Theoretical Framework

Patton (2002) explained that qualitative research was designed to supply descriptions that tell a story that offers insight into the experiences of the participants. Silverman (2000) positioned using qualitative research instead of quantitative research depends on what is being researched. Therefore, examining the perspectives of headmasters that have taken part in technology integration and the perceived effects of the integration on the leadership of the school would be most beneficial using a qualitative approach.

The interpreted experiences of those that lead technology integration in an independent school are the focus of this study. As this is a study dealing with the experiences of people, the information gathered in this study was built on the constructionism epistemology. The responses to the research questions were established through constructing an understanding of how each participant experienced the phenomenon of technology integration in an independent school through an interpretive lens. Figure 3.1 outlines the sequential design of the study.

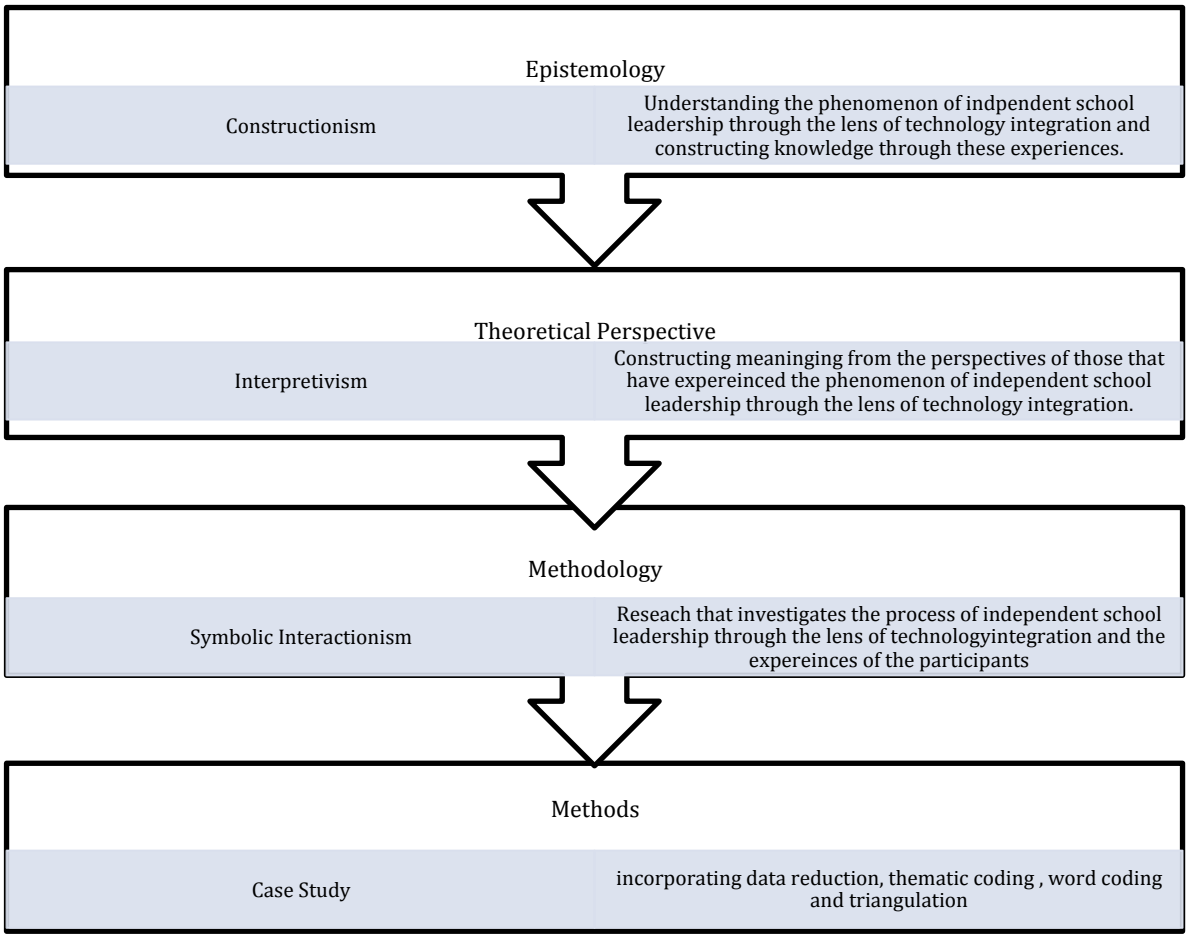

Figure 3.1.

The four elements of the study design in sequential presentation

Epistemology – Constructionism

The framework of this study was based in the epistemology of constructionism with a research design suited to construct knowledge about independent school leadership in relation to technology integration. Crotty (2003) explained that the all knowledge and meaningful reality is contingent on human practices. Crotty stated that knowledge was "constructed in and out of interaction between human beings and their world" (p. 42). This study used constructionism aligned with the thinking of Denzin and Lincoln (2005) in that no distinction is drawn between the individual and the collective generation of

meaning. The goals of this study were to identify the nature, characteristics, and practices of independent school leaders having participated in technology integration.

Essentially, the primary goal was to interpret the perspectives of headmasters that had experienced technology integration. These perspectives on technology integration and independent school leadership were constructed through the analysis of the experiences of four independent school headmasters from independent schools in one state in the Southern United States. These experiences and perspectives helped the researcher to construct the nature and process of independent school leadership through the lens of technology integration and to help build an understanding of how leadership was exerted during technology integration.

Theoretical Perspective – Interpretivism

Marshall and Rossman (2006) explained that all qualitative research is "fundamentally interpretive" (p. 3). Denzin (2001) stated that interpretive interactionism "endeavors to capture and represent the voices, emotions and actions of those studied" (p. 2). Maxwell (2005) indicated that the strength of the qualitative research lies in its inductive approach and its focus on specific situations and people. In using an interpretive approach, the researcher was able to group the main themes of the phenomenon and efficiently to examine the pieces of the data most critical to the study.

Denzin (2001) explained that interpretive interactionism allows for the clarification of meaning through the process of interpreting the perspectives that have been expressed by the participants. In this study, it was important to understand the perspectives of those directly involved in leading technology integration in independent schools. A discovery of how these headmasters' perspectives were formed through

interpretation allowed for an understanding of how their perspectives influenced the decision-making and leadership process for the school.

The research in this study is further supported in this approach by a number of other contributions of qualitative research as outlined by Denzin (2001). Denzin defined these contributions to evaluative research as including:

1. Identification of other perspectives.
2. Identification of the assumptions of the group.
3. Evaluation of the phenomenon and the possibility of providing strategic points for intervention.
4. Gaining a point of view from those most directly involved in and affected since meaning is derived from lived experiences.
5. Exposing the limits of quantitative research and statistical information. (p. 132)

Discovering the headmasters' perspectives of how technology integration affected independent school leadership through an interpretive qualitative approach allowed for the perspectives of the headmasters' and not the researcher's to emerge and to provide a realistic practitioner's view of technology integration and independent school leadership.

Symbolic Interactionism

Symbolic interactionism has been widely used in educational research because of its reliance on subjective perceptions of human behaviors and social processes (LeCompte & Preissle, 1992). According to Blumer (1969), one of its originators, symbolic interactionism's goal is to understand the perspectives of members of society and their interpretation of their surroundings through social interactions. Crotty (2003, pp. 75-76) explained, "Only through dialogue can one become aware of the perceptions, feelings and attitudes of others and interpret their meaning and content." Symbolic interactionism focuses on social conduct in real settings with a goal of capturing the

nature of social life. Blumer (1969) provided three premises for the basis of symbolic interactionism. These premises included:

1. Humans respond to things based on the meanings that the things have for them.
2. The social interaction that one has with ones companions is the derivative of these meanings of things.
3. These meanings are handled in and modified through an interpretive process used by the person in dealing with the things he encounters. (Blumer, 1969, p. 2)

Using these three principles, Blumer explained that meaning was a product formed through the activities and interactions among people. Bogdan and Biklen (2003) further explained symbolic interactionism is a way for individuals to create meaning based on their experiences and the process of interpreting those experiences. Bogdan and Biklen also stated that in certain situations people are inclined to develop common meanings related to their shared experiences.

The interview process used in this study allowed the researcher to participate in a discussion with the participants on an individual basis about technology integration and independent school leadership. The first interview involved a discussion of technology integration and independent school leadership with a focus on gaining the overall perspective of the headmaster on the affect that each foci had on the other. Following an analysis of the transcripts of the first interview, a second interview provided the researcher with an opportunity to delve further into how and why particular perspectives were established.

Methods – Case Study

The framework and goals of this study provided an opportunity to use the case study method. Huberman and Middlebrooks (2000) and Yin (2009) described the case study method as a way to gain understanding of a phenomenon in its real life context. Bogdan and Biklen (2003) also described the case study method as representing a cone. The study begins with broad intentions and as the study progresses; it also becomes more narrow and focused until the point of the study is reached. Flyberg (2006) identified "context-dependent knowledge" which for the purpose of this study was used to research the context of individual headmasters within independent schools.

This particular case study encompassed both "etic" issues and "emic" issues as defined by Stake (2006). "Etic" issues or those that existed outside of the specific instances studied included perceptions of independent school education, and the students and parents that are perceived to attend independent schools. The "emic" issues or issues that are specific to the individual case that were introduced in this study included school size, school culture, management style, parent involvement, and leadership style of the headmasters studied.

This study pursued the perspectives of four independent school headmasters regarding technology integration and independent school leadership. Each headmaster represented a case and each case provided data that were then coded and analyzed inductively for themes and areas of further exploration. Upon the completion of the analysis of each case, a cross case comparison was used to determine specific themes and patterns that emerged.

Further analysis of the data was completed according to Yin's (2003) description of multiple case study methodology, in which he explained that using the multiple case study method provides an expansion of the generalizability and validity of the findings. Stake (2010) further explained that in cross-case analysis the individual cases should have similar aspects. In this study, all four cases focused on the same phenomenon, used participants in similar positions, and all participants were interviewed twice using the same interview protocols.

Rationale and Research Design

A number of studies have been completed related to the need for effective leadership during technology integration (Berrett et al., 2012; Cakir, 2012; McLeod & Richardson, 2011). According to the findings of these studies and what is reported in the popular literature, a generalized statement could be made extolling the importance of school leadership during technology integration. However, to date, no specific study could be found about the reciprocal influence of technology integration and independent school leadership. This is the gap the present study hopes to fill.

To better understand independent school leadership and technology integration, it was necessary to examine the activities and perspectives of headmasters who had been involved in technology integration in their independent schools. The research method that best suited the design of this study was multiple case studies. A case study as described by Merriman (1998) is a means of gaining understanding of and meaning for a phenomenon.

This study on the phenomenon of technology integration and independent school leadership represents an instrumental case study as described by Stake (1995).

Importance was not placed on the individual schools in the study, but instead, the study focused on the influence of technology integration on independent school leadership and the reciprocal influence of independent school leadership on technology integration. The subject was studied in the context of a specific geographical area, but one of the goals of the study was to better understand technology integration and independent school leadership. Thus, research protocols were used to maintain the focus on the phenomenon rather than the schools themselves allowing for the eventual expansion of this study if desired.

The interview protocols used in this study were based on the research completed on the outlined components of the theoretical framework and were replicated with each individual participant. The data collection and analysis of this study was repeated with each individual participant using the logic provided by Yin (2003). His explanation of the replication process allows for repetition of the protocols with the understanding that while remaining mostly intact, the protocols could be modified as the study progressed. Huberman and Middlebrooks (2000) agreed with this process by explaining that the initial data collection serves to inform future data gathering and analysis. This study provided minor deviation from the initial protocols but allowed for further investigation into specific ideas that emerged as the interview process occurred.

Data Sources

The purpose of this study was to determine the perspectives of headmasters in independent schools that had participated in the leadership of technology integration. As an instrumental case study, this research examined the phenomenon of technology integration and independent school leadership through multiple cases. It was important

to select participants that had recently in the past five years participated in technology integration in the school where the participant was currently employed. The perspectives of these headmasters could serve to provide valuable information related to the needs and decisions of independent schools that were planning future technology integration. The major differences in the leadership of independent and the leadership of public schools provide value to the specific goals of this study.

In choosing between the two types of sampling, random and purposeful, outlined by Bogdan and Biklen (2003), it was pertinent in this study to use the purposeful sampling method. Purposeful sampling was determined to "facilitate the expansion of the developing theory" (p. 65). Furthermore, a small sample size was used in accordance with Patton's (2002) explanation that a small sample in qualitative inquiry strengthens the study. The focus was placed on selecting participants that would enhance the study rather than obtaining data from a larger statistical representation.

The selection of participants through purposeful sampling used three specific criteria for the specific needs of this study. (1) Participants were the current Headmasters of an independent school in the Southern United States, (2) Participants had previously led or were leading technology integration at the school in which they were currently employed, (3) The technology integration process needed to have been completed in the past five years or was currently ongoing, but not in the initial planning phases. This study aimed to gain the perspectives of these headmasters rather than to determine their effectiveness as leaders during the transition into technology integrated schools. Table 3.1 provides information about the participants and the participant's school that shows alignment with the parameters outlined for the study.

Table 3.1

Participant compliance

Participant Name	Location of School	Grade levels	Years as Headmaster at current school	Year technology integration was started	Phase of technology integration
Mrs. Canoe	Houston, Texas	Pre-k - 8	3	2013	Full Implementation
Mrs. Yacht	Dallas, Texas	Pre-k - 8	2	2013	Full Implementation
Mr. Pontoon	Fort Worth, Texas	Pre-k - 12	12	2012	Full Implementation with changes in 2015-2016
Mr. Skiff	Addison, Texas	Pre-k - 12	15	2011	Full implementation with changes made on a yearly basis

According to Stake (2006) and Yin (2003), case study data are most often derived from interviews, observations, records, artifacts, and documents. Siedman (2006) explained that interviewing is the most common method of attaining how participants experience a specific phenomenon. In this study, data collection was completed using the interview process, the fieldnotes, and documents regarding technology integration related to leadership. The majority of the data collected was a result of the spoken word of the participants through the use of the semi-structured interviews. Table 3.2 provides the data sources that were used in this study.

Table 3.2

Sources of Data

Sources of Data	Description
Semi-structured interviews	Phase 1: (4 participants) • Establish rapport • Address current phase of technology integration • Address role of Headmaster in technology integration • Address changes to administrative team • Address school culture, curriculum and professional learning Phase 2: (4 participants) • Address Headmasters role in continuing growth of technology integration • Address ongoing professional learning at school regarding technology integration • Address main themes from analysis of phase 1 interviews
Fieldnotes	Summary of the researcher's experiences during the interview process
Technology Documents	School promotional literature extolling technology use Required use policy Technology policy Technology integration plan Memorandum of agreement for technology purchases
Leadership Documents	Headmaster's job description Job description of technology leadership School organizational charts Internal memos regarding technology integration roles and responsibilities

Contextual Settings of the Study

Research in this study was conducted in independent schools located in the general area of the Southern United States. For the purpose of this study, schools located in Texas were chosen. Independent schools in these particular areas tend to enroll 200 and 1400 students and tuition ranges from $5000 a year to $30,000 a year. Independent schools often are in competition for certain students. Technology integration has become a selling point for certain schools in retaining current students and attracting future students. As with many public schools, independent schools create a community within themselves relying on the resources within them to provide for the needs of the school.

Funding for independent schools is often acquired through tuition, endowments, parental support, and fundraisers. As most independent schools receive little to no federal monetary support, it is up to the leadership of the school to ensure funding for any major projects that the school undertakes. Technology integration is the type of project that requires a certain amount of monetary support that needs to be planned for in advance of the project. This specific area of the study was addressed through the interview protocol and was vital to understand.

Data Collection

The data collection process for this study included a semi-structured interview procedure and a collection of documents from each of the independent schools involved. Each of the four participants was interviewed twice using the prepared interview protocols that addressed all phases of leadership leading up to, during, and after the initial technology integration periods. In addition to the 10 transcripts, fieldnotes from each day of interviews and documents from the individual schools were collected and then

analyzed. Interviews were recorded with a digital voice recorder. The researcher conducted the interviews and took field notes, attempting to highlight specific areas of interest and specific quotes that were valuable to the research. The researcher compiled field notes and areas of specific interest at the end of each interview session. All audio files, individual notes, and field notes were then uploaded to the researchers' personal computer for further analysis.

Interviews

Kvale (1996) explained that in the qualitative research process, the interview should serve to find out how people understand their world and life from their own perspective. Bogdan and Bilken (2003) also stated that the point of an interview is to understand how the interview subject thinks and perceives his or her own surroundings and social settings. According to Kvale (1996, p. 145) a quality interview is the building site of knowledge and follows six main criteria:

1. Spontaneous, relevant and detailed responses from the participant
2. Short interview questions with longer subject responses
3. Follow up questions that clarify meanings of relevant responses
4. Interpretation of the interview should take place during the interview process.
5. The interviewer should verify his interpretations of the participants' responses during the interview.
6. The interview should become a story in itself without much in the way of extra description or explanation.

The individual interviews served as the main source of data collected in this study. Participants were asked to engage in two, one-hour interviews for a total of approximately two hours of spoken interaction between the researcher and the participant. The interviews took place during the fall of 2014 and spring of 2015.

Data Analysis

Data Analysis as described by Dey (1993) and Creswell (1998) is a process of breaking apart data in a case study to find detailed descriptions of the case and its setting and to make connections between concepts to create new descriptions. The data analysis in this study was inductive in nature. Strauss and Corbin (1998) described this process as moving from specific to general or creating hypothesis based on the data collected. It is the hope to develop a series of overall themes or propositions that were supported by the findings.

Another assertion made by Straus and Corbin (1998) was that the constant comparison of one piece of data against another provided validation of the interpretation and provided the value of multiple case study analysis. Four stages of the constant comparative method including comparing categorical incidents, creating categorical data, reducing data into theory, and writing theory were used to guide the specific analysis of data (Glasser & Strauss, 1999).

The inductive process of analyzing data involved, coding, memoing, categorizing and formulating themes. Word coding led to categorical coding that led to thematic coding which then provided the basis for the presentation of theory. Continuous interpretation of the data and formulation of themes allowed the researcher to "build theory rather than test theory" (Patton, 2002, p. 127). Figure 3.2 based on research from Saldana's Coding Manual for Qualitative Research (2012), described the basic matrix that was followed in the coding that was undertaken in this study.

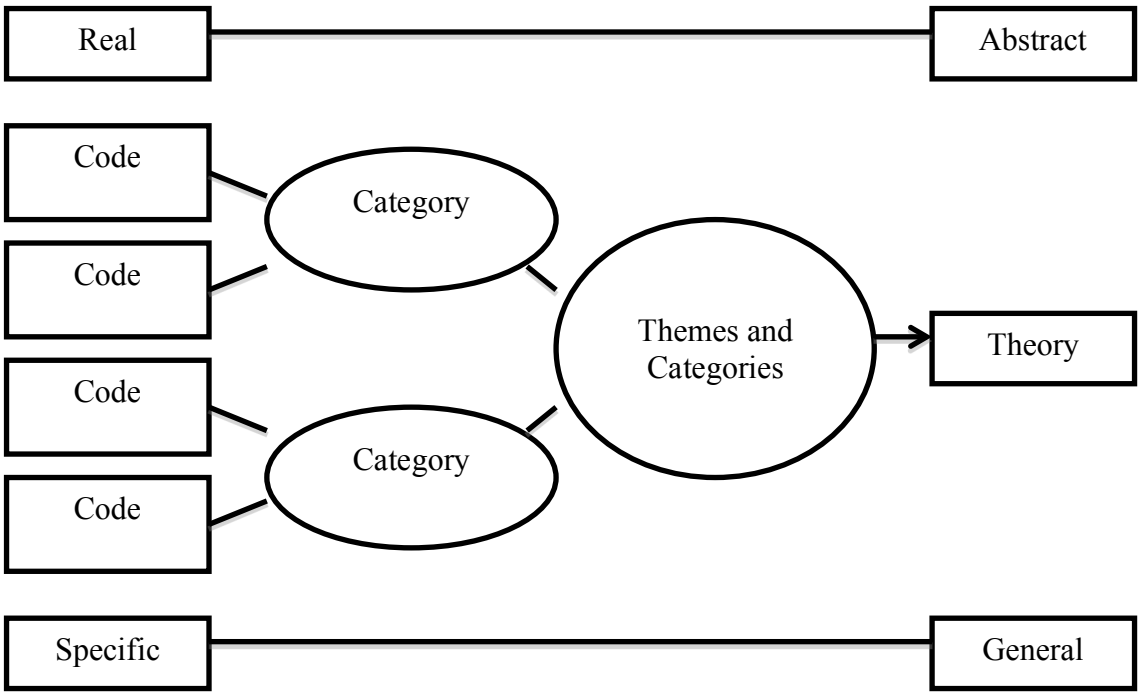

Figure 3.2.

Coding Matrix (Based on Saldana's Codes to Categories to Theory, 2012)

Single Case Analysis

Yin (2009) explained, "analysis of case study evidence is one of the least developed and most difficult aspects of doing case studies" (p. 109). The data collection in this study resulted in four separate cases of independent school headmasters involved in technology integration. According to Yin (2009), there are multiple ways to analyze case study data. First, embedded analysis as described by Creswell (2007) and Yin (2009) was used to address important aspects of each case and to provide an overall detailed and rich description of each case. Beyond embedded analysis, this study was based on logical, sequential analysis of the data, while still remaining fluid. Figure 3.3 provides the sequential framework of the single case analysis in this study, while also allowing for ongoing and iterative analysis of the data.

Figure 3.3

Single Case Analysis Sequence

Contextual Analysis

The first step in the analysis of this data involved procuring a familiarity with the contextual aspects of the case. This step allowed the researcher to gather data specific to each case regarding a description of each school and the phase of technology integration each school was currently engaged. The context of each case established the framework from which the researcher was able to gain a better frame of reference for the specific data harvested from interviews, field notes, and system documents.

Preliminary Data Analysis

Preliminary data analysis was ongoing and occurred as data were collected in each separate case (Grbich, 2007). During the interview process, observational field notes were recorded, and documents procured from each school. As this transpired, a reflection of these notes and documents occurred and assisted in developing an initial general understanding of the processes and changes that occurred during technology integration.

The contextual and preliminary analysis of the data allowed the researcher to gain an initial and basic understanding of the phenomenon of technology integration and independent school leadership. Themes and theories realized during these phases of analysis provided the background for more formal analysis performed during later phases.

Analyzing the Data

Following the descriptive analysis performed during the contextual and preliminary phases, the researcher performed advanced analysis that included the coding of transcripts and the construction of themes (Merriam, 1998). The themes resulted from

word and categorical coding performed on the procured data. The coding process was performed in a manner described by Saldana (2012) driven by the research questions (Yin, 2009). The research questions were developed through the belief and lens that technology integration affected independent school leadership and that independent school leadership style affected technology integration.

The coding process for this data involved the creation of categories and concepts as a result of word-by-word and line-by-line analysis of the interview transcripts (Grbich, 2007). A chart was developed for each interview highlighting key comments, the line number in the transcript from which the comment could be located and a place for comments. Table 3.3 provides an example of how each transcript was analyzed for the participants' perspectives on technology integration and independent school leadership.

Table 3.3

Sample of Transcription Analysis

Key Words	**Line #**	**Code**	**Comments**
We benchmark our school with others in the area.	56	Importance	Competition between schools
Students need a 21st century educational opportunity	87	Importance	Student needs
I am a "techy" so I like to use it	93	Influence	Personal use
I try to tweet every day	115	New Roles	Description of new daily tasks
Communication was an issue here: Parents expected what we promised	130; 135	Influence	First improvement made
I have never know someone with her work capacity	182	Administrators	Description of division head
I try to hire the right people to do the work	220	Philosophy	Leadership philosophy

The codes and comments provided evidence of multiple interpretations about broad areas, such as influence. Influence included the participant's perspectives or beliefs about influence, the manner in which influence was used, and the areas in which influence was exerted. According to Hyener's (1985) delineation of relevant meaning process, the researcher reduced the data to a more manageable form. Following the reduction of data, repeating ideas were identified, themes were developed, and theoretical constructs were created.

This process of coding, reducing, and sorting the data into categories was followed after the first interview. The reduced data were used as a basis for the preliminary interpretation of the participant's perspectives on how technology integration affected independent school leadership. The second interview provided the opportunity to present the preliminary findings to the participant and to ask additional questions about areas relevant to the study. The participant was allowed to further elaborate or clarify statements made during the first interview. Following the second interview, the process of coding, reducing, and sorting the data was conducted again. The second interview data was then combined with the data from the first interview to provide a complete picture of the participant's perspectives.

Categorization of Themes

The next step in the analytical process included the categorization of themes. In examining data with similar meaning, the researcher looked for emerging themes that would benefit the goals of the research. According to Hyener (1985), the researcher must examine clusters of meaning to establish central themes that in turn express the principal meaning of the data. It was important to analyze the data in relation to the original research questions. The researcher matched the categories and themes to the research question the data represented. Table 3.4 provides a detailed description of how a category or theme was matched to the research question it addressed.

Table 3.4

Common Categories and Themes related to each Research Question

Research Question	Categories	Themes
1. How vital is technology integration to the success of an independent school?	• Competition with other Independent schools • Cutting edge vs. making mistakes	Relationship to other schools in the area
	• Preparation for future • Parental influence	Retention of current students
	• Technology as a marketing tool	Recruitment of new students
2. Does the headmaster influence determining how technology integration is approached?	• Total funding available for technology Integration • School funded vs. Parent funded • Refreshment schedule	Finance
	• Becoming a cheerleader • Allowing innovation and understanding failure	School Culture
3. Do changes occur in the headmaster's leadership role during technology integration?	• Tweeting, blogging and becoming an online presence	Communication
	• Allowing teachers to try new ways of teaching	Championing Integration

Table 3.4 Continued

Research Question	Categories	Themes
4. What changes in leadership responsibilities do headmasters report as a result of technology integration?	• Determining the role of the technology leadership • Rewriting roles of administrators	Restructuring administration
	• Finding experts	Empowering others

The thematic analysis of the data provided a clearer picture as to the perceptions of the participants in regards to technology integration and the affect on independent school leadership.

Triangulation

Yin (2009) explained that case study research is further strengthened through the use of multiple data sources. The use of multiple data sources assists in solidifying the credibility and validity of the study (Patton, 2002). In this study, triangulation occurred through the use of additional documents procured from the four schools of the participants. The documents used were identified based on their relationship to the topic and their ability to add context to the study. Access to these documents allowed the researcher to cross reference data from interview transcripts with policy and written statements about technology integration and leadership. Figure 3.5 provides the documents that were obtained from the participants' schools.

Table 3.5

List of Documents and Description

Document Type	Description
Official Documents and Policy	Technology Plan Headmaster's Job Description Leadership Team Job Description Infrastructure Plan Professional Learning Plan
Training Materials	Professional Learning Documents Training Videos Teacher Feedback from Professional Learning
School Propaganda	Letters to Parents School Brochures Commercial Documents School Website Videos

Trustworthiness

The nature of qualitative research often requires the researcher to establish trustworthiness (Merriam, 1998). Furthermore, case studies are often criticized for the weaknesses of the researcher and the influences that the researcher can inadvertently place on the analysis of the data from a case (Yin, 2003). To combat the issue of trustworthiness, Lincoln and Guba (1985) described four methods: validity, reliability, generalizability, and neutrality.

Validity

Qualitative research validity is achieved by way of construction of reality through the analysis of the data (Merriam, 1998). Stake (1995) explained that triangulation can increase the validity of a case study. Triangulation of the data in this case allowed the

researcher to establish and to verify meaning through the use of more than one source (Bogdan & Bilken, 2003). In this study, the researcher gathered data for the research through a number of sources including transcripts of interviews of four headmasters, researcher field notes, and additional documents procured from the schools.

This study further established validity through the use of multiple subjects as opposed to a single participant. The use of multiple subjects allowed the researcher to compare several perspectives from each participant and to cross analyze perspectives from four participants. The use of multiple participants helped the researcher to create a reality of independent school leadership who had experienced the phenomenon of technology integration.

Furthermore, each participant was interviewed using the same interview protocol contributing to validity through replication logic (Yin, 2009). Transcripts of each interview were provided to each participant to read and to verify the accuracy and content of their statements. Participants were also given the opportunity to clarify or to retract to any of the statements that they made. The contextual analysis and use of interview protocols served to increase validity by allowing the researcher and participants to become more comfortable with each other and with the research methods and processes used in this study.

Reliability

Reliability in case studies is often described through the ability to which another investigator could replicate the study (Merriam, 1998; Yin, 2009). Yin (2003) explained that making as many steps as operational as possible and conducting the research as though the researcher is being scrutinized during each stage of the process can help to

achieve reliability. Given the detail offered in data collection and analysis, this study could be replicated provided the availability and willingness of appropriate subjects. Replication does not assert that the findings, would, however, be identical given that each researcher analyzes data from a pre-determined lens based on beliefs and the boundaries of data collection methods in addition to factors including subjectivities. The documentation of the research process was recorded at the onset of the study and the researcher detailed changes in the process so that future studies could be replicated. As shifts in protocol occurred, these shifts were noted as well as the reasons the shifts were made.

Kvale (1996) explained that reliability is relevant to the consistency of the research findings. Triangulation was used to confirm research findings and thus increased the reliability of the study (Stake, 1995). This study used multiple data sources including interview transcripts, researcher field notes, and procured documents from the participants to establish credibility to the findings. Merriam (1998) explained that triangulation, peer examination, and the use of multiple interview sources enhance the reliability of a case study. Furthermore, the reliability of the study was confirmed through copious detailed notes regarding the process of data collection and analysis.

Generalizability

Merriam (1998) explained that generalizability is dependent on whether or not the case can be generalized. Yin (2003) pointed out that case study results can be used to serve the purpose of generalization and can result in theory generation. Merriam (1998) further addressed the issue of generalizability by stating that generalizability is a limitation of the method and that the use of multiple cases can strengthen generalizability

of findings. The purpose of this study was not to make broad statements about independent school leadership experiencing the phenomenon of technology integration. Instead, it was the purpose of this study to gather data and to build themes based on data through perspective seeking from the four participants. Analysis of events, processes, and perspectives encompassed in the study allowed the researcher to uncover themes that led to the formation of key concepts and propositions.

Neutrality

Neutrality in qualitative research is often viewed as a limitation because of the researcher's personal contact with the participants of the study (Patton, 2002). In this study, an importance has been placed on preserving a neutral viewpoint and refraining from attempting to prove particular theories or to highlight certain perspectives to the exclusion of others. According to Stake (1995), the role of researcher should "be an ethical choice, an honest choice" (p. 103). Preconceived notions, perceptions, and theories in the mind of the researcher regarding the outcome of the study must be kept from swaying the eventual findings of the study. In an attempt to ensure neutrality of the study, the researcher followed protocols, kept field notes, and remained aware of personal connections to the study and its participants. To ensure a more reliable study required a focus on the purpose of the study, an ethical analysis of the data, and proper presentation of the findings.

Prior to the commencement of the study, permission of the participants and their schools was secured as well as University of Georgia Institutional Review and approval. Participants and schools were assured of their anonymity and given the opportunity to remove themselves from the study at any point. This anonymity allowed the participants

to freely share their perspectives. Anonymity was important as participants spoke about the jobs and roles of faculty and staff at their schools.

Limitations of the Study

Lincoln and Guba (1985) explained that sampling in qualitative research should be done with a specific purpose in mind. This study was limited in that the number of participants meeting the requirements of the study and the sample from the larger pool of participants was small. This sample was further limited to those that agreed to be a part of the study. Four headmasters from independent schools experiencing the phenomenon of technology integration agreed to serve as representation of the larger group. Originally, five participants agreed to be a part of the study, but one headmaster backed out of being a part of the study.

The participants further limited the study, as each participant was the headmaster of his or her respective school. As headmaster, the participant perceives the actions of the school and its members from managerial and leadership perspectives. There is only one headmaster per school allowing for only one perspective of how leadership was affected through the experience of technology integration.

Participants were chosen with an eye toward proximity to the researcher, allowing for less travel time and expense and more time spent conducting the study. This limitation could have served as a barrier to finding well-rounded perspectives of headmasters from independent schools experiencing the phenomenon of technology integration.

CHAPTER 4

CONTEXTUAL SETTING AND PARTICIPANT PORTRAITS

The purpose of this study was to examine the perspectives of four headmasters of independent schools to determine the changes, both real and perceived, in the role of the administration and leadership related to technology integration. To further define this study, headmasters at four independent schools in the Southeastern United States that had led schools through technology integration were interviewed to glean their perspectives about technology integration and its effect on independent school leadership. The research was conducted to answer the following research questions:

1. How vital is technology integration to the success of an independent school?
2. Does the headmaster influence determining how technology integration is approached?
3. Do changes occur in the headmaster's leadership role during technology integration?
4. What changes in leadership responsibilities do headmasters report as a result of technology integration?

The participants in this study included four current independent school headmasters selected from schools in and Texas. A qualitative case study approach was used to discover the headmasters' experiences and perspectives in relation to technology integration. Each case was studied individually and then examined through multiple case study methods.

To introduce the reader to the participants and the context of the study, this chapter includes a description of the contextual settings of the schools and the participants' profiles. The contextual settings and participant profiles also include analysis of the individual case studies derived from interviews, fieldnotes and artifacts. Each participant was interviewed two times for approximately one hour each time. Data from the interviews was categorized and coded. Patterns, categories and themes were realized from the perspectives of the participants in regard technology integration and its effect on the leadership of the school, faculty and students. Artifacts and fieldnotes were used to provide greater detail and to further validate the findings.

Contextual Setting

Context Setting of River Independent School

River Independent School is located in an affluent area of Houston, Texas and is a member of the Independent Schools of the Southwest Association and the Accreditation Commission of the Texas Association of Baptist Schools. Housed on a sprawling 13-acre campus, the school is adjacent to its affiliated church and has recently been updated with state of the art educational and athletic facilities. Founded in 1955, River Independent School has a mission to:

> Prepare its students to meet life's challenges and lead tomorrow's world through a superior educational program undergirded by faith in Jesus Christ and Christian principles.

The school started as a local church preschool and expanded to include all grades pre-kindergarten through eight. Currently the school serves 845 students and employs 104 faculty members. At the time of this study, 50% of the faculty had received advanced degrees and had a combined average of 19 years of experience.

The administration of River Independent School is divided into two sections with the headmaster as the liaison. Figure 4.1 provides the hierarchy of River Independent School.

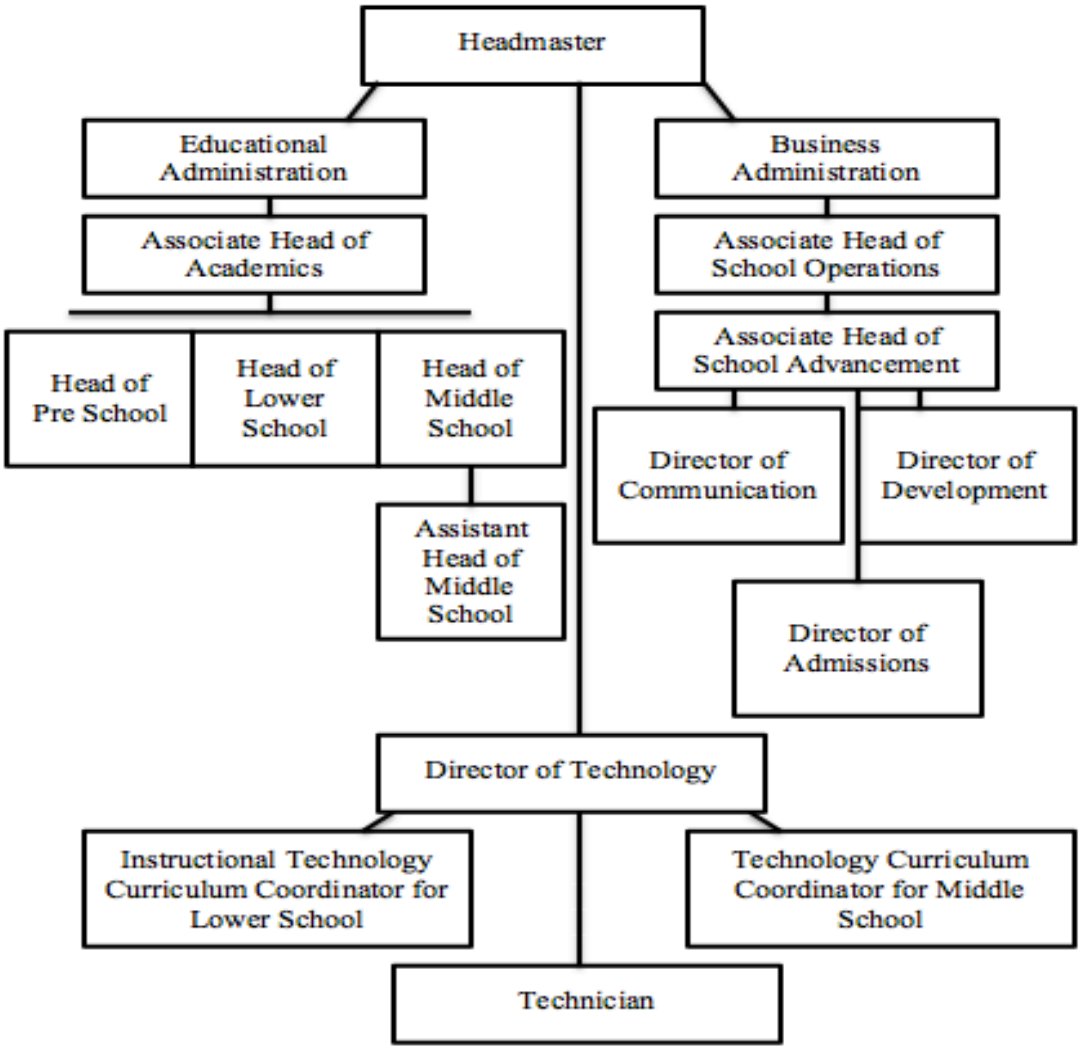

Figure 4.1

River Independent School Administrative Flow Chart

The educational side of the administrative team is comprised of an Associate Head for Academics, a Head of Preschool, a Head of Lower School, a Head of Middle School, and an Assistant Head of Middle School. The business side of the administrative team is comprised of an Associate Head of School Operations, an Associate Head of

School for Advancement, a Director of Communications, a Director of Development, and a Director of Admission. The technology department at River Independent School consists of a Head of Technology, an Instructional Technology Curriculum Coordinator for Lower School, a Technology Curriculum Coordinator for Middle School, and a Technician. The organizational chart used at RIS provides insight as to the importance of technology and the technology team. Instead of having the Technology Director report to an Associate Head, that person reports directly to the Headmaster.

According to documentation provided to the researcher, RIS began planning for an increased use of technology during the 2012-2013 school year. In its current iteration, the technology plan at RIS calls for 1:1 computing in grades 3-8. Students in grades three through five are assigned an on-campus computing device to be used while they are at school. Devices in grades three through five do not leave the school grounds and are charged and maintained by the school technology staff. According to the school website, this initial introduction into educational computing provides the preliminary stages of learning responsibility for the device and helps students understand that the device is to be used only for educational purposes.

Students in grades six through eight are required to purchase a particular device, currently a Fujitsu laptop, from the school. At the beginning of grade six, parents are required to pay a $1200 technology fee that goes toward the purchase of the laptop. Once the student graduates from RIS in grade 8, the student may take the laptop with them. Middle school students use the device both at school and at home and are responsible for the care of their machines. This model of integration is intended to provide each student with an educational device and to teach students the importance of caring and

maintaining the machine, as they will need to in future endeavors. The following excerpt from the school website outlines uses for the device and the educational goals for the school's technology integration.

> For all grade levels, the School selected a tablet PC model, so that students can have full computing capabilities as well as the flexibility and creativity of a touch screen and fully digitized stylus. Running Windows 8 and using Microsoft Office 2013, these devices harness leading technology for student learning. Through the 1:1 program, students learn to use technology as a tool to foster the 6 C's of 21st century learning:
>
> - Critical thinking
> - Collaboration
> - Communication
> - Creativity
> - Cross-cultural competency
> - Character
>
> Learning remains the goal, with the tablet PC supporting the students' pursuit of new knowledge and skills. Because of the high level of access to computers and the opportunity to use the same machine all day, every day, technology is thoughtfully integrated into teaching and learning.

The information on the school website seems to use educational jargon that would please those parents and prospective parents that are at least partially knowledgeable about educational technology. The information on the website, does not provide detail about specific uses of technology or educational technology programs that will be used.

During the observation of River Independent School, it was noted that the students, faculty, and administration engaged with a collegial and jovial attitude. The learning experiences that occurred during the visit engaged the entire school body as it was noted that teachers commented on performances or asked about certain activities that were taking place outside their specific classrooms. The administrative team was engaged with the researcher and was willing to speak to the great things that were happening at RIS. The faculty encountered on the visit spoke highly of the leadership of the school with no prompt from the researcher.

Contextual Setting of Ocean Episcopal School

Ocean Episcopal School (OES), located in the outskirts of the Dallas metropolitan area is a member of the Independent Schools Association of the Southwest and the National Association of Episcopal Schools. Founded in 1959, OES was originally a preschool and has since expanded to house students in pre-kindergarten through grade 8. OES currently boasts an enrollment of 575 students and 61 full time faculty members. The school has recently undergone a building infrastructure overhaul that included revamping classrooms to encourage 21st century learning. The result of the overhaul included each classroom at OES being furnished with mobile furniture that allows teachers to alter the contents of the room to fit the needs of the educational activity. Lower school classrooms received whiteboard tables that allow students to write directly on the table and mobile teacher desks that can be wheeled around the classroom. Additionally, the teachers received items such as iPad projection devices and stands that allow students to project their work onto the classroom screens. The most notable changes came in the library, where a new SPARQ space was carved out and a recording studio was built.

The administration at OES is lead by the headmaster whom has been in her current role for two years. The administrative team as with many independent schools is made up of two offices, the business office and the educational office. In the business office, the school employs an Associate Head of Admissions, a Director of Communication, and a Director of Finance. The administrative team consists of a Middle School Head, a Lower School Head, and a Director of Technology and Innovation. The Director of Technology and Innovation is given influence and responsibility similar to

that of an Associate Headmaster. The technology department at OES consists of the Director of Technology and Innovation at the top, followed by two Instructional Technology Specialists, two Computer Teachers, and one Computer Science Engineer. Figure 4.2 provides a visual explanation of the OES administrative chart.

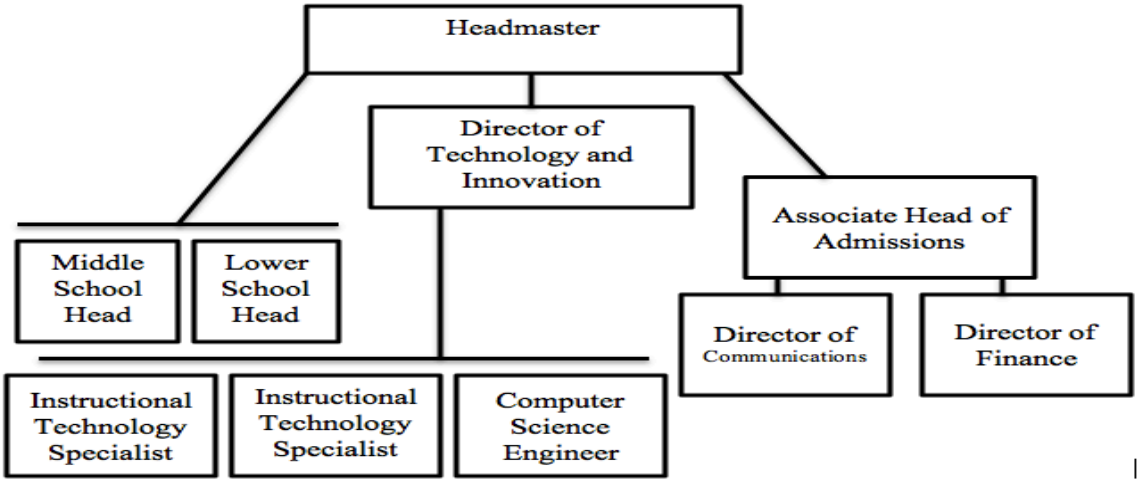

Figure 4.2

Ocean Episcopal School Administrative Flow Chart

Of the four schools participating in this study, OES was the school that gave the greatest influence to person in charge of the technology integration.

The technology integration program at OES began in the 2012-2013 school year and consisted of students, in grades three through eight, participating in a hybrid Bring Your Own Device (BYOD) program. The OES version of BYOD requires the students' family to purchase the assigned device, in this case an iPad, and to create an Apple ID through which applications are purchased. According to the Director of Technology and Innovation, the school decided that a particular device needed to be agreed upon so that teachers knew what to plan for. She further explained that if students are allowed to bring any device they chose, it limits the ability of teachers to plan activities. Figure 4.3

is the diagram that the Director used to convince the Headmaster and school governance board to require the purchase of a specific device.

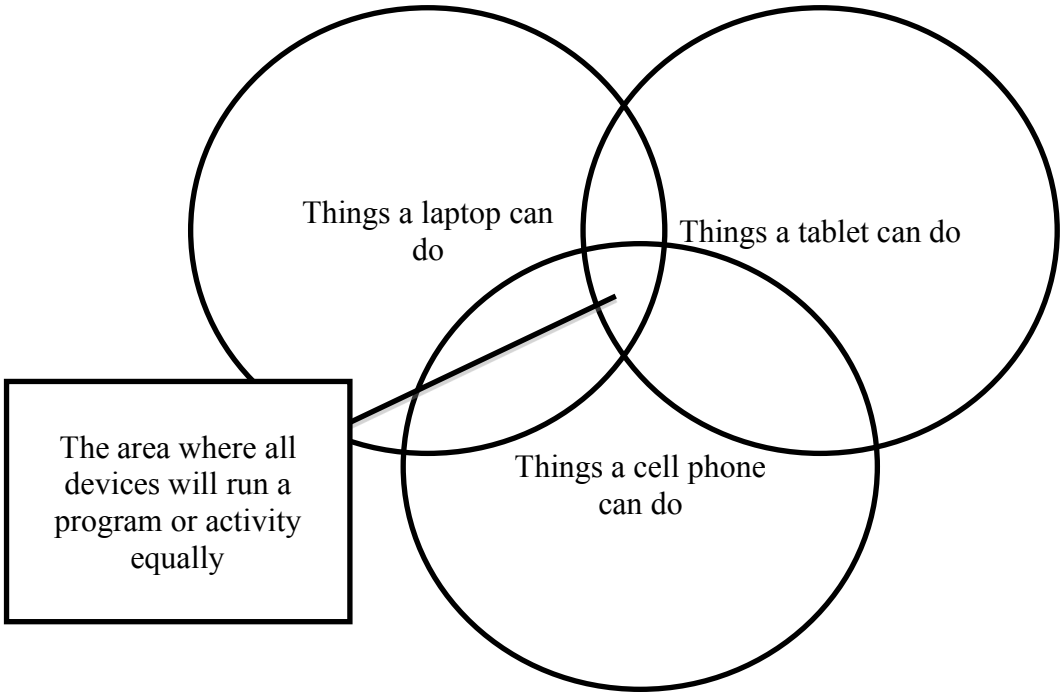

Figure 4.3

Problems that can be caused by a BYOD initiative

The Director of Technology and Innovation expressed a belief that by requiring all students to use one type of device, the teachers can prepare better lessons that will be equally received by all students.

According to documentation procured from the school, OES has the ability to change or require a refresh of the device used by the student in third, fifth, and seventh grades. Refreshing student computers through this model allows the school an opportunity to alter the technology program to best fit the educational needs of the students. This device refresh model helps the school keep up with the rapidly changing technology that is available. The OES technology refreshment model also prevents the school from having to budget for the purchase of future devices. In passing the cost of

the device to the parent, OES is able to purchase ancillary devices like 3-D printers, recording and editing equipment, and manipulative materials for SPARQ projects.

One of the major components of the technology integration program at OES is the use of the SPARQ curriculum. During the recent building overhaul, OES put space in the school's library that was to be used for SPARQ and "Maker" activities. SPARQ is a program that was created at Stanford University and designed to have students find social psychological answers to real world questions. The SPARQ program at OES is promoted through the following information obtained from the school website.

> ***Solving Problems Asking Real-World Questions***
> Unique Innovation Center and Maker Space
> *Where **every** OES student creates, collaborates, innovates, and uses design thinking to **SPARQ** and develop their passions.*
>
> **Creating the SPARQ**
> Our world is different today and our students learn differently today. The possibilities appear endless. OES was among the first Texas schools to put technology in the hands of the students as a regular part of their daily toolkit with our 1:1 iPad initiative. With our commitment to innovating the learning environment at OES, we recognize this sea of change and are taking action to become early leaders in this re-invention of learning and education.
>
> **We are all IN!**
> We are not talking about the kind of technology "we" (adults) use at work or carry around on our Smartphones. In fact, we don't even begin our conversations with the technology itself! We begin our conversations with the learning and find technologies that will support children's thinking. As our iPad initiative has paved the way for innovation at OES starting this school year, we will begin work on the next "big" thing and the creation of something very exciting that answers some very big "what if's."
>
> **No more What IF. Introducing SPARQ!**
> **At OES, it is our goal to explore new ways to engage our students in learning.**
> The world is changing and students are learning differently today - we have to pay attention to that.

OES has made a conscious effort to provide students with as much real world experience as possible, while also providing them with a top-notch independent school education. According to the headmaster, each class in the school has an assigned SPARQ time slot and many of the teachers often request additional time in the SPARQ space.

The researcher's impressions of Ocean Independent School began forming upon entrance into the main school building. The school had several flat screen televisions showing students participating in technology related and SPARQ activities. It was easy to identify the importance of technology and innovative thinking at OES. The headmaster was excited to flaunt the spaces that had been renovated around the school and the new mobile furniture that she felt had increased collaborative learning and innovative thinking. From mobile teacher desks and whiteboard tables to iPad projection units, each classroom at OES had been renovated to help teachers better incorporate the use of technology. The faculty at OES was equally as proud of their new educational settings and curriculum and spoke to the engagement that had been created.

Contextual Setting of Lake Independent School (LIS)

Lake Independent School is located on a 100-acre campus in Fort Worth, Texas. LIS is a National Association of Independent Schools and Independent Schools of the Southwest member school. Founded in 1961 LIS touts a track record that has shown success in providing a college preparatory education that prepares its students for the top-notch universities around the world. According to the school website, the LIS mission statement is:

> … to foster the intellectual, physical, emotional, and ethical development of capable students through an academically rigorous college preparatory program that integrates the arts and athletics.

The school has an enrollment of 1,117 in pre-kindergarten through grade twelve and is subdivided into a lower school, middle school, and upper school. Serving these students are 138 full time faculty members of which 59% hold advanced degrees.

The administrative team at LIS consists of a business office and an educational office. The business office administration is made up of a Director of Advancement and Finance, a Director of Admissions, and a Communications Manager. The educational administrative team consists of a Head and Assistant Head for the upper, middle and lower schools. Each side of the administration reports to the Headmaster who then reports to an Executive Board. The following figure provides the administrative layout for LIS.

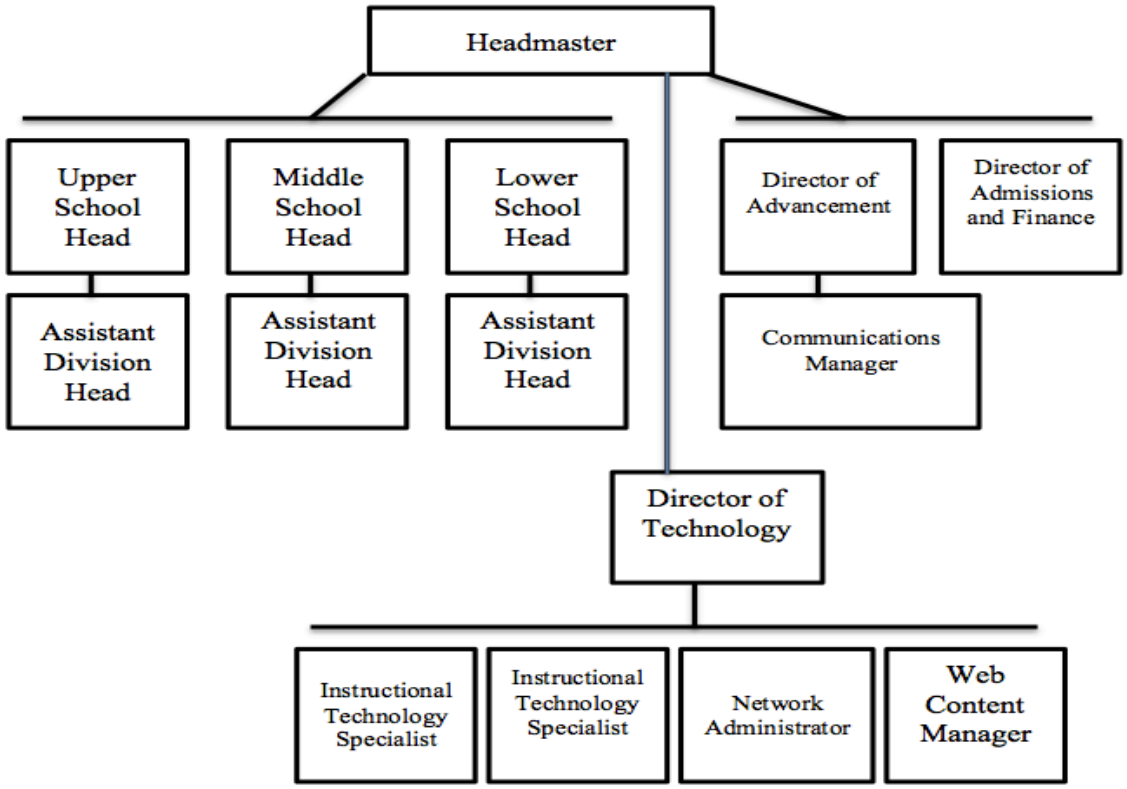

Figure 4.4

Lake Independent School Administrative Flow Chart

The technology department consists of a Director of Technology whom was hired by the Headmaster during his first year at the school. The Headmaster provided the Technology Director with three years worth of funding and asked him to devise and implement a technology plan. The Technology Director then hired two Technology Integration Specialists, a Network Administrator, and a Web Content Manager. The administration at LIS was observed as compartmentalized in that each unit within the school had its own plan and was integrating technology differently.

Prior to the current iteration of the technology integration plan, LIS had several pockets within the school in which technology was used. However, the disjointed nature of the pocket usage created frustration among teachers. Under the new technology leadership, the school has updated the infrastructure and implemented 1:1 computing using the Apple iPad in grades three through eight. Students in the upper school are given the opportunity to bring their own technology device to school. Approximately 80% of the upper school students bring laptops, while the other 20% bring tablet devices. The upper school Bring Your Own Device Program is in its first year of operation, and the school is planning on making changes to combat several issues that have presented themselves. The biggest change will result in providing certain specifications for the technology in the upcoming school year.

A ninth grade student that was part of the admission's team performed the school tour at Lake Independent School. This provided the researcher with a unique vantage point of how technology was integrated into curriculum at LIS, how often teachers used technology in lessons, and how the students felt about the use of technology at school. The LIS school visit occurred during the later part of the day, which is a time period

when a large portion of the upper school is not in the classroom either because of recess or sports related practices. The lower and middle school classes were using iPads and many upper school students were observed using laptop devices during their study hall hour. Of the classes that were in session during the visit approximately 50 percent had students using technology devices.

The faculty at LIS was friendly, but not as eager to engage with the researcher. This may have been a result of the headmaster not participating in the school tour and the faculty being unaware of the reason behind the school tour. The middle school and upper school head both took time to speak to the researcher and to explain their thoughts on how technology was being integrated in their respective divisions. The student tour guide explained that the middle school and lower school were a bit more advanced in the integration of technology and that the upper school was just really beginning to increase the frequency of technology use.

Contextual Setting of Stream Independent School

Founded in 1950, Stream Independent School (SIS) is located in Addison, Texas and is a member of the National Association of Independent Schools and Independent Schools of the Southwest. SIS is housed on a 75-acre campus with 14 academic buildings and a full athletic complex. The school is also in the process of building a 52.6 million dollar Fine Arts and Performance building. According to the SIS website, the school mission statement explains:

> Stream Independent School is a diverse community of learners that strives for excellence; values individuality; fosters a passion for learning; promotes the balanced development of mind, body, and character; encourages service; and instills a respect for others.

SIS, according to its peer schools, is also one of the most respected and well thought of schools in the Independent Schools of the Southwest Association. SIS is often used as a model technology integration school.

SIS serves approximately 1,280 students in grades prekindergarten through twelfth grade and is one of the more diverse independent schools in Texas with 42% of students identifying themselves an ethnic minority. The faculty is comprised of 171 full time members and boasts a faculty of which 60% have obtained advanced degrees. SIS is in stable financial shape as it has an average endowment of 34 million dollars and an annual expenditure of 31 million dollars. The current capitol campaign that is being used to fund the new building began with the donation of 20 million dollars on the first day.

The administrative team at SIS is broken into three sections, a business office, an educational office, and a technology department. All departments report to the Assistant Headmaster or directly to the Headmaster. The business office houses the Chief Financial officer, the Chief Officer of Advancement, the Director of Finance and Human Resources, the Director of Marketing, and the Director of Admissions. The educational office houses a Director of Academics, a Head and Assistant Head of Upper School, an Upper School Dean of Students, a Head and Assistant Head of Middle School, a Head of Lower School, and a Head of Early Childhood Education.

The Director of Instructional Technology and the Director of Computing Services lead the technology department. Under the Director of Instructional Technology are computer teachers in the upper, middle, and lower schools. The Director of Computing Services leads a team that includes a director of Technology Special Projects and a System Administrator. Figure 4.5 provides a hierarchy of the leadership at SIS.

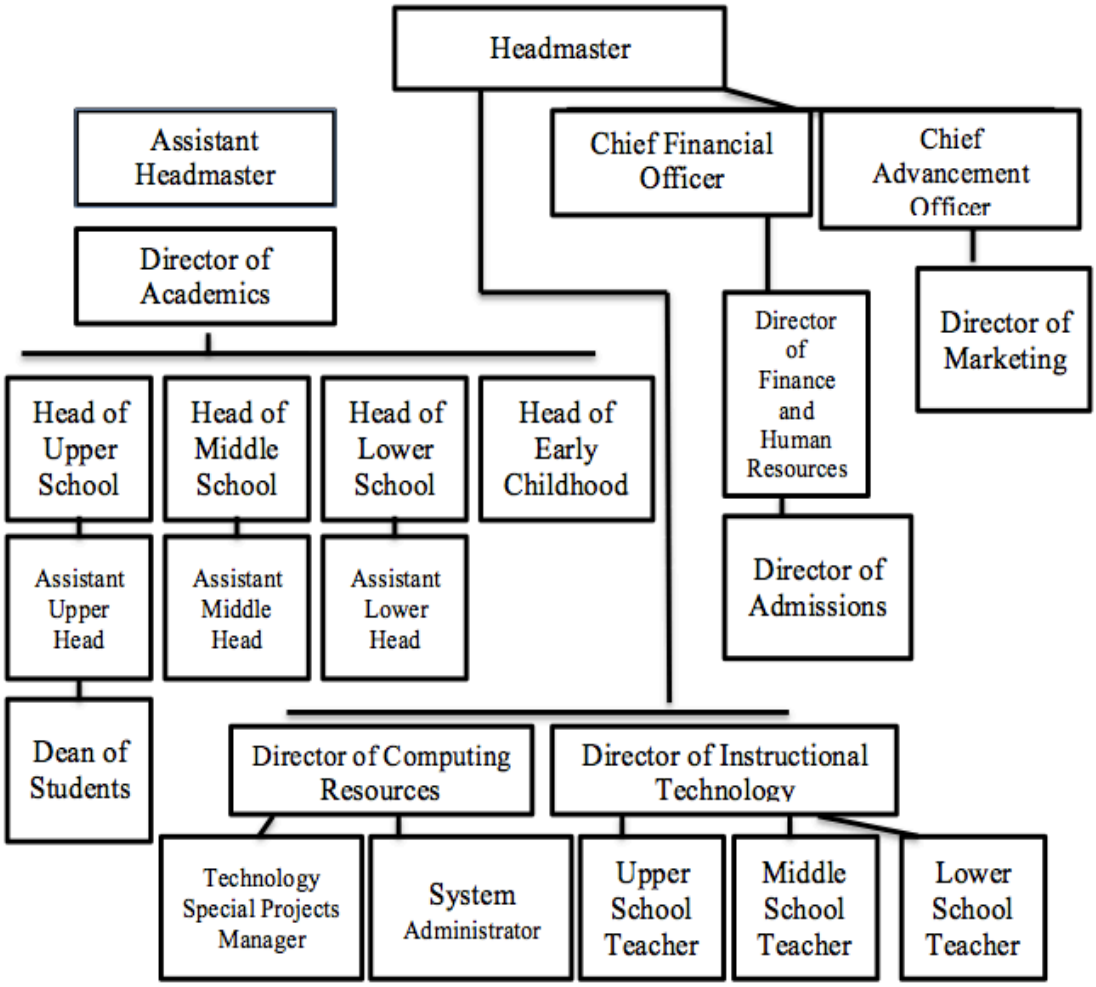

Figure 4.5

Stream Independent School Administrative Flow Chart

The headmaster at SIS believes in a team philosophy and considers the directors of technology and computing as integral parts of the administrative team.

SIS has taken a different approach to the 1:1 technology initiative. Instead of providing students with one device, SIS has provided a number of different devices that can be used to perform numerous tasks throughout the school day. For instance, the school has provided laptop carts that can be checked out by teachers and used for product creation such as writing papers, presentations, and spreadsheet formulas. The school has also provided iPads that can be used for movie making and song creation. SIS also has a

BYOD policy in the upper school and is pushing that policy to the sixth through eighth grades next year. The combination of these two initiatives allows the school to continue towards its goal of preventing students from being tied to a particular device that may or may not fit the needs of the project that is being worked on. The school is also a member of the United States largest online learning conglomerate that allows students to take distance-learning classes both at school and at home.

Participant Profiles

Mrs. Canoe

Mrs. Canoe, the headmaster at River Independent School, has been in education since 1994 when she began as an elementary grades teacher. Venturing into education after a career in the business world, Mrs. Canoe explained her decision to move into administration by stating,

> I missed I enjoyed teaching but I missed the adult contact and so I decided with my principal's blessing to go back to school and get a master's in administration so I did that and I taught for another couple of years and then I became a head master at a very small private school.

Her first headmaster job came in a, kindergarten through grade eight, school of around 150 students in the South Carolina town where she grew up. As a result of her Husband's job transfers, Mrs. Canoe and her family moved about every three years. The family was moved to North Carolina, and Mrs. Canoe took a job doing fundraising for Outward Bound, a program that helps students that cannot attend regular classes. From North Carolina, Mrs. Canoe then moved to Charleston, South Carolina, where she became the Director of Alternative Programs for the Charleston County Public School System.

Mrs. Canoe's next move led her to Virginia where she took a job as a headmaster of a kindergarten through grade eight Lutheran school. From there she moved in Virginia

and became the headmaster of a kindergarten through grade five school that was loosely connected to a local 6th grade through 12th grade school. In 2007, the two schools were merged, and Mrs. Canoe moved to Florida and became the lower school head at Out of Door Academy.

Moving back to Virginia, Mrs. Canoe became the associate head of the school that she had helped to merge. At the behest of a recruiter, Mrs. Canoe traveled to Houston to interview for the River Independent School headmaster position and fell in love with the school on site. As she explained,

> I told the recruiter, I was like I don't want to be in a K-8 and I don't want to be in a little Baptist School and this is definitely no little Baptist School. And so I came here and I fell in love with it and so I'm going on my third year here.

Observations made during the visit lead the researcher to believe that Mrs. Canoe was an energetic and well-liked leader. Describing herself, Mrs. Canoe explained,

> I tell you I want to be an authentic leader I don't want to ask people to do things that I'm not willing to do. I try to model for my faculty I'm not a micro manager so I'm more of a delegator and there to help them pick up the pieces when they fall and you know, I worked for micro managers so I learned my lessons on that what it feels like.

Mrs. Canoe continued by stating,

> I think people will just tell you I am approachable and authentic I have, which I hardly have to have, an open door policy and they all know if my door is open you can come in, you can say hi to Pam, but you don't have to ask her if you can come and see if I'm doing something. I don't ever keep my door shut.

The staff and administrators at the school had a great deal of positive praise for her leadership style and for the implementation of technology.

Regarding technology integration, Mrs. Canoe has been involved with three schools that implemented 1:1 computing initiatives. Her experiences in these previous

schools lead her to the decisions she made upon her arrival at RIS. Her first experience with large-scale technology integration came in Virginia. In describing the experience, Mrs. River stated:

> We had no money and I just went to the head of school who was my mentor and brought me there and so I'll keep we're so far behind at least let me get them an iPads and so he said how much are iPads, $600 we can do it for 600 bucks and of course that meant some printers. And so we took a year like we said, any teachers that wants her iPad has to meet every week and talk about what they're doing with the iPad and share with one another but you get an iPad.

In her first year at the RIS, she was tasked with leading a technology integration that she felt had been poorly planned. Mrs. Canoe stated,

> Okay. It was pretty interesting because I came in to this school thinking they were ready for one-to-one. So the consultant said that the talk was that when I was being hired they knew that I had done it in schools before so, I get here and I look at what has been communicated to parents and I looked at what had actually been done and I realized I had to start from scratch.

Her first major step was to recreate the plan to better fit the needs of the faculty and staff at the school. After creating a new plan, Mrs. Canoe sought the buy-in of the stakeholders of the school and created an open dialogue about the technology integration process. As of the school visit in the fall of 2014, the school technology integration program was fully in place and running very smoothly.

Mrs. Yacht

Mrs. Yacht began her educational career working in public schools as an elementary teacher. After a number of years in the public school sector, Mrs. Yacht moved to Ocean Episcopal School where she taught second grade. After five years as a teacher, Mrs. Yacht was promoted to lower school head and served in that position during the tenure of three different headmasters. The third headmaster she worked for resigned

in December of 2011, citing her inability to work with the faculty and staff to move towards technology integration. Mrs. Yacht described that period by stating,

> So they hired a head of school and her gift was technology and it just wasn't culturally a great fit for us and the emphasis was a little bit too much on technology and not enough on how to integrate it on the end from the faculty and so it wasn't quite fit we were looking for and so I got the opportunity then to move in but with some of the technology talk already in place.

Mrs. Yacht took over the school as interim headmaster and in June of 2012, the interim title was removed, and she became the headmaster at OES. May of 2015 will mark her third year in the headmaster role.

Mrs. Yacht is different than the other participants in this study in that she has spent all of her independent school career working at one institution. It is the norm for independent school leaders to move from place to place as they rise through the administrative ranks. However, Mrs. Yacht was able to move to the headmaster position while staying at the same school. Her hiring speaks to the respect she is afforded by those associated with the school. One of the major benefits of her promotion is that the faculty and students at OES knew what to expect from her as a leader. In describing her leadership style Mrs. Yacht explained:

> I am a huge believer in a team. We have a leadership team and we don't mean just the administration. It's the leadership team and those are the people I'm going to trust to bring in the new ideas or questions and we're going to sit around and discuss. Philosophically I had seen it top down. I really strongly believe in voice so I think my faculty needs voice, I think my leadership team's voice is important, we talk about no "yes men" allowed, you're here because you have something to offer and we all need to throw out our ideas and because, it's okay

Visiting OES allowed the researcher to see first hand the warmth and excitement that abounds at throughout the school. Mrs. Yacht credits her hiring of new division heads

and a Director of Technology and Innovation for the ease with which the school has moved toward full integration of technology initiatives. The following quote from her interview expounded on her hiring practices.

> One of the things that stuck with me from-- that was said to me probably my first or second year about my first principal and he said, the key to leadership is to hire great people and get out of their way and let them do their job and that is always stuck with me, I'll never forget it, I want to put it on a, you know, a billboard somewhere.

Observations from the school visit qualified this statement as teachers were engaged with students and using technology in their educational practices.

Interestingly, Mrs. Yacht decided that the headmaster's office was too far removed from the activities of the school and decided to put her office in the middle of the elementary hall. She explained,

> The old headmaster's office was across campus in the business office part of our school. I really felt like that was too far away from what was going on in the school and removed from the daily routine. I was being promoted from the lower school head position and I already had this office here on the lower school hall, so I decided I would just stay here so that I was more accessible to my teachers.

The importance of interaction between Mrs. Yacht and her teachers was observed during the school tour as teachers, students and parents all interacted with her as if she was just another person in the school. She was respected but not feared and it showed in the teacher and student communication with her.

Mr. Pontoon

Mr. Pontoon began his career as an educator 41 years ago as a seventh grade science teacher. He taught seventh grade earth science for three years before becoming

the department chair for high school science and teaching ninth grade biology. After six years as a classroom teacher, Mr. Pontoon began his career in administration when he became an upper school division head at the school where he taught. Mr. Pontoon described his career path by stating,

> I've been everything from a teacher to a department head, to division head, to director of admissions, to dean of students, to an athletic director, to an assistant head. That's in the end how I became head of upper school and then headmaster. So, those are the set of titles I've had in my 41 years.

His first headmaster role came in Virginia at a kindergarten through sixth grade school that he eventually helped grow into a kindergarten through twelfth grade independent school.

Mr. Pontoon's experience at Lake Independent School began in 1986 when he was hired as the Upper School Division Head. He left the school in 1992 after six years to become the Headmaster at the school in Virginia. In 2002, Mr. Pontoon was rehired by LIS to become its next Headmaster. He has been the Headmaster at LIS for 13 years and will be retiring in June of 2015 to take on a greater role as a grandparent and to travel with his wife.

Mr. Pontoon explained his role as identifiable with a Chief Executive Officer position at a major business. In his interview Mr. Pontoon explained,

> My contract talks about being a head of school and being the CEO and it interchanges those terms all the time and I think it's a -- in this business it's transitioning from being the master teacher to being the business manager of the corporation, being a CEO.

In the first interview, he stated that he averages about 35,000 miles of air travel a year visiting alumni and participating in fundraising and recruitment activities. In regards to educational direction and oversight, Mr. Pontoon indicated that he tries to provide high

level educational direction and evaluates his administrative team, but leaves most of the educational day-to-day work in the hands of his Upper School, Middle School, and Lower School Heads. He shared,

> I stay as far away from running a division as I possibly can. I don't get involved in discipline, I don't get involved in curriculum at a certain level, and I don't get involved in teacher evaluations I don't do those, they know I don't do them.

Mr. Pontoon feels that his main job is to make sure that he has the right team in place to provide the best education for his students. In his initial interview Mr. Pontoon stated,

> My leadership philosophy is find good people who fit your school community tell them what you want them to do and then let them go do it. Don't micro manage, don't ask for weekly reports, don't be critical when they try something and it didn't pay enough the way you want, you know, it took, you know, it took the Wright Brothers about 50 tries to get the kite to fly, I mean, you know, I'm a pilot I get it, I understand but that's basically my philosophy.

When hiring administrators and teachers for his school, Mr. Pontoon said that he looks for one major quality, passion. He expressed this sentiment in the following statement he made about the person that will secede him as Headmaster.

> I met with the committee that the board chair put together and they said, "What should we be looking for?" I said, "look for passion, whether they've been head of school whether they've not been head of school whether they live in Fort Worth or they've never been to Texas, whether they were the science teacher or a music teacher, look for passion and if they don't have that, by all means don't hire them." You will find the person if you wait long enough that has passion for what they're doing.

He feels that if a person has passion for the job they are doing, more often than not, they will do a good job in the role.

Mr. Pontoon is an avid believer in furthering the education of his staff. When he was advancing in his career from teacher to administrator he was given the opportunity to have his advanced degrees paid for by the school that he was working in. The

importance of continuing ones education throughout a career stuck with him and he created a program that allows his teachers to achieve advanced degrees at the expense of the school. Mr. Pontoon explained,

> We have an advance degree program where teachers can get at no cost to them their advance degree by teaching here. I brought it with me 13 years ago we've had seven people that have gone through and we have four or five they're in there right now. What we do is we pay their tuition, books, and fees and they sign a loan with us and then when they're done with their degree they pay back their loan in yearly installments. If it took four years to get your degree you owe me four more years of work here and every year I forgive one quarter of the loan until you're done.

His inspiration for this program came from his own experience, to which he eluded, in the following excerpt from his interview:

> I got mine since exactly that way, a headmaster who wanted to keep me, because I thought I'd get out of education said, you know, you could be a headmaster in this, you know, you're 29 years old. Little did I know what would happen 20 years later but nonetheless.

Mr. Pontoon's passion for his job and for the people that work for him are evident by the creation of this program.

With regard to technology, Mr. Pontoon is a self admitted novice and claims that one of the major reasons he felt LIS needed to better incorporate technology came from alumni. His sons, one an alumnus of LIS, came home from college and said that they did not feel prepared for the technology that was being used in college courses. According to Mr. Pontoon's recollection of the story,

> I have two sons who are in the business, both of them were educated, one graduate from here one graduate from the school in Virginia and both of my boys said, dad, you guys do a miserable job teaching us how to use technology. And they were right, so I went out and find the Steve here and said, okay, come down here and figure this out for me. I'll give you three years no questions ask money is education needed but get us where you think we need to be.

Realizing that he was not the right person to facilitate the technology overhaul, Mr. Pontoon hired a new Director of Technology and gave that person a blank canvass and as much funding as necessary to get the school where it needed to be. Mr. Pontoon's experience as a headmaster allowed him to find the right person to lead the technology integration and provided him with the instinct to know when he needed to stay out of the way.

Mr. Skiff

The headmaster at Stream Independent School, Mr. Skiff, has been leading the school for the past 15 years. Originally from rural Ohio, Mr. Skiff is a product of public school education and attended a small private college in Kentucky. His first introduction into the world of independent schools came as he worked as an admissions counselor for the college that he attended. In his initial interview Mr. Skiff explained that in his role as admissions counselor, he visited a number of schools both private and public and came to realize the major difference that can be seen between most public and private k-12 institutions. He explained,

> You can just walk into an independent institution and feel the difference. People want to be there and feel safe in these types of environments. Most people at a private school have the same end goal in mind and are willing to do what it takes to get there. I knew when I saw my first couple of private schools that this was not the same education I received.

At that point Mr. Skiff still had no interest in a career in education, but knew he had been unaware of the differences in public and private schools.

On one of his visits to a school in Columbus, Ohio the headmaster at the school asked Mr. Skiff,, if he would be interested in teaching and coaching at that particular independent school. Interestingly, Mr. Skiff had only taken one education course and

college and stated, “I hated that course.” He explained to the headmaster his lack of educational background and the headmaster’s retort was that this was an independent school and educational background is not necessary here. Mr. Skiff decided to sign on with the school and taught for 6 years as a middle school math and science teacher. When a position became available in the counseling office, Mr. Skiff’s background allowed him to land a promotion and became the school’s college counselor.

Mr. Skiff eventually moved from Ohio to the Washington D.C. area where he served as the College and Admissions Counselor and Basketball coach for a larger independent school. His first administrative experience came in Richmond, Virginia where he was named Upper School Head in a local independent school. He remained in Virginia for seven years before being contacted about the headmaster opening at Stream Independent School. He is currently in his 15th year as headmaster at SIS.

Regarding his leadership style, Mr. Skiff employs a team approach to all major decisions directing the future of the school. He explained,

> While I may be the one sitting in this chair and am the one that has the final say on anything regarding Stream Independent School, I would not ever make that decision without first consulting my administrative team. I have a rather large group of direct reports and I have it that way so that I am in constant contact with those that are what I consider the boots in the building. I meet with the team as group once a week and I also meet individually with those 15 people at least once a week.

He employs a similar strategy when it comes to anything regarding technology. In the interview, Mr. Skiff pointed out that Stream had already begun down the path towards technology integration, but that the school lacked a leader in that area. Mr. Skiff stated,

> When I was hired as headmaster and became aware of the plans and needs of the school, one of the first things I did was hire the best educational technologist that I could find. He is a major part of the administrative group and has become well known across the country for what he does in

> educational technology. Even with his knowledge and track record, we still bring all decisions to the administrative team before any major change or purchase is made.

The observation of SIS allowed the researcher to see the team approach in action. Mr. Skiff kept his door open throughout the day and administrators were constantly walking in and out of his office. As an administrator, Mr. Skiff is well thought of thought the independent school community.

Chapter Summary

The purpose of this study was to understand the perspectives of headmasters in schools participating in technology integration. This chapter presented a rich description of each school, its administration and the school's headmaster through the lenses of leadership and technology integration. The school portraits included background, vision and mission, administrative organization and technology integration and served to provide the contextual setting for the participant profiles. Each participant profile presented a history of the participants' career in education, leadership philosophy, and approaches toward the use of technology and the integration of technology in independent schools.

The following chapter will present the findings from the study.

CHAPTER 5

FINDINGS

The purpose of this study was to examine the perspectives of four headmasters of independent schools to determine the changes, both real and perceived, in the role of the administration and leadership related to technology integration. To further define this study, headmasters at four independent schools in the Southeastern United States that had led schools through technology integration were interviewed to glean their perspectives about technology integration and its effect on independent school leadership. The research was conducted to answer the following research questions:

1. How vital is technology integration to the success of an independent school?
2. Does the headmaster influence determining how technology integration is approached?
3. Do changes occur in the headmaster's leadership role during technology integration?
4. What changes in leadership responsibilities do headmasters report as a result of technology integration?

The participants in this study included four current independent school headmasters selected from schools in Texas. A qualitative case study approach was used to discover the headmasters' experiences and perspectives in relation to technology integration. Each case was studied individually and then examined through multiple case study methods.

Findings: Participant Perspectives

The findings of this study are reliant on the perspectives of four headmasters and their stated beliefs about technology integration and independent school leadership. To provide the most accurate representation of the data, the findings from this study have been organized by the participants and the research questions. Each of the following sections will provide the participants' responses as they correlate to each of the four research questions.

Case One: Mrs. Canoe

The first interview with Mrs. Canoe was held in the early afternoon in her office. The researcher had been shown around the school by Mrs. Canoe's personal secretary and was shown into her large second floor office that overlooked the front of the campus. Modeling her technology prowess, Mrs. Canoe was seated at a round table in her office and finishing her daily tweet.

The second interview took place via Google hangout, a video conferencing application within the Google apps for education. This interview occurred approximately two months after the first interview and allowed the researcher to ask questions to expand on the ideas and thoughts presented in the first interview. Both interviews lasted approximately one hour.

The findings from the interviews with Mrs. Canoe were coded and categorized into four sections based on the four research questions of this study.

Vitality of Technology Integration

The first section of findings relate to research question one, how vital is technology integration to the success of an independent school? Mrs. Canoe was asked a

series of questions that prompted responses that addressed the importance of technology in her school and the reasons behind the school's decision to provide a 1:1 computing environment for students. The interview questions connected to research question one were situated to gain the perspectives of Mrs. Canoe on the importance of educational technology, the effect of technology on the school as a whole, and the manner in which technology helped the school maintain its student population.

Mrs. Canoe has a vast experience that involved both public school and independent school settings. One of the first topics discussed during the initial interview were the differences in public and independent schools and between individual independent schools. Mrs. Canoe stated, "when you are instituting something new in a public school, it has usually been mandated from someone removed from the day-to-day activities of a school and it takes so long to get started because of all the red tape." She continued, "on the other hand, in a private school, things occur much quicker and because someone truly believes in something or at least we hope they believe in it."

Mrs. Canoe also believes that independent schools as a whole are often similar in their educational beliefs. She pointed out that each school had some minor tweaks to the educational process or the curriculum that is taught. Mrs. Canoe explained, "Of the 10 major private schools in this area, 8 of us teach a similar curriculum in a similar sequence, which makes transferring between those schools easy." In speaking to the differences Mrs. Canoe continued, "We have religious based classes here that are different from the Episcopal school's religious classes and that aren't taught at the non-affiliated (non-religious) schools." She also included, "Each school also offers certain

opportunities like a month of learning in Spain or a week in Italy, but for the most part, a student is going to get a similar education."

When asked specifically about the importance of technology integration to independent schools, Mrs. Canoe pointed to the need to learn 21st century skills. She explained that she is a "techy and that she felt students needed to learn using technology to maintain relevance in a 21st century world. She proclaimed, "If the students going to these schools are not prepared to use technology, then they are going to struggle with their future. Everything requires the use of some sort of computer." Mrs. Canoe described her philosophy behind the use of technology stating, "We want to give our kids the best education possible and that requires them to have as much information as possible. Technology gives them that information." She described the role of the faculty in her school as "needing to become facilitators of knowledge…we need to help our kids learn what to do with the information that is out there."

Mrs. Canoe explained that technology is also important in either keeping up with other independent schools or maintaining an edge over certain schools. She further described her school's area stating, "We benchmark ourselves in the community and our city is a very competitive market in regards to prestige and quality of education. We certainly do not want to be behind any of the other schools." When prompted about the effect technology had on recruitment and retention, she explained,

> You just don't want to be behind the other schools and their planning. But I don't think anyone would say we are competitive, we really don't compete for the same children here. We all have waiting lists. It's a very different market here than anywhere I've ever been, but I wouldn't want another K-8 to be so far ahead that the parents are saying, "what, I'm paying the same price as you are there."

Mrs. Canoe believes that it is important to stay toward the "front of the pack," but that being in the lead can have its drawbacks. She stated, "When I got here, I had been involved with technology integration before, and it was really just starting to get big here. We wanted to be involved, but we wanted others to go first and make the bigger mistakes."

In speaking to the success of her students regarding technology, Mrs. Canoe pointed to how the work at her school benefits students in high school. She explained,

> Where I hear it most anecdotally though, are our graduates who've gone on to schools like Episcopal… I hear how far above our kids are in being able to maneuver that world, being responsible for it, knowing how to store information on it and find it. Our kids have done that where other kids are learning it in ninth grade.

She continued with, "I have plenty of parents come back and say I had no idea how much better prepared our kids were going to be."

Another area that Mrs. Canoe spoke to regarding the vitality of technology in independent schools involved its effect on her faculty. She described this effect by stating, "What we noticed is a renewed purpose in the faculty." Mrs. Canoe went into further detail stating, "I don't think their teaching has change as much. I think we could have done more on the front end with professional learning, but what I do see are conversations that I didn't see before." She then outlined an example of these conversations mimicking a teacher by explaining, "Oh, let me show you how to do this or did you look at what I did in my class today? You can do that in yours. Excitement about themselves as professionals." Mrs. Canoe further stated,

> Our eighth grade social science teacher is a great example. She's been here forever. She is a master storyteller. It's amazing. Technology was really

> not something she was excited about. And she came to me after we started and said, “I want to keep teaching. I'm learning so much.” I think it stimulated her. Teachers generally are life long learners.

In continuing this part of the conversation she said, “For a teacher who's been doing it for a while it stimulated them, for the teachers who are new, say with three years experience, they were used to technology so it would be odd for them without it.” Mrs. Canoe’s descriptions of this phenomenon coincided with her belief that technology did have a positive effect on her school.

Mrs. Canoe considers it is important for independent schools to maintain a strong sense of direction and to plan out educational initiatives before they are implemented. She explained, “It is very easy for certain independent schools to raise funds and attempt to institute every new educational thing that comes along. They can get into the bind of having to much going on at one time.” Mrs. Canoe resumed by stating, “Parents in independent schools often feel they can control the educational process... So they come to my office saying well this school is doing this why aren’t we.” She then presented the following example,

> I had a parent come to my office once demanding something and I can’t remember what now, but she claimed that if I didn’t make it happen that she was pulling her children and the money that her family donated. I had to explain to her why it was not in the best interest of her child or the school and showed her the research that I had done on the subject. These parents are smart, so you have to be prepared.

Mrs. Canoe also explained that these types of situations do not happen often, but can be a major source of problems if handled incorrectly.

Mrs. Canoe culminated her thoughts on the vitality of technology in independent schools explaining, “I think technology is a major component of a high quality education. Our kids need this and they do well using it.” She continued, “Do I think we gain or lose

students because of technology, no. Do I think we would lose students if we weren't using technology, very much so?" Mrs. Canoe also qualified her thoughts by expressing, "These are my thoughts about this school. In other areas, I could definitely see technology having a major impact on not only the education, but also the recruitment and retention of students." Mrs. Canoe's experience across many states provides justification for her comments regarding the different cultural aspects of schools in other areas.

Headmaster's Influence on Technology Integration

The second section of findings relates to research question two, does the headmaster influence determining how technology integration is approached? Questions were asked to gain Mrs. Canoe's perspectives on the areas of technology integration in which she had an impact. Mrs. Canoe generally spoke to four areas including attitude toward technology, communication, professional learning, and management of the technology department.

The conversation regarding a headmaster's influence began with Mrs. Canoe explaining her view on her own abilities with technology. She described herself stating, "I've always been a techy, and I've always dabbled in it and not been afraid of it." Mrs. Canoe stated that previously her areas of expertise were limited to the Microsoft Office Suite and email. She explained that early on she had an iPad, but her use of the device for educational purposes was sparing. Mrs. Canoe said, "I didn't use it for work purposes, I used it for games and to check my email at home." She explained her usage of technology stating, "I think my faculty thought I was a techy because I could do things at assemblies. I would get movie clips and embed them in a PowerPoint. They thought that was amazing." Mrs. Canoe continued explaining, "My faculty had no clue how I was

doing that, it wasn't techy at all. I think because I lacked a fear of technology, most of my faculty would say that technology has always been there." Mrs. Canoe believes that by modeling technology she is able to better promote technology use by teachers.

Mrs. Canoe professed that her technology use did not increase until she had SmartBoards installed at her school in Virginia. At that point, Mrs. Canoe realized the need to make a change in her approach to technology. Mrs. Canoe stated, "I went through a program called powerful learning practice which really got me comfortable with the software side of technology." She added, "I began using as many new tools as I could find and sharing them with my teachers." Mrs. Canoe also spoke to how she felt her abilities affected her faculty. Mrs. Canoe said, "I think the fact that I use new things and I am not afraid of technology that gives my teachers the confidence to use technology."

The topic of her technology use, led Mrs. Canoe to speak about the area that she felt a headmaster had the most influence regarding technology. She began, "Where I feel I have had the greatest challenge and have had the most impact here is communication." When she arrived at the school, the technology integration planning process had taken place, and Mrs. Canoe was under the impression that, "everything was in place or was suppose to be in place." She then explained, "all of a sudden I got hit with what felt like I had unleashed the devil on this school. Parents said, "how dare you put these devices in the hands of 10, 11, 12 year old children," and I was caught way off guard." She added, "The parents here felt there wasn't enough communication, they didn't know what was happening and they didn't have a say in it." Mrs. Canoe explained that the school had made certain promises about how things would be controlled and that her parents felt the

school had not fulfilled those promises. Mrs. Canoe described her response to the situation stating, “I had town hall meetings because I had to support my team. Behind the scenes I was really frustrated that what I thought had happened, had not happened, but we forged ahead.” She said, “It had been communicated to parents that we could protect them at home just like we could protect from here at school.” Mrs. Canoe then explained, “We had to do some scrambling on VPNs and virus protection. We made the promise and so things like that had to happen.”

Delving further into this particular issue, Mrs. Canoe stated, “It was surprising, they had done a really good job of getting everything in place but not a good job in communicating what were we're doing to our parents.” She believed that had communication been properly handled, most of the issues would have been eliminated.

Professional learning was an additional topic that Mrs. Canoe broached regarding a headmaster’s influence. She believed that deciding how to handle professional learning and technology was a major factor in the success of the project. Mrs. Canoe explained, “Another thing I did here was take a look at the PL going on at the school. We hadn’t really done a good job of getting our teachers outside the box.” Her solution to this problem was to bring in outside consultants to provide professional learning. Mrs. Canoe stated, “We are getting ready to do a lot of work for on curriculum regarding the 21st century. This is coming, so I don't know if anybody told you but we've hired Heidi Hayes Jacobs.” She believes that this particular consultant will greatly improve her teachers’ ability to use technology in the classroom. Mrs. Canoe went on to profess her excitement stating, “She is amazing, you have to try really hard not to pay attention and learn from her. She has so many tools to share. We have her contracted for the next two years.”

Mrs. Canoe also felt that it was important for a headmaster to be aware of the actions of her technology department, but to allow them the space to do their job. River Independent School employs a technology committee to outline and discuss any major decisions. Mrs. Canoe explained her involvement with the group by sharing, "We have a technology committee that I meet with weekly. They drove most of the decisions." Mrs. Canoe added, "I tried to remain an observer but at certain points, I had to go into the meeting and say, "OK you need to make a decision."" In particular, Mrs. Canoe discussed the decision regarding which device to use and the prolonged discussions about devices. Mrs. Canoe stated, "It got to a point where I said, no matter what device you choose, they will come out with something new the next day. We need a decision so we can get it here and play with it." Mrs. Canoe continued by explaining, "That was little bit of me exercising my control because they wouldn't make a decision." Once the decision was made, Mrs. Canoe explained, "Then I sort of backed out until we got to the part about making the statement that we could have the same protection at home as we have at school, because that wasn't playing out." She added, "And then I let them go until the devices began having problems."

Another of Mrs. Canoe's examples concerning a headmaster's influence began with a continued discussion about students having issues with the initial devices. At one point during her first year, Mrs. Canoe noticed a large number of students needing to the have devices fixed. She described the situation stating, "I'm in the hallway, and I can see how many people are going to the "techy hut." I started asking them to keep track of it, and I started looking at the numbers, and I realized it was unacceptable." Mrs. Canoe explained her solution to the problem stating, "So I go back to the team and we were

working with Fujitsu and doing patches. My team was on the phone for hours and finally I said, “enough, I’ll handle this.”” She then proceeded to contact the manufacturer to fix the issue.

Changes in the Headmaster’s Role Involving Technology Integration

The third section of findings relates to research question three, do changes occur in the headmaster’s leadership role during technology integration? Mrs. Canoe was prompted to give examples of her daily routine prior to and after technology integration and then asked to explain the parts of her job that had been affected by technology

Mrs. Canoe felt there were a number of things that had changed regarding her role as headmaster in relation to technology integration. One of the first things she spoke about involved dealing with the company that supplied the schools devices. Mrs. Canoe explained that approximately halfway through the first semester of the roll out, she noticed an inordinate amount of issues with the devices they had chosen. She explained that as headmaster she did not usually deal with companies or suppliers; she left that to her administrative team. However, because of the severity of the problem with the devices, Mrs. Canoe felt she needed to step in.

Mrs. Canoe described her role in this particular incident by sharing, “I never have to call vendors, but I called the company, actually I Googled the CEO's name and sent him an email. The next thing I know I get a call from a vice-president.” Mrs. Canoe continued stating, “I said, now your reputation is on the line and so is ours. Our parents want their money back, and we bought these devices from you. They made good on every promise, and they even brought a team down here.” As a result of the call, the company replaced all devices at the school and helped with a second roll out.

Mrs. Canoe also experienced a change in her role involving her investigation into educational practices. She explained, “I've been doing a lot of recent research because I'm rolling out my vision to our parents and, I've gotten the question, what's next in technology. My response is we don't know.” Mrs. Canoe then stated. “I can't begin to know what’s next except that I don't think it's going to be anything we even know about yet. I just have to keep educated about what’s out there.” As a result, Mrs. Canoe feels that her research must now include information about changing technologies.

In discussing her typical day, Mrs. Canoe described a day that is consistently aided through technology. She said, “The first thing I do when I come in is power up and check email even though I checked it at eleven o'clock last night. I inevitably have something to answer.” Mrs. Canoe then explained that she usually walked around the school checking in with her administrators. Following her walk, Mrs. Canoe ventured into one of her newest self-imposed tasks. She revealed,

> This year one of my goals is to send a tweet a day, and it's been pretty interesting because I noticed things that I wouldn't have noticed. I see artwork on the wall, and I think, “Wow, our parents would love to see that.” I'm finding that it's been very good for me to pick out what I call tweetables. So the faculty knows if they’re doing something that's a tweetable, they email me, and I run down and snap a picture and ask them about it.

Her belief that this activity is important, was evident when she stated, “I blew it yesterday. I am so mad at myself. I had the tweet ready to go, and then I went home because my daughter needed a ride.” Mrs. Canoe added, “It was one of those nights where I didn't get back on the computer, and I got up this morning as I said, “I didn't tweet,” so I tweeted at six this morning hoping it counts.”

Another of the new tools that Mrs. Canoe mentioned during the interview process was screen casting. She wanted to find a new way to reach her faculty and she felt this was a great opportunity to learn and enhance their communication. Mrs. Canoe revealed, "I've never done a screen-cast, so I learned how, I spent countless hours this summer recording and rerecording my screencast, but I did it because it was sharing my vision with the faculty." She then added, "I did the screencast and then sent it to them and said at the opening faculty meeting we'll talk about it. And so that was for me, something I wouldn't have done before." Mrs. Canoe also explained that she believed this was a good use of faculty time because it provided additional meeting time to discuss other items on the agenda.

The final area in which Mrs. Canoe's interview involved conversations and changes in her communication with others. In speaking about her relationship with the faculty, she explained that she is much easier to contact because everyone at RIS has a device and an email account. Instead of trying to find her, the faculty at River Independent School knows that she is always available via email. She explained, "Regarding my faculty, I email them if I can't find them, or they have forgotten to turn something into me, I'll send a reminder, or if I need to ask them a question." She continued stating, "If you email me I'm going to respond within 30 minutes. It would be really odd if I didn't respond, I might say "I'll get back to you," but I'm going to respond." Mrs. Canoe is an avid believer in quick communication.

In an independent school, Mrs. Canoe feels the leader must be available to handle issues from a number of stakeholders. Describing the change in her leadership style, Mrs. Canoe pointed out,

> One thing that's curious to me as a leader is that I live and die by email. I think that it has allowed the parents to feel that I'm responsive. They know that even if they emailed me at 10 O'clock at night, I will respond. I may say, "I'll call you in the morning, or let's talk about this in the morning."

She continued stating, "I think parents feel I am responsive and they appreciate that." On the other hand, an area that Mrs. Canoe noticed minimal change at her school involved parent and teacher communication. She explained, "What is curious to me is I don't know that this enhanced our teacher to parent communication." As a leader, Mrs. Canoe felt this was an area that she would focus on in the coming year.

Technology's Effect on the Administrative Team

The fourth section of findings relates to research question four, what changes in leadership responsibilities do headmasters report as a result of technology integration? The interview protocol connected to research question four invited the headmaster to provide examples about technology integration's effect on the other administrators at the school. Mrs. Canoe's responses about the effect of technology on her administrative team included the topics, communication, daily activities of administrators, and the hiring of new staff members.

One of the areas in which technology integration can have an impact involves the roles of the administrative team in an independent school. Mrs. Canoe pointed out that the most important part of leading is having the right people on the team. She stated, "You have the right people on the bus to do it well." Further describing the need to have a group of team players, Mrs. Canoe said, "Personalities are important, embarking on this journey you really need to take an inventory of what you've got and decide, are they in the right place." Giving an example, she pointed to her middle school head explaining, "We could not have done it without a middle school head like Shelby. She has an

impressive capacity for work." She continued stating, "I've never seen anyone with young children that can do what she can do, she's tech savvy and nothing flusters her." Mrs. Canoe also pointed out that her middle school head is a team player and knows how to present the right message. She explained, "When her faculty were getting nervous and frustrated with things not working right, she would come to me and we were frustrated together. Never did they see that." Mrs. Canoe believed that having the right type of administrative leaders has made her technology integration a smoother process.

Describing changes in the actual role of her division heads, Mrs. Canoe pointed out that her team deals with more issues through email. She explained that in conversations with her heads, they discussed the way kids are now handling smaller problems or needs. Regarding the conversation, Mrs. Canoe described, "I talk to Shelby about her communication, and she said she had seen a lot more kids emailing her things." She pointed out, "It has prevented the raising of the hand saying I need to go talk to Mrs. Jones." Mrs. Canoe said that it this type of action has also alleviated some of the work on her counselors and administrative assistants. She explained, "I also see fewer kids coming to the main office needing forms or transcripts. Instead they email the person and ask that it be sent to them electronically." In adding to the topic, Mrs. Canoe stated, "They can send an email saying, I need to change this class and have that happen without having to take up class time. I think that's one of the great things."

Mrs. Canoe described technology in the hands of students as changing the way her administrators and business office personnel communicate with students and parents. She said, "It used to be picking up the phone, and communicate a bad grade, a debt, something they saw that was different in the school. This has allowed us to be more

efficient in the business of doing school." Mrs. Canoe added that as good of a job as her administration is doing, she felt they needed to hold the teachers more responsible for communication with parents and students. She explained,

> I understand not wanting to get a parent on the other end of the phone. But to send a quick email that says, "Johnny didn't look right today. Hope he's okay, let me know," or to say, "Johnny bombed a test [and] it's not like him. I just want to give you a heads up maybe you could talk to him tonight."

Mrs. Canoe believes that her administrators need to be more proactive in holding teachers accountable for communicating with the students and their parents.

Speaking to areas that are also affected by the use of technology, Mrs. Canoe pointed out that the business done by the school's board had changed. She explained, "I've got my board of about 20 or 22 board members, and we're paperless now." She continued, "We were carrying big notebooks, and we'd spend I can't tell you how many hours before our board meeting stuffing notebooks. So I talked them into going paperless." As a result of this change Mrs. Canoe now communicates with her board via email and using PDFs. She believes that this has saved at least two hours per board meeting for her administrative assistants.

The area in which Mrs. Canoe believes that technology integration has had the most impact involves the technology department at River Independent School. Prior to her hire, the school was planning to run the entire project with just two people in the Technology Department, a technology director and a technician. She pointed out "The school did not have any instructional technology type people. I was able to hire both the middle and lower school people for these jobs." Mrs. Canoe continued, "I knew that we had a great tech director, but that this job was too big for him to do alone." She believed

that these were two of the most important hires that she made. Describing the instructional technology specialist, Mrs. Canoe stated, "These are two of the smartest and savviest people I could find. I knew our teachers would need their help and that they needed to be on top of their game." In hiring these two positions, Mrs. Canoe was able to have her technology director focus on the infrastructure and devices at the school.

Case Two: Mrs. Yacht

The first interview with Mrs. Yacht was held in the in the morning in her office. The researcher had been given a tour of the school by Mrs. Yacht and was then shown into her office on the elementary school hallway. The interview began after a lengthy conversation between the researcher, Mrs. Yacht, and her Director of Technology and Innovation.

The second interview took place via Google hangout, a video conferencing application within the Google apps for education. This interview occurred approximately two months after the first interview and allowed the researcher to expand on ideas and thoughts presented in the first interview. Both interviews lasted approximately one hour.

Vitality of Technology Integration

The first section of findings from the interviews with Mrs. Yacht relate to research question one, how vital is technology integration to the success of an independent school? Mrs. Yacht was asked a series of questions that prompted responses that spoke to the importance of technology in her school and the reasons behind the school's decision to provide a 1:1 computing environment for students. The interview questions connected to research question one were situated to gain the perspectives of

Mrs. Yacht on the importance of educational technology, the effect of technology on the school as a whole, and the manner in which technology helped the school maintain its student population.

The interviews with Mrs. Yacht both began with conversation about why her school decided to invest in a technology for its students. Mrs. Yacht immediately pointed out the competitiveness of the schools in her area. She explained, "If you look at the consortium of schools that are within a three-mile radius you can get left behind. This area is different in that parents want a school be progressive." Mrs. Yacht also pointed to parent involvement and perception of the school as being a driving factor of technology integration. Toward this point, she stated, "I think that was from the parents and the board's position where they were looking at technology competitively." Mrs. Yacht also described her parent body as being tech savvy and wanting their children to be prepared for the 21st century. Mrs. Yacht said, "Here there's a lot of pressure from the outside. Our parents who have that insight into technology, are pushing on the board and saying, why aren't we, why aren't we, why aren't we."

When further prompted to speak about the involvement of parents in the technology integration process, Mrs. Yacht described the communication that occurred. She explained, "There were parents wondering where we were going to go with different types of technology and how we were going to implement it. There were lots of parent conversations." Mrs. Yacht continued, "Parents talked about, is my child going to be ready for high school or wherever they are going to go to after here. That was another factor that came into the situation." She added that she had a good feel for the school from her knowledge of Ocean Episcopal School prior to becoming the headmaster. Mrs.

Yacht stated, “Having been lower school head prior to this job, I got to hear some of the cultural insights and where this school needed to be within the integration of technology.”

Speaking to the outside pressure for technology integration, Mrs. Yacht felt a need to explain that marketing of their program was an integral part of the success of her school. She described the need for marketing by sharing, “We are so competitive in this area that you have to set yourself apart from other schools if you want to keep students or get new students.” Mrs. Yacht believed that in part, keeping up with other schools pushed the decisions made regarding technology integration. She pointed out, “there's the business side of this job and absolutely in terms of marketing, if we didn't have what we consider our equivalent of STEM place, and I don't think we'd be able to keep up with the other schools.”

Mrs. Yacht pointed out that technology integration was not completely the result of outside pressure. She also described the educational benefits of technology integration. She stated, “ I think from an education point of view it's about what technology could bring in to the classroom we had a couple of different perspectives but they both had the main point of bringing technology to our school.” Further speaking to the educational reasons behind Ocean Episcopal School’s technology integration Mrs. Yacht explained, “For us, because ours is geared age appropriately and we're a younger school, I think it allows for more of that creative juice that was evident this morning.” Going into detail about her decisions on technology integration, Mrs. Yacht said, “We had to decide what was right for us. We are going to look at our culture and not try to throw something into the mix, but rather have something that is going to organically grow in our school.” Mrs.

Yacht believed that the decision to give her students technology included both pressure from outside factors and the educational necessity of preparing students for their future.

Mrs. Yacht pointed to the preparedness of her faculty and staff for the move towards technology as being another reason that the school began its integration. She explained,

> The personalized learning component is essential, and we had to get our teachers on board with what that looks like. They were already talking anchor charts and differentiating learning, but they needed to take it to that next level which involves the technology piece. Technology started to be central for our teachers.

The three major factors that lead OES to start its technology integration included the need to keep up with other schools and outside pressure, the need to prepare students for the future, and the readiness of the faculty.

Mrs. Yacht felt that the technology integration that occurred at OES also prompted the school to look at the structure and buildings of the school. She explained, "As we began this process and saw the issues that were arising as we began to use technology, we realized that we had to make a change to our buildings as well." Mrs. Yacht added, "Our teachers did not have the spaces they needed to do the activities they had planned. Really this process led to our building overhaul."

Summarizing her thoughts on the importance of technology in an independent school, Mrs. Yacht believed that it was necessary for the school to remain relevant. She pointed out, "If you're not going to be 21st century School, you fall behind. It's just the realities of education. It's inherent. How can you not want to give children everything that they deserve?"

Headmaster's Influence on Technology Integration

The second section of findings relates to research question two, does the headmaster influence determining how technology integration is approached? In this section, questions were asked to gain Mrs. Yacht's perspectives on the areas of technology integration in which she had an impact. Mrs. Yacht's responses were tied to the relationship of the headmaster to the faculty, technology related purchases, and mindset of the school as a whole.

The findings concerning Mrs. Yacht's beliefs about headmaster's influence begin with a discussion of her promotion to headmaster at Ocean Episcopal School. Mrs. Yacht explained that technology integration and its inception at OES coincided with several personnel changes at the headmaster position. She explained that in 2011, a new headmaster was hired to replace a retiring headmaster. The retiring headmaster, in Mrs. Yacht's words, "felt that he was not capable of leading the school during this transition." The person that was hired to replace him was described as "having the gift of technology," but in Mrs. Yacht's opinion was "a little too much on the technology side and not enough on the integration side." She pointed out that, "the fit wasn't quite what the school needed, and I was able to move in with some of the infrastructure of the integration already in place." Having already decided on a device and knowing how the faculty had responded to the previous headmaster, Mrs. Yacht decided that she needed to give the faculty a chance to adjust. She stated, "We decided that we were going to purchase iPads for teachers and give them a year to live with the iPad before we did a 1:1 type implementation."

The next step in Mrs. Yacht's plan was to get a grasp on exactly where the school was positioned in regard to readiness for integration. She decided that the school needed a technology audit and hired a consultant to come in and give the school a better perspective. Mrs. Yacht stated, "This gave us a great starting place and let everyone involved at the school see where we were and where we needed to go."

Moving forward, Mrs. Yacht realized that the school did not have enough control over the project, and that OES was too reliant on outside help. The next part of her process was to hire the person she wanted to lead the initiative. She explained her reasoning behind this, "I think a lot of what we wanted to have in place was there, but we also wanted it to be owned by the person who was going to be lead here at OES." Mrs. Yacht continued, "We had a lot of great ideas, but then if you don't have the right person coming in they might just be ideas or it may not be a real fit." During her first summer as headmaster, Mrs. Yacht brought in technology experts from a local university. In doing so, she realized how profound an impact one of these experts was having on her teachers and decided that was the person she wanted to run the school's program. Mrs. Yacht stated, "As the summer went along, I became more and more dependent on Dr. Schooner and in our conversations, I realized that she had the capacity for the job. It was the best hire I have made." Exerting her influence, Mrs. Yacht was able to hire the people she believed were the right fit for the school.

As Mrs. Yacht was promoted to headmaster after a decision had been made regarding which device to use, she felt her greatest impact during the initial phases of the project came in deciding how to fund the project. Her decision making process involved several conversations with board members and her new Director of Technology and

Innovation. Mrs. Yacht explained, "One of our board members is the principal at a private high school in the area and they had just rolled out iPads. I spent some time with him and Dr. Schooner looking at what worked and what didn't." After these conversations and examining other local schools, Mrs. Yacht decided that she wanted to prevent the school from having to find funding for technology every year and also allow flexibility in what devices would be used in the future.

Mrs. Yacht and her team came up with a plan to provide initial funding for teacher devices and then to institute a hybrid Bring Your Own Device program. Explaining this solution she stated,

> We decided that the best way to do this was to have each family buy their own iPad and create their own apple ID. This prevents us from spending all our time fixing iPads, purchasing apps and getting the apps to the kids. One of the things we noticed at some of the other schools we visited was the time their tech people spent dealing with minor issues.

She also pointed out that the school has put a plan in place that allows them to change devices in the third, fifth and seventh grades. Mrs. Yacht provided, "This way if we find that the iPad is not the best device for what we are doing, the school isn't out a ton of money and we can easily move onto the thing that is better suited."

This plan also allowed the school to spend money on additional needs that may not have been possible if the school had funded a device for each student. Mrs. Yacht believes that the makeup of the classroom and furniture are an important part of becoming a 21st century school. She explained, "One of the first things we noticed was that our teachers were unable to do certain activities because of the furniture in their classrooms. Its hard to move those old desks around all the time." Combating this issue, Mrs. Yacht was able to use funds, earmarked for technology purchases, to buy mobile

student and teacher desks, tables with whiteboard tops, and auxiliary items that connected to the iPad.

Mrs. Yacht explained her vision, “I didn’t want to walk into a class and see kids with computers out all in a row, so I decided if we were going to do this we would do it all the way.” Mrs. Yacht added, “To me sometimes the furniture can help you get where you didn't know you wanted to be. So it's all those pieces together so, to me, we have to be intentional.” The initial response she got from this major change was skepticism. Mrs. Yacht explained,

> They all looked to me like I was a nut when I said, “we're going to raise money for furniture.” They were all asking why, but it's made the difference. Having whiteboards for kids at their level, more kids get up there. The technology belongs to them; it doesn’t belong to the teachers anymore. It's getting the kids to understand this is their classroom. And that's the fun part, when they own it the learning happens.

The initial skepticism turned into excitement as the furniture arrived, and the Mrs. Yacht feels it has changed the culture at OES.

Finally, Mrs. Yacht spoke to the influence she felt she had on the mindset of the school. She described her philosophy like this, “I wanted to make sure everyone was on board. Its like the book we read a few years ago that basically said if you get on board, you will see how much it can benefit you.” Mrs. Yacht pointed out that she had to work to get her teachers to understand that she would accept failure if they were trying something new and that she realized not everyone was at the same place with the use of technology. Mrs. Yacht said, “I had to explain to them that I knew they were in different places with this and that I would get them the assistance they needed, but I also knew this process could be great.”

Mrs. Yacht explained that she employed the "get on the bus or get off the bus its your choice," philosophy with her teachers. She added, " I know at OES we are going to be a school that supports and enhances learning with technology." When asked how teachers met this, Mrs. Yacht pointed to the fact that she had not had to hire more than two new teachers a year since the process began.

Changes in the Headmaster's Role Involving Technology Integration

The third section of findings relates to research question three, do changes occur in the headmaster's leadership role during technology integration? Mrs. Yacht was prompted to give examples of her daily routine prior to and after technology integration, and then, she was asked to explain the parts of her job that had been affected by technology

Mrs. Yacht's experience as a headmaster is limited to three years, and her school was in the beginning stages of technology integration prior to her promotion. She was able to speak to changes that she experienced both as an assistant headmaster and a headmaster. Mrs. Yacht initially spoke to the new tasks that she performs as a result of the increase in technology. She explained, "I have been blogging, a weekly blog to the community on our website, telling parents things and explaining different technology pieces." Mrs. Yacht added, "This week I blogged about technology disruption and what that means. I try to give my parents terms that aren't really in their jargon and explain how that relates to us." Mrs. Yacht added that she also spends a portion of her day communicating with students via email. She stated, "Now that our students have email, I can contact them throughout the day without causing disruption. I like to inquire about them and how things are going. It keeps me in the loop."

An additional task that Mrs. Yacht described involved her participation with the Social Psychological Answers to Real-world Questions (SPARQ) space at the school. The SPARQ method requires students to use social psychological theories in determining solutions to real world problems. At OES, SPARQ teachers provide students with a real world problem and then work through the SPARQ process providing opportunities to discuss creative solutions. Describing her involvement, Mrs. Yacht explained, "I like to go to the SPARQ space at least twice a day and participate in the activities going on there. Our kids are always doing something new and it is exciting to see."

When asked if technology had changed the way she worked, Mrs. Yacht responded,

> I think it's looking at it as, "am I doing more things using technology?" "Yes, I am." Is it more time demanding? "Yes, but would it have been just as time demanding if I had to do it the olden way?" So, you're doing things differently; you're allocating your time differently.

In further describing the difference in her role at OES, Mrs. Yacht spoke to a new type of conversation that technology enabled. She stated, "It used to be where we shared notes on what we were doing, you come to the meeting and say, "are there any questions about the updates" and that bogged us down." She continued by adding, "Because we do those things electronically now, we get to talk and look more futuristically and have more vision time than we used." Mrs. Yacht feels that time to look toward the future has allowed OES to remain on the cutting edge of educational practice.

Mrs. Yacht believes that the biggest change in the role of the headmaster involves communication. She explained, "Our students have email, the parents have email, the school provides dropboxes, so technology has drastically changed our communications. Its amazing the ease its brought into management." Mrs. Yacht added that she has noticed

an increase in her communications with teachers and students. Mrs. Yacht stated, "everyone knows that I am an email junkie so they know if they want an immediate response to email me. I get emails from teachers, parents and students and it helps keep us running without disruption."

OES has recently adopted a program of distance learning days for teachers and students. Several years ago when the school had more snow days than had been allotted, Mrs. Yacht and Dr. Schooner devised a plan to have students and teachers interact via a content management system. Mrs. Yacht described the protocol stating, "We have the ability for our teachers and students to interact on SchoolWeb. So if we have more than two snow days our community knows they have to get logged on." The school also uses the program to interact with children that are unable to attend class due to illness or other circumstances. Mrs. Yacht explained that she is responsible for making sure that everyone has a plan for SchoolWeb and explained that she goes visits each of the virtual classes during those days.

Describing what she felt was her main job, Mrs. Yacht pointed to researching current trends in education and making sure that OES is in position to implement changes that may need to be made. She explained, "My main job is to help the faculty, the staff, to understand that this is what we're going to be doing at Ocean because it's best practice. And what we do is always about best practices in students and learning." Mrs. Yacht added, "If technology is what it is, great, if it's something else, that's great, but because right now technology is the best way to enhance learning for students and individualize, then we're going to be doing it."

Prompted to discuss changes in disciplinary issues resulting from technology integration, Mrs. Yacht described OES as a school that typically had minimal and minor discipline problems. She explained that she did notice a slight drop in the classroom disruption problems, but that those were replaced with technology issues. Mrs. Yacht said, "Discipline, it usually has to do with a digital citizenship violation." She also noted that the school had not rewritten any discipline policy to incorporate technology related discipline problems. She pointed out, "It's more a translation of how the transgression fits in with our traditional discipline plan." Mrs. Yacht did note that she was receiving additional discipline requests regarding technology actions outside the school day. Mrs. Yacht stated, "I do receive calls from parents asking what I can do about certain students and the way they use the device outside of school. In my opinion that's really a parenting issue." She continued, "We specifically decided to have the parents purchase the device so that they owned it and we weren't responsible for its use at home. That can be something that is difficult to explain to a parent."

Technology's Effect on the Administrative Team

The fourth section of findings relates to research question four, what changes in leadership responsibilities do headmasters report as a result of technology integration? The interview protocol connected to research question four invited the headmaster to provide examples about technology integration's effect on the other administrators at the school. Mrs. Yacht spoke to finding the right person to lead the technology integration, hiring additional members of the technology team, and minor tweaks to the daily responsibilities of division heads.

Technology at OES has touched every part of the school including building projects, furniture, and the process through which education is carried out on a daily basis. The area in which Mrs. Yacht believes that technology has had the greatest impact is with the faculty and staff. She pointed to the turnover at the headmaster position, "It took really three tries before I was able to get in this role and get us rolling. It's important to get the right fit." Mrs. Yacht felt that the need to make OES a 21st century school that competed with the other schools in the area, is what truly led to the quick turnover in the lead position at the school.

Technology has also touched the roles of her administrative team. Mrs. Yacht explained the structure of her administrative team by sharing,

> At Ocean Episcopal, I am on top of the administrative structure. The second line includes my division heads, my CFO, my Assistant Head of School for Admission and Advancement, and Mrs. Schooner, the Director of Technology and Innovation, who I can't live without. It also includes my Admissions Director and my Enrichment Director.

She pointed out that previously the director of technology had no true leadership role at the school. Mrs. Yacht explained, "I think the biggest piece in terms of the leadership team focus changed by putting Mrs. Schooner over the division heads." In discussing the purpose of this change. Mrs. Yacht added, "Division heads were traditionally very much educational division heads, and we added Julie on that team because I think she's going to be that innovator of thinking." Mrs. Yacht described her rationale behind the decision pointing out that she wanted to make sure technology was incorporated into every aspect of the school. She noted, "If it doesn't become a part of everyday, I think the technology would become secondary instead. More like a chalkboard rather than a thinking tool."

The most obvious change in the role of an administrator occurred to the position that was previously titled the Director of Technology. The change in the role occurred because of the needs of the school and also because of the person that Mrs. Yacht was able to put into that role. Mrs. Yacht described Dr. Schooner as her "right hand" and stated, "We would not be where we are today without Dr. Schooner." Hiring Dr. Schooner, Mrs. Yacht realized that the position of Director of Technology needed to include a greater educational responsibility. She noted, "When I brought Dr. Schooner on board, one of her talents was providing innovative thinking in how we educate our kids. I thought that part of her job needed to be in her title." Mrs. Yacht then changed the title of the position to Director of Technology and Innovation. She explained, "I didn't wanted to be so limiting with a director of technology because it's so much more than that and I think that undersells and puts you back into the 20th century." Mrs. Yacht pointed out that she didn't want people to think that this position was someone that only worked on computers.

Describing the role of the Director of Technology and Innovation, Mrs. Yacht explained that Dr. Schooner was responsible for a team that was charged with making sure the infrastructure was stable, determining the future of technology at the school, providing professional learning for the faculty, and bringing innovative ideas to teachers. Describing Dr. Schooner, Mrs. Yacht noted, "She has a team because she needs them. Her gift isn't actually in the network hardware aspect of it because she's very good at coordinating the whole thing." Mrs. Yacht also explained her interactions with Dr. Schooner sharing, "She and I have weekly meetings because I need to see where we're going and I need to be able to talk to the board." Adding to that thought, Mrs. Yacht

stated, “I also bring her into the board meeting. She's integral in almost all of the educational decisions that we make here and I need her to come in and speak to the reasons behind those decisions.” Mrs. Yacht described Dr. Schooner as being the main reason the school decided to institute the hybrid Bring Your Own Device (BYOD) program and as a person her faculty feels comfortable working with.

Instituting the position of Director of Technology and Innovation, also allowed Mrs. Yacht to change the role of other staff members and to hire several people into several additional positions. She provided, “With Dr. Schooner on board, we next looked to how her team worked. We had some people that were doing jobs that they weren’t really suited for and knew we needed to make changes.” Mrs. Yacht pointed to the staff member that had been de facto leading the technology group: “We had Chris, who does a great job, but he is a computer science guy and doesn’t have the bigger picture. He also tended to speak above our teachers heads at times.” Mrs. Yacht was able to change his job role to focus more on infrastructure and also has him teaching coding and computer mechanics to students. Another change came in the form of moving the lower school computer teacher into an instructional technology specialist role and hiring an additional instructional technology specialist. Mrs. Yacht stated, “We realized we needed people that were constantly in the classroom with teachers, so we moved Lauren and we hired Susan to fill those two positions.”

The last change came in the hiring of a SPARQ coordinator. Mrs. Yacht and her team had been trained in the SPARQ method and felt they needed someone to coordinate the SPARQ program. Mrs. Yacht explained, “Our librarian or former librarian was great with the kids and technology. We decided that she would be trained and move into that

role. We then hired a librarian that could also serve to support the SPARQ program." Mrs. Yacht plans to continue to grow the technology team as it becomes necessary with new innovative ideas at the school.

Describing the changes to the roles of the other members of her administrative team, Mrs. Yacht pointed to a change in some of the routine procedures the school used. An example given by Mrs. Yacht was the turnaround time in which the administrators needed to respond to phone calls and emails. She explained, "It used to be phone calls where 24-hour turnaround now it's emails and phone calls and any kind of messaging you're getting, whether it's a child, teacher, or parent." Mrs. Yacht added, "Children are talking from home to their teachers and administrators, and they're asking for help that didn't exist before, it's amazing the difference it's made in such a short window of time, and it's fun."

Mrs. Yacht also pointed out the change in the way administrators are observing teachers. She stated, "Our administration team has really had to change the way we do teacher observations. They are having to learn the different uses of technology and have to be able to understand where a teacher is in using it." Mrs. Yacht continued, "The administrative team is responsible for providing Dr. Schooner with updates as to the particular needs of each teacher so that we can provide the professional learning they need." Beyond these changes, Mrs. Yacht felt that the daily routine of the administrative team is pretty much the same, but more reliant on technology to perform these tasks.

Case Three: Mr. Pontoon

The first interview with Mr. Pontoon was held in the in the late afternoon in his office in the administrative building at Lake Independent School. The researcher had

been given a tour of the school by a ninth grade student and was then shown into Mr. Pontoon's office. The interviews with Mr. Pontoon had a different feel than the interviews with the other participants because of his school and his pending retirement at the end of the school year.

The second interview took place via Google hangout, a video conferencing application within the Google apps for education. This interview occurred approximately one month after the first interview and allowed the researcher to expand on ideas and thoughts presented in the first interview. Both interviews lasted approximately one hour.

Vitality of Technology Integration

The first section of findings relate to research question one, how vital is technology integration to the success of an independent school? Mr. Pontoon was asked a series of questions that prompted responses that spoke to the importance of technology in his school and the reasons behind the school's decision to provide a 1:1 computing environment for students. The interview questions connected to research question one were situated to gain the perspectives of Mr. Pontoon on the importance of educational technology, the effect of technology on the school as a whole, and the manner in which technology helped the school maintain its student population.

Mr. Pontoon's perceptions of independent school education were molded through four decades of experience and at a number of schools across the United States. Speaking to the importance of technology in independent school education, Mr. Pontoon said, "Simply put, society uses technology more today than it ever did before. We're training kids to be successful in college and beyond and if we ignored technology, we're not serving our kids." He added, "When you get into education it's all about the kids. It's not

about do you have the most modern technology, are you wireless. It's not about iPads, it's about the kids and what the kids need." In describing his current school and its educational technology program, Mr. Pontoon pointed out that early on they were far behind where he thought they should be. He described the situation stating, "It was obvious five years ago, that schools like ours, I call them the Ivory Towers, that we're lagging awfully behind the business world." Mr. Pontoon shared an experience with his sons that he believed alerted him to this issue in independent schools. He explained, "I have two sons who are in the business sector, both of them independent school educated, and my boys both said, "Dad, you guys do a miserable job teaching us how to use technology." They were right." Believing that enhancing technology at his school was the right move was the main motivator for Mr. Pontoon.

Asked how other schools in the area and competition for students played into his decision to start a 1:1 program, Mr. Pontoon expressed that his local area schools had little to no effect on his decision. He explained, "No one around us was doing anything. There were three schools that would be competitive for us, and they were further behind than we were." Mr. Pontoon continued to explain the lack of competition in his area claiming, "They were as stagnant as we were. One school even today, rules spending money out, its just who they are, Another school wants to get involved, but they have so many other things they focus on."

Discussing the use of technology as a marketing tool to attract students, Mr. Pontoon claimed that he did not feel it was necessary. He stated, "It never dawned on me to use technology as a selling point or competitive point. I knew what they didn't have, but I also knew we didn't need it." When asked to explain why he did not feel the need to

use technology as a marketing tool, Mr. Pontoon pointed to the retention rate and the waiting list at Lake Independent School. His response to the question was, "The retention rate and attrition rate in an independent school is a national normal of about 8.5% a year, we're less than 4%." He continued, "We don't have an issue with trying to fill classes. I have 75 slots in kindergarten and every year, I get at least one call from a board member or some power guy asking me to increase the classes." He also pointed out that during his summer vacation, he gets five or six calls about students wanting to get into LIS. As a result of the school's prominence in the area and the claim that he has waiting lists in every grade, Mr. Pontoon explained that he spends very little money and energy on marketing the school.

Mr. Pontoon does believe that it is becoming more important for any school, especially an independent school, to use technology in a greater capacity. He understands through his experience that education has to change as the world changes. Mr. Pontoon stated, "Technology is important to us because our job is to get kids ready to go to college and if they run into problems after here, that is on us." He continued, "Our kids are trying to get into the best colleges in the world, so we have to prepare them and not just prepare them academically, but prepare them to know how to email, save files, and find information." Mr. Pontoon believes that a student's ability to function with technology is as important as their academic prowess.

Headmaster's Influence on Technology Integration

The second section of findings relates to research question two, does the headmaster influence determining how technology integration is approached? In this section, questions were asked to gain Mr. Pontoon's perspectives on the areas of

technology integration in which he had an impact. Mr. Pontoon's responses were based in four main areas, the hiring of technology leadership, the facilitation of the technology integration plan, the mindset of the school toward technology integration, and the institution of technology related programs.

Regarding the school's technology integration, Mr. Pontoon felt that his greatest influence came with the hiring of his Director of Technology. When he arrived at the school as headmaster, he realized that the Technology Department was in bad shape and the technology use was sporadic. Mr. Pontoon explained, "I had a meeting with my technology group, my heads and teachers, and I asked where we were with technology. The only thing they could say to me was, well we installed T1 lines." Mr. Pontoon described his reaction as being flabbergasted, and he stated, "I was like "well ok," do we have wireless, what shape are our computer labs in, what is our plan for the future. No one could really give me an answer." At that point, Mr. Pontoon realized he needed someone to come in and take charge of technology to get it back on track.

Mr. Pontoon explained that his next step was hiring a Technology Director with vision and the ability to carry out that vision. He stated, "I went out and found Bill and said, "Okay, come here and figure this out. I'll give you three years, no questions, whatever money you need, but get us where you think we need to be."" In line with his philosophy on leadership, Mr. Pontoon believed that he needed to hire the right person for the job and then planned to stay out of the way to allow them the opportunity to do the job. Regarding his plan for this person Mr. Pontoon said, "When Bill got here I told him, you have three years to get us on track, and I will stay out of your way." Reminiscing about this particular hire, Mr. Pontoon said,

> I don't remember if he's been here 9 years or 10 years, or how long he's been here, but we've never stopped. It's just going so fast. He did great that first three years and then I said, "Ok, what's next?" He told me that each student needed a device and that was the path we headed down. We started working on that three years ago, and now each student has a device of some sort.

Mr. Pontoon felt that his most important part in the technology integration was finding the right person to become his Director of Technology.

Another area in which Mr. Pontoon exerted his influence included setting the mindset for the school in regard to technology integration. Mr. Pontoon explained that after his initial technology meeting, he noticed pockets of technology use around the school, but that no one was using it as well as they could. Mr. Pontoon stated, "There was no single thread that ran throughout the school. Groups had specific uses, but there were no building blocks, they couldn't say in lower school they learn this, in middle school they add this, and upper school this." Mr. Pontoon went into further detail about that initial meeting sharing, "We were victims to everybody's particular interest and expertise. We were hiring people and then designing the program instead of saying this is the program, go find the people." Mr. Pontoon claimed, "After that meeting, I offended every person in that room when I said you guys are lost with this." Mr. Pontoon explained that he ended up with people on staff that had jobs that were no longer relevant. Mr. Pontoon pointed out that after that first year, he had to reassign certain people and let a number of people go.

Mr. Pontoon believed his job was to get everyone on the same page and working toward the same goal. His process for this included directing division heads to meet with teachers to gather ideas on their desired use of technology. The next step he employed involved taking those ideas and finding common threads. Finally, Mr. Pontoon explained

that as a group they took the common threads and divided the skill sets that needed to be learned by grade level. Mr. Pontoon described the process, "I had the heads find the common threads of what they wanted to do and then I directed them to get together and figure out what needed to be learned in each grade." Once a plan was in place, Mr. Pontoon explained that technology integration became much smoother.

Initially, Mr. Pontoon ran into push back from his teachers and staff. During his first two years, he had several faculty members quit or move to different schools. He stated, "I had teachers quitting; I had people telling me I didn't know what I was doing and I said, you're right I don't know what I'm doing, that's not a debate, but we are going to move forward." Mr. Pontoon at that point realized he was going to have a hard time convincing teachers that the vision and process were worth the time and money that was going to be spent. He explained his plan to combat this issue stating, "How we did it is, we broke down the wagon and we started building it from the ground up. We got the people we needed and started over." He further added that the plan was simplified so that people could understand it. Mr. Pontoon said, "I gave Bill a directive and said, "Create a visual so that people can understand it." I said, "you have one page and a certain number of words, it needs to be simple.""

In addition to facilitating the planning process for technology, Mr. Pontoon also suggested that LIS institute some form of distance learning. He felt that in providing a distance-learning program, the school could offer students greater academic opportunities. Realizing that he had students at his school that were interested in learning subjects that were not offered at LIS, Mr. Pontoon directed his Director of Technology and his upper school head to find an online learning program. He explained, "We don't

have the funding to provide a teacher for the three or four students that wanted to take Chinese or AP Computer Science, but when you get three or four kids from five schools, you can fill a class." The results of this influence lead the school to join a program that pulls students from schools across the country. Mr. Pontoon stated, "We offer 18 classes including post AP classes, Chinese, Arabic, and organic chemistry. Its amazing because theses kids are learning real time."

Summarizing his role in the technology process, Mr. Pontoon believed that he was responsible for understanding the overall vision and taking that vision to his board. Mr. Pontoon is of the mindset that his role is similar to leading a major business; therefore, he was in charge of the big picture. Describing himself, Mr. Pontoon said, "My role was to get a grasp of where we wanted to go, at the executive level. I asked my people to provide me with one page executive reports and I put the pieces of the puzzle together." Once he had the puzzle together, Mr. Pontoon was also responsible for helping his board understand the plan. Mr. Pontoon described this process stating, "I started at an executive committee of the board saying, here is our plan for technology. Then I took it to the whole board and said this is what we want to do in technology."

Changes in the Headmaster's Role Involving Technology Integration

The third section of findings relates to research question three, do changes occur in the headmaster's leadership role during technology integration? Mr. Pontoon was prompted to give examples of his daily routine prior to and after technology integration and then asked to explain the parts of his job that had been affected by technology.

Mr. Pontoon equates his roll as headmaster at Lake Independent School to that of a Chief Executive Office of a major corporation. Mr. Pontoon explained that LIS runs

much like a business and because of its size, he would be unable to micromanage. Speaking to this belief, he said, “I manage the corporation. I don't run the school. I run a 26 million dollar operation. I've got 43 million in endowment, and I’ve got to manage that.” Mr. Pontoon also pointed out that the role of the headmaster is often dependent on the school and the market the school is in. Mr. Pontoon stated, “Just because I have to run my school this way doesn’t mean others do. If I had the chance, I would definitely spend more time on the educational side and less on the financial.”

Mr. Pontoon offered that the biggest and most time-consuming part of his job involves fundraising. During the typical school year, he travels around 35,000 miles visiting five major cities each semester. When asked to describe this aspect of his job, Mr. Pontoon provided, “I do a lot of alumni events, go to diners and basically ask people to give us money. Although we have a large endowment, it is necessary for us to keep asking so we can buy things like technology.” Asked how the technology integration affected fundraising, Mr. Pontoon responded, “It gives me something to talk about, people like to give money if I explain to them we’re using it for technology. It’s a great way to get people to open their wallets.”

Another aspect of Mr. Pontoon’s job that changed because of the technology integration involved the way he raised funds for the project. He explained,

> One thing that did change a little was the way I was able to raise funds to pay for this. Donating to technology is a tax write off, so I was able to go to some of our families that tend to be a little more frugal and say, “hey if you donate to this, you can write it all off on your taxes.” That helps us get money from places that we usually don’t.

Mr. Pontoon further discussed the funding of technology explaining that he felt it was better to find new money, rather than taking money from another budget. He stated,

"Most of our tech money was new money. We just said we're going to increase our budget by this and put it in because you can't rob Peter to pay Paul, you just can't." Asked to expand on this topic, Mr. Pontoon explained that taking money from other places in the budget could be a futile undertaking. He stated, "You're never going to find enough to do what you want to do." Mr. Pontoon also pointed out that his school was fortunate that they didn't have to pull money from other places.

In speaking to his past experiences, Mr. Pontoon provided, "My last school, I could have never done that. My first question would be, what will it cost me? Where do I get the money? How many kids or teachers will it cost me?" Mr. Pontoon continued explaining, "Here I just said, "how much money do you need, if I give it to you where are you going to get me in three years." I gave Bill blank checks and said, "Go do it." Funding can be a major barrier to technology integration, and Mr. Pontoon believes that a headmaster must be able to determine how much a school can do without creating financial difficulties. Mr. Pontoon shared that other than using it as a fundraising tool, technology helps him to stay in contact with his faculty while he is away.

A typical day for Mr. Pontoon begins around 7:30 in the morning with a meeting. After that he likes to visit classrooms to watch teachers teach and then eats lunch. While he is away from his desk, Mr. Pontoon is attached to his cell phone, which he uses to answer emails from stakeholders. He explained, " Usually while I am walking around, I am answering emails from the board, my administrative team, and parents. Recently, I've been emailing with some of the students." Asked to describe his interactions with students, Mr. Pontoon stated, "Kids email me asking to write them a recommendation, or occasionally to tell me they have an issue with a teacher. I usually refer those to the

division heads." Continuing to discuss his usual day, Mr. Pontoon pointed out that he liked to check in with his students taking classes from the online school. He explained, "I like to check with my kids taking the online classes and to make sure they are getting the type of instruction they need. It's really interesting to see those classes go on." Usually ending his day by attending an after school event, Mr. Pontoon explained that the use of technology at LIS has benefited his management style in that he is able to organize and maintain the institution when he is away from his desk. Stating, "Before we fixed all this technology, I had to spend a lot more time in my office," Mr. Pontoon provided that the integration of technology at his school made his job easier.

Speaking to how technology integration affects the educational side of his job, Mr. Pontoon explained that he mainly had to deal with major events. His management style allows him to give his administrative team the discretion to deal with issues as they see fit. Mr. Pontoon explained, "Here is the thing, I stay as far away from running a division as I possibly can. I don't get involved in discipline and at a certain level I don't get involved in teacher evaluations." Mr. Pontoon continued to explain what had changed on the education side stating,

> Ninety-five percent of issues that come up are handled by my team. I'm there if they need my help. What I do see as changed is what I evaluate my administrative team on. I have 15 direct reports, and it is my job to make sure they are making their divisions work properly. The [many] questions they know I am going to ask are, "what's going on in technology, what are the new things happening, what do we need to do next?" So I make sure they know what their teachers are doing.

Mr. Pontoon further explained that the technology integration had changed the way he expected his classrooms to run; therefore, he had to begin to learn more about what technology use in the classroom should look like. Mr. Pontoon stated, "I have gone to

more trainings and I often ask teachers to show me what they are doing when I go to visit their rooms. I like to understand why they are using it." Mr. Pontoon is in a school that afforded him the ability to continue to do his job similarly after technology integration as he had done it prior to the integration. The role that he was hired to do provided he spend less time on education and more time making sure the business side of the school was run properly.

Technology's Effect on the Administrative Team

The fourth section of findings relates to research question four, what changes in leadership responsibilities do headmasters report as a result of technology integration? The interview protocol connected to research question four invited the headmaster to provide examples about technology integration's effect on the other administrators at the school. Mr. Pontoon believed that the changes to his administrative team were situated in the daily activities of the administrators and the manner in which they handled changes in the educational process of the school.

The topic of technology as it related to administrative structures and roles, provided Mr. Pontoon the opportunity to speak to the area he believed was most affected by the integration. Mr. Pontoon leads his school by allowing his administrative team to handle a majority of the educational processes. Mr. Pontoon explained, "My division heads are the people that probably saw the greatest change in how they do their jobs on a daily basis." He believed that for this program to be successful, his division heads needed to take ownership for integrating technology.

The first example Mr. Pontoon spoke to was his middle school head. He explained, "Steven has championed this, [and] he became the driving force with the iPad program. He did his homework, he knew how to implement, and he knew what kind of teacher he needed to put in that classroom." Mr. Pontoon pointed out that his division heads began to attend conferences and training to prepare them for the integration process. He also explained that his middle school head was the one that introduced the flipped classroom to the staff. Mr. Pontoon stated, "Steven saw the flipped classroom at a conference and really felt like it would work here. He took the time to make sure his staff was capable of flipping and now requires it." Mr. Pontoon added that the middle school was the easiest division to integrate because of the leadership and the teachers. He described this group sharing that "The middle school was excited before we started because they saw the benefit and because Steven was supporting them. They really jumped in first." Mr. Pontoon continued by pointing out that his middle school head had changed his method of leadership to facilitate technology in the division.

According to Mr. Pontoon, the lower school was more difficult to persuade on the benefits of technology. He explained, "The lower school teachers are my older group and they were set in their ways. Some of them have been here 20, 25, 30 years and they didn't want to change." Mr. Pontoon directed his lower school head to help the lower school's teachers understand that this was going to be a part of LIS and that they need to get on board. Mr. Pontoon stated, "I spoke with Laurie and basically told her she had to get them on board or find new teachers. This was difficult for her as she has been here forever and they have been here forever." Mr. Pontoon pointed out that his lower school head began to model technology in her work with the faculty to show them that she

agreed with the move to using more technology. Mr. Pontoon said, "Laurie had to learn to use the technology herself so that she could show them, if she could do it they could do it. She really had to become a motivator in this area." He described the changes in his lower school head as slow moving and deliberate, but pointed out that she made the transition, eventually.

Mr. Pontoon explained that the upper school was excited but cautious about the transition to using technology in a greater capacity. He explained, "The upper school was hard, the upper school is less in a climate to take risk because everybody is watching them. God forbid we do something that a kid doesn't get into their favorite school." Mr. Pontoon pointed out that he had to make a change in leadership before the upper school got on board with technology integration. He stated, "It had to do with the leadership in the upper school. I didn't have an out front leader. He didn't have passion and ran the division from behind the desk. That wasn't working for them." The former upper school head was asked to leave, and Mr. Pontoon was able to hire the person he felt would motivate the division. Mr. Pontoon explained,

> I hired Jim for different attributes than his knowledge of technology. I don't depend on Jim to sell the technology to his kids or to train the faculty, that's Bill's job. But I expected Jim to change the culture of the division so that Bill could do his job. Within a couple of months of promoting Jim, I saw a major shift in the culture of my upper school.

An example of Jim's effect on the school could be seen in the way one of the veteran teachers began to use technology in her classroom. Mr. Pontoon described the teacher's change in style: "Suzanne was ready to retire because she didn't feel like she was able to do this. After Jim got here she began to put stuff online and flipped her class. She is still teaching today." Mr. Pontoon also

pointed out that he believes his administrators are communicating with students via email and that from their reports, the types of discipline they are handling is a more technology based.

The other administrative position that saw a drastic change at the school was the Director of Technology. Mr. Pontoon explained that in hiring Bill, he rewrote the job description and moved it in the organizational chart to report directly to him. Regarding this transition Mr. Pontoon stated, "When I hired Bill, I knew he was more than a nuts and bolts guy. He could lead professional learning and he was innovative. I changed that position to reflect his skills." Mr. Pontoon added that he changed the make-up of the technology department and hired two instructional technology specialists to work under Bill. Mr. Pontoon explained, "Before I had three people in that department and I knew that wasn't enough. I needed Bill to lead and not to have to do everything by himself. I added two positions to help him with training." Mr. Pontoon clarified the role of the director of technology stating,

> I've given him a suite of offices, I've given him a staff and I said, you train the faculty, that's your job. You can have workshops, you can have meetings, and you can get in front of the faculty, that's your job. Our division heads have different responsibilities than training technology. I have technology department to do that.

Mr. Pontoon also pointed out that he has begun to assess Bill's progress relative to the progress of the teachers' growth. He stated, "I knew that what Bill was doing should relate in what our teachers are doing, so in his evaluation I added a

component about teacher progress." Mr. Pontoon continued, "Bill did a wonderful job with the middle school because he lead the way with the iPad program. Three hundred and seventy five kids in the middle school, and we've only had three parents complain."

Summarizing the effect of technology integration on his administrative team, Mr. Pontoon pointed to the changes his leaders have made in how they approach teachers. He believes that the administrative team has begun to expect a greater use of technology from teachers and have tried to provide opportunities for teachers to learn and use new ideas in the classroom.

Case Four: Mr. Skiff

The first interview with Mr. Skiff was held in the early afternoon in his office. The researcher had been shown around the school by the school's director of technology and was shown into a large office with a fireplace. Mr. Skiff and the researcher sat in chairs separated by a coffee table in the sitting area of the office

The second interview took place via Google hangout, a video conferencing application within the Google apps for education. This interview occurred approximately two weeks after the first interview and allowed the researcher to expand on ideas and thoughts presented in the first interview. Both interviews lasted approximately one hour.

Vitality of Technology Integration

The first section of findings relate to research question one, how vital is technology integration to the success of an independent school? Mr. Skiff was asked a series of questions that prompted responses that speak to the importance of technology in his school and the reasons behind the school's decision to provide a 1:1 computing

environment for students. The interview questions connected to research question one were situated to gain the perspectives of Mr. Skiff on the importance of educational technology, the effect of technology on the school as a whole, and the manner in which technology helped the school maintain its student population.

Mr. Skiff leads a school known nationally for its use of technology and innovative thinking. When asked to comment about the need for technology integration in independent schools, Mr. Skiff spoke to the importance of preparing students for the 21st century, engaging students and teachers in the learning process, and maintaining a competitive edge over other independent schools.

The first concept regarding the need for technology that Mr. Skiff discussed involved creating an educational experience for the students at the school. Mr. Skiff pointed out, "Our job is to prepare these students to move on with their lives and to be successful. In today's world, that means they have to be comfortable using technology." Mr. Skiff described students attending his school as future leaders in business and the community. Mr. Skiff stated,

> The students at Stream are at the top of the heap and will be leading us in the future. If they are not able to use technology before they leave here, we are creating issues for them at the next level. Students need to acquire 21st century skills while they are here, so that when they go to college they can spend that time focusing on the area of expertise that they choose.

Having been employed in independent schools for his entire 28-year career, Mr. Skiff is feels that he understands the type of student that attends Stream Independent School (SIS) and thus what the student needs to be successful. Mr. Skiff pointed to conversations with former students stating, "I meet with our alumni. We discuss areas they felt prepared for and areas they feel we need to improve. Technology is one thing

we usually get right." Mr. Skiff added that he believes technology is constantly changing and that it is necessary for the school to change with it to meet the needs of its students.

Mr. Skiff discussed the need for technology as it relates to acquiring 21st century skills. Mr. Skiff noted, "Students here are prepared to do the basic educational tasks. They have no problem learning the core areas. One of the things we notice most is the need to teach them communication, collaboration, and digital citizenship." Mr. Skiff added, "These are the real skills they can use once they finish their education."

The second area Mr. Skiff focused on regarding the vitality of technology in independent schools involved the engagement of students and faculty in the learning process. Mr. Skiff explained, "School, in general, is characterized by students as boring. To be honest it can be boring to teachers as well. Let's be realistic, how many people find lecturing to a class as a fun activity?" Mr. Skiff continued, "When you add in the element of technology, everyone becomes engaged in the learning activity. The students are excited to do the activity, at least more often, and the teachers are excited to see what the students do." Mr. Skiff pointed to the projects that were currently going on at Stream as evidence of engagement. One of these projects was creating a living wall concerning immigration and the history of Ellis Island. Mr. Skiff stated,

> Our the living wall is a great example. The third grade is researching the history of immigration and Ellis Island. Students are dressing up like immigrants and having their pictures made by our older photography students. They are writing letters to family from their home countries describing the immigration journey. They read their letters aloud and record it on video. The pictures of the students have QR codes on them that take you to the video. I am not sure learning about immigration could be more engaging.

Mr. Skiff added that projects similar to the living wall are going on at every grade level across the school.

Interestingly, Mr. Skiff also believes that technology should not be used in the preschool classes. He explained, "Our preschool is basically technology free. We tried a couple of items like a Smart Table, but really we feel those students need to learn through play."

Mr. Skiff feels engagement through technology is not limited to students. Mr. Skiff described his faculty as having been rejuvenated through the use of technology stating, "A few years back we got stagnant with our technology and you could see it in the teachers. We decided to require students to bring devices. Teachers were able to plan new and exciting activities." Mr. Skiff continued, "You could really see our faculty get reenergized. They began Skyping with people around the world. They started projects that took the students outside of the classroom. It helped." Mr. Skiff also noticed an increase in teacher requests for professional learning. He explained, "During that first summer after we started, requests for professional learning doubled. We have remained at that higher level ever since."

Mr. Skiff added that he has seen a growth in the participation of faculty on the technology committee and in requests to implement new technology related programs. In speaking to this phenomenon Mr. Skiff stated, "We used to have the same people year after year on our committees. Since we instituted BYOD, our technology committee for teachers has doubled." Mr. Skiff continued, "Our teachers have also begun to try new programs with their students. One our most successful programs is the design-maker program. Those teachers and kids are always doing something innovative." Mr. Skiff believes that it is necessary for both students and teachers to be engaged in the learning process for a school to educate students at a high level.

The third area Mr. Skiff discussed regarding the vitality of technology in independent schools was the need to remain relevant in a competitive market. Stream Independent School is located in an area that is saturated with well-known independent schools. Those schools compete for students and teachers. Mr. Skiff pointed out, "We are located in an area that has five k-12 independent schools and three k-8 schools within five miles of here. There are four schools on this street alone." Mr. Skiff continued, "If we don't stand apart from these schools, our students have plenty of places to choose from."

Mr. Skiff explained that it is necessary for the school to stay competitive to attract the best teachers. Mr. Skiff stated,

> Schools around here pay about the same and we all have similar benefits. One thing that helps to attract the best teachers is providing them the tools they need to teach and the autonomy to use the tools as they see fit.

Describing a situation that occurred during a recent interview Mr. Skiff provided, "Our Upper School Head interviewed a young lady and asked if she would like to have lunch in our cafeteria. She politely declined explaining that she had an interview at the school next door." Mr. Skiff explained the sales pitch SIS uses to attract teachers stating, "We are known for our technology here. Not just providing a device, but providing a device for every need. Teachers know they will be provided what they need, not just told what they should use." Mr. Skiff pointed out, "Teachers targeted by SIS are the ones that want to be creative and to try new ways of educating children."

Concluding his thoughts on the subject, Mr. Skiff believes that without technology, SIS would have become a school that was failing in its mission. Mr. Skiff stated, "We use technology because we think it's the best thing for our students, but it

also helps us in the areas of retention and recruitment." Mr. Skiff feels that the integration of technology is an important part of every aspect of SIS.

Headmaster's Influence on Technology Integration

The second section of findings relates to research question two, does the headmaster influence determining how technology integration is approached? In this sections, questions were asked to gain Mr. Skiff's perspectives on the areas of technology integration in which he had an impact. Mr. Skiff's responses were based in four main areas, the hiring of technology leadership, the making of technology related decisions, the funding of technology and the oversight of administrators.

Mr. Skiff has been at Stream Independent School in the capacity of headmaster for the past 15 years. He described his role as headmaster as evolving as the school changed and grew. Mr. Skiff explained, "When I was hired on at Stream, they were looking for someone that was able to lead the school in updating the educational philosophy and leading the growth of the physical campus." Mr. Skiff added,

> When I interviewed for this position, I was asked if I had the knowledge to complete all of the items on the board's list of requirements. My answer was "no." I got a funny look and explained to the interview committee that while I didn't know everything, I knew how to hire people that would help me fulfill all the things on their list. I also told them that if anyone had answered yes to that particular question that person was not telling them the truth. I was lucky that they hired me for the job.

Mr. Skiff explained that his philosophy was to find the right people to fill the roles he felt were needed to improve the school.

During his first couple of years at the school, Mr. Skiff was given the freedom to create new jobs and hire the people to fill those jobs. Mr. Skiff stated, "During my first two years, I was able to hire a Head of Operations and revamp the Technology

Department. I hired Tim as my operations guy, to lead our renovations, and I hired Chris as my Director of Technology." Mr. Skiff felt that these hires were integral to the success of technology integration at SIS.

Discussing his new Director of Technology, Mr. Skiff explained that he wanted an innovator, not someone with an infrastructure background. Mr. Skiff stated, "I wanted my Director of Technology to be an educator. I already had a wire's person. I needed someone to help with technology in the classroom." Mr. Skiff also pointed out that the typical Director of Technology applicants had little educational background. He stated, "Of the applicants I had for that job, three were not coming from the business world. When I spoke to Chris, he talked about his use of technology as a classroom teacher and he was my guy." Mr. Skiff believes that the hiring of a new Director of Technology was the most important hire made during his initial years.

Additionally, Mr. Skiff used his influence regarding the decision of which devices the school would use and how the devices would be funded. Mr. Skiff explained, "Early on in the process, Chris and I discussed devices that would be used. My biggest contribution to that discussion was deciding not to pigeon hole us with one device." Mr. Skiff explained his rationale behind this decision stating, "I had seen several schools go with one device. You always hear the negative side of a decision like that. I figured if we provided multiple devices, we could eliminate that problem." This decision lead SIS to provide teachers in the lower and middle schools with iPads, netbooks, digital recording devices and 3-D printers. The students in the upper school participate in a BYOD program, but also have iPad carts and computer labs available for use.

Regarding the financial aspect of the technology program, Mr. Skiff explained his plan to keep the school's financial responsibility at a minimum. Mr. Skiff stated, "Stream is a school that has money. However, I didn't want the school to be responsible for budgeting for new technology every year." The school has one device for each student in the lower and middle schools, but does not assign devices to students. Mr. Skiff stated, "We are considered a 1:1 school because we have the a 1:1 ratio of devices and students, but the students only use the device needed for the activity they are doing."

Upper school students at SIS are responsible for bringing their own device and Mr. Skiff believes this program has been a success. Mr. Skiff stated, "Our upper school students are BYOD. This has really allowed them to use a device they are comfortable with and that they have ownership of. It also keeps the school from having to maintain those devices." He added, "It has been so successful that we are going to push the BYOD program down to our sixth through eighth graders next year." Mr. Skiff's influence can be seen in both the devices that are used and the manner in which technology is funded.

The third area in which Mr. Skiff explained his influence on technology integration involved oversight of the administrative staff. Mr. Skiff explained, "My real influence is seen in what I expect of my administrators." Mr. Skiff has implemented a technology section in the annual evaluation of the administrative staff. The technology portion of the evaluation includes a report on the innovative ways teachers have used technology during that year. Mr. Skiff described the evaluations stating, "I require the administrators to report to me the different ways teachers are using technology. This motivates them to provide opportunities and professional learning that will encourage

innovation." He added, "I focus on that part of the evaluation especially with Chris, I expect him to be in the classrooms on a daily basis working with teachers and students. He routinely does a great job with that."

Mr. Skiff believes that technology integration should be evident when his administrators are hiring new teachers. Mr. Skiff stated, "We used to ask questions about how a teacher used technology. Now we expect teachers to talk about how they use technology without having to ask. If a teacher does not talk about it, we don't hire them." Mr. Skiff's influence can be seen in observing the ways teachers are using technology in the classroom and through conversation with the administrators at the school.

Changes in the Headmaster's Role involving Technology Integration

The third section of findings relates to research question three, do changes occur in the headmaster's leadership role during technology integration? Mr. Skiff was prompted to give examples of his daily routines prior to and after technology integration and asked to explain the parts of his job that had been affected by technology.

Leading a progressive school for the past 15 years, Mr. Skiff felt that his role as headmaster had evolved. Mr. Skiff stated, "As a headmaster, your job description is the same every year, but the things you do to accomplish that job change. You can't do this job if you're not flexible." Mr. Skiff explained that the areas of his job altered by technology integration included the way he carries out communication, the types of research he does, the manner in which he speaks to faculty, and the message and vision of the school. Mr. Skiff spoke to these changes stating, "I've changed how I communicate, I try to stay up on the technology trends, and I try to model behaviors at our faculty meetings. I also feel like technology has changed my educational vision."

Discussing changes to the function of communication, Mrs. Skiff explained that the Stream community had become more efficient communicators as a result of technology integration. MR. Skiff stated, "We have become a 24 hour a day seven day a week society and that is reflected here. If a student emails a teacher at 11 p.m. they will get a response." Mr. Skiff added, "I am the same way, I always have this thing at my side (points to cell phone) and it is constantly chiming. I could not function without being able to email on this."

Mr. Skiff believes that his communication with the outside community has changed. Revealing his affinity for twitter, Mr. Skiff said, "Twitter, who knew what twitter was going to become. Its great, I can communicate with people around the world in 145 characters. Twitter is great as a professional learning tool. People on Twitter have great ideas." When asked to expand on his Twitter usage, Mr. Skiff responded, "I have two accounts. I have my personal account that I use mostly professional learning. I mainly just read and follow on that account." Mr. Skiff continued, "I also have my school account that I use to share character words and updates on our latest building. I use it to share what is going on here at Stream." Mr. Skiff also participates in a school blog and occasionally helps with a post on the school Facebook page.

Mr. Skiff explained that technology integration research was responsible for his finding and use of Twitter. He stated,

> I knew abbot blogging and Facebook. My entire family has Facebook pages, so I knew about that. Twitter I found when I was reading the blog of a well-known school technology guy. At the bottom of the blog it said, "Follow me on Twitter." I clicked on it and my life has been changed forever.

Mr. Skiff pointed out that the types of research he does, changed with the schools technology integration. Mr. Skiff stated, "At the beginning, I tried to get as much information as I could about devices, implementation strategies, and what BYOD meant. Now I try to keep relevant and my reading centers on classroom uses of technology." Mr. Skiff believes that great importance should be placed on staying current with educational trends. Mr. Skiff explained, "If you stay current with what is happening, you will inevitably change the way you do things. Just like my twitter example, I wouldn't be doing that if I didn't research and read."

Modeling is the term Mr. Skiff used to describe an additional change in his role as headmaster. He clarified, "I have always modeled behaviors I want to see in my students and teachers, but now I also try to model good teaching through the use of technology. " Mr. Skiff continued stating,

> I use technology anytime I give a presentation. At any faculty meeting, or any alumni event; I always want them to see me using it. I also let them see me fail at it, when I fail. Teachers need to know that failure is acceptable in these situations, as long as they are trying something innovative.

Mr. Skiff explained that modeling is one of the most important parts a of headmasters job.

The last area Mr. Skiff discussed regarding changes in his role, involved the way he and the administrators engage with their vision. Mr. Skiff pointed out, "It used to be the school had a vision and mission statement posted on the wall. We learned it. We told people how it benefits their children, but we never really interacted with it." Mr. Skiff believes that a true vision should be in a constant state of revision. Mr. Skiff stated, "As headmaster, I am responsible for the big picture, and I also have to provide a view into

the future. With our vision statement, I take that to administrative meetings, and we frame the activities of the school with that vision." He continued, "We talk about whether the vision still fits what we are doing. We have actually changed the vision five times since I have been here." Mr. Skiff is a modern thinking headmaster that believes his role changes because it has to change to meet the needs of his school.

Technology's Effect on the Administrative Team

The fourth section of findings relates to research question four, what changes in leadership responsibilities do headmasters report as a result of technology integration? The interview protocol connected to research question four invited the headmaster to provide examples about technology integration's effect on the other administrators at the school. Mr. Skiff described changes in administrative team in the areas of teacher evaluations, communication, and daily activities.

Technology has been an integral part of Stream Independent School since Mr. Skiff became the headmaster 15 years ago. Mr. Skiff explained that technology was a way of life at SIS and thus changes to administrator roles were less evident. Mr. Skiff stated, "You know I've got these guys trained and they are good at what they do, so I rarely think about what they did before we went 1:1." Eventually, Mr. Skiff was able to point to three main areas where he felt the roles of his administrators had changed.

The first of the three areas Mr. Skiff discussed involved the process administrators are expected to use to complete teacher observations. Mr. Skiff requires his administrators to write an end of the year narrative for each of their division's teachers. Part of that narrative has to include a statement on the growth of the teacher's technology use. Mr. Skiff provided, "I make our administrators write end of year

evaluations for teachers. As part of that evaluation, they must show where the teacher started with technology and where she ended up the year with technology." Mr. Skiff continued, "I feel like this really does two things for my administrators. It allows them to see what's happening in the classroom with the teacher, but also gives them a better idea of where the division is moving educationally."

Mr. Skiff also explained that change in the evaluation perpetuated a more fluid process. Mr. Skiff stated, "The evaluations, require the administrators to visit the classroom on a more regular basis, its not just twice, three times a year. They are in the classrooms more often working to gauge the growth of the teacher."

According to Mr. Skiff, the second area of change in the roles of the leadership team at SIS involved communication. Mr. Skiff believes that his administrative team has had to become more adept at providing quick responses to parents, students, and teachers. Mr. Skiff explained, "As division heads, they have to make sure that people involved with their division know what is happening. Administrators have a number of options with which they can communicate." Mr. Skiff continued, "Some of my heads send out weekly emails to parents and faculty. Some of them have blogs that updates on a bi-weekly basis. The point is we have changed our style of communication, not what is being communicated."

The third area in which Mr. Skiff believes the roles of his administrators have changed involves discipline at SIS. Mr. Skiff explained, "We don't have a lot of discipline here. We have middle and high schools kids, so they are going to try things. Most of our issues result from a lack of digital citizenship." He added, "It starts on Facebook or Twitter and carries over into the school day. Our administrative team has

had to learn to be online investigators." Mr. Skiff believes that an off campus event causes a disruption at the school; it should be handled in part by the school. Mr. Skiff stated, "We get some blow back from parents on occasion, when we have to deal with some of these issues. The administrator has to make sure the parent is aware of the disruption that was caused at the school."

As a result of these online issues, Mr. Skiff explains that his administrators have also had to take on the responsibility for training students in digital citizenship. Mr. Skiff described his decision to give the administrators this role stating, "I felt like our administrators were the ones having to deal with the social media drama Therefore, I wanted them to do the citizenship training. They can speak to what types of behaviors we don't tolerate."

In summary, Mr. Skiff believes that his administrators have seen minimal change in their roles, in part due to the culture of technology use pervasive at SIS. Mr. Skiff also explained that the people in the administrative roles at Stream were all hired after the technology integration had begun.

Summary of Findings

The purpose of this study was to understand the perspectives of headmasters in schools participating in technology integration. It was evident from the data that technology integration influenced the leadership of the four participating headmasters and their schools. Findings were organized by participant and research question, allowing the researcher to determine common themes throughout the data. Chapter 6 will present a cross case and thematic analysis of the findings posed in this chapter.

CHAPTER 6

CROSS CASE AND THEMATIC ANALYSIS

The purpose of this study was to examine the perspectives of four headmasters of independent schools to determine the changes, both real and perceived, in the role of the administration and leadership related to technology integration. To further define this study, headmasters at four independent schools in the Southeastern United States that had led schools through technology integration were interviewed to glean their perspectives about technology integration and its effect on independent school leadership. The research was conducted to answer the following research questions:

1. How vital is technology integration to the success of an independent school?
2. Does the headmaster influence determining how technology integration is approached?
3. Do changes occur in the headmaster's leadership role during technology integration?
4. What changes in leadership responsibilities do headmasters report as a result of technology integration?

The participants in this study included four current independent school headmasters selected from schools in Texas. A qualitative case study approach was used to discover the headmasters' experiences and perspectives in relation to technology integration. Each case was studied individually and then findings were examined using multiple case study methods.

This chapter provides cross case and thematic analysis of the four participant's perspectives regarding technology integration and independent school leadership. Four areas coinciding to the four research questions and the resulting themes within each area were discussed. The four areas included, vitality of technology to an independent school, influence of a headmaster on technology integration, changes in the role of the headmaster resulting from technology integration, and changes in leadership responsibilities because of technology integration. The perspectives of all participants were compared for commonalities until saturation was achieved across the data. Each of the four areas relating to a research question will serve as the four main sections of this chapter.

The four participants in this study lead in four independent schools located in Texas. The schools, independent of each other, all belong to the Independent Schools of the Southwest Association. Two of the schools, River Independent School (RIS) and Ocean Episcopal School (OES), serve students from pre-kindergarten through eighth grade. Two of the schools, Lake Independent School (LIS) and Stream Independent School (SIS), serve students from pre-kindergarten through twelfth grade. All four schools are comprised of a majority of white students, coming from mostly affluent local families. Stream Independent School serves the largest number of minority students with a 42% minority student population.

Each of the four schools, in the past five years, has participated in a form of technology integration that has produced a student to computer ratio of 1:1. River Independent School has provided a laptop device for each student and funds the program through a $1200.00 fee collected from fifth grade students. Ocean Episcopal School

requires each student in grades three through eight to provide an iPad and Apple ID for use at school. Lake Independent School uses multifaceted plan that provides students in kindergarten through eighth grade with an iPad and has students in grades 9 through 12 bring their own devices. Stream Independent School uses alternate multifaceted plans that provides laptops and tablet devices for students in grades 3 through 5 and has students in grade 6 through 12 bring their own laptop. Stream Independent School also provides iPad carts and computer labs for students in 6th through 12th grade.

The four participants in the study come from differing educational backgrounds and career related experiences. Each participant took their own individual route in becoming headmaster at their current school. Mrs. Canoe began in the business world and became an educator in her second career. She taught for four years before moving around the Southeastern United States holding positions in both independent and public schools. She has been at her current school for three years.

Mrs. Yacht began her educational career as a teacher in public schools before becoming a teacher at Ocean Independent School. She has remained at Ocean Independent School moving from teacher to lower school head and then eventually being named headmaster. Mrs. Yacht is in her third year as headmaster at the school.

Mr. Pontoon is in his 41st and last year as an independent school educator. Starting as a middle school teacher, Mr. Pontoon moved on to hold numerous independent school titles prior to becoming a headmaster. His first stint at Lake Independent School included six years as Upper School Division Head. In 2002, Mr. Pontoon was asked to return to Lake Independent School as headmaster, and he has served in this capacity for 13 years.

Mr. Skiff began his career in education as a college admissions officer before taking a job teaching at an independent school. He moved from teacher to division head and was appointed to the headmaster role at Stream Independent School in 2000. He has served in the capacity of headmaster at SIS for the past 15 years.

Vitality of Technology in Independent Schools

There were indications that all participants felt technology was an integral part of independent school education. Participants were generally eager to explain the reasons for integrating technology in their respective schools. Mrs. Canoe explained that her school was in the early implementation stage and that she was hired because of her experience in a 1:1 computing environment. She stated, "People here will tell you that this process had been going on ten years. I was brought here specifically to get this process of the ground." Mrs. Canoe commented, "Technology was seen as a need here because we want to provide the best education for our students. Parents and faculty were the driving force in starting this program."

Mrs. Yacht had seen the integration process evolve over the tenure of two previous headmasters and used this knowledge to push the school in the direction she believed was best. Mrs. Yacht explained, "Having been lower school head prior to this job, I was aware of some of the cultural insights and where this school needed to be with the integration of technology." Mrs. Yacht also spoke to the push to integrate technology from the parents of her students. She stated, "Parents talked about, "is my child going to be ready for high school or wherever they are going to go to after here." That was another factor that came into the situation."

Mr. Pontoon pointed to a conversation with his sons as providing him with the insight to push for increased technology in his school. Mr. Pontoon noted, "Both of my boys said, "Dad, you guys do a miserable job teaching us how to use technology." And they were right."

Mr. Skiff explained that faculty and students were becoming stagnant in the educational process and needed to be energized. Mr. Skiff stated, "A few years back we got a little stagnant with our technology and you could see it in the teachers. We decided to require students to bring devices and teachers were able to plan new and exciting activities."

Each of the four participants discussed to the need to provide the best educational experience for the students. As an integral part of a 21st century education, technology was seen as a necessity for independent schools. Mrs. Yacht expressed, "If you're not going to be 21st century School, you fall behind. It's just the reality of education." Mrs. Canoe explained, "We want to give our kids the best education possible and that requires them to have as much information as possible. Technology gives them that information."

Mr. Pontoon's believed that technology helps to prepare his students for the future. Mr. Pontoon stated, "Simply put, society uses technology more today than it ever did before. We are training kids to be successful in college and beyond. If we ignored technology, we are not serving our kids." Mr. Skiff feels that technology is necessary to provide a foundation for his students. Mr. Skiff explained, ""Our job is to prepare these students to move on with their lives and to be successful. In today's world, that means they have to be comfortable using technology."

While all participants agreed on the need to provide technology as part of an independent school education, each participant differed slightly as to the reasons they believed technology was important. Three of the participants felt technology was important because of the competitive nature of independent schools. Viewing technology as a tool that allowed her school to maintain its relevance in the local market, Mrs. Canoe stated, "We benchmark ourselves in the community. Our city is in a very competitive market in regards to prestige and quality of education. We certainly do not want to be behind any of the other schools." Mrs. Canoe added, "It's a very different market here than anywhere I've ever been. I wouldn't want another K-8 school to be so far ahead that the parents are saying, "what, I'm paying the same price as you are there."

Similarity, Mrs. Yacht explained, "We are so competitive in this area that you have to set yourself apart from other schools if you want to keep students or recruit new students." Mr. Skiff feels that the eight independent schools within five miles of his school create a competitive nature, thus a need to stay on the cutting edge of education. Mr. Skiff stated, "If we don't stand apart from these schools, our students have plenty of alternate places to choose from."

Mr. Pontoon is of a different mindset because of the location of his school and the prestige in which his school is held nationally. Mr. Pontoon explained that his school had a retention rate well above the national average for independent schools and that there was minimal competition for students in his area. Mr. Pontoon said, "It never dawned on me to use technology as a selling point or competitive point. I knew what they didn't have, but I also knew we didn't need it."

Mr. Skiff believes that the technology program at Stream Independent School allows him to recruit the best teachers in the area. Mr. Skiff explained this competitive edge stating, "Schools around here all pay about the same and have similar benefits. The thing that helps, to attract the best teachers, is what we provide them to teach with and the freedom we allow them to teach with." Mr. Skiff believes that teachers agree to work at SIS because they are given the tools and freedom to do their jobs. Mr. Skiff stated, "Teachers know they will be given what they need, not just told what they should use."

Mrs. Canoe, Mrs. Yacht, and Mr. Skiff all believe that technology integration is important in engaging faculty in the learning process. Mrs. Canoe stated, "What we noticed is a renewed purpose in the faculty." Mrs. Canoe added, "For a teacher who's been teaching for a while, it stimulated them. The teachers who are new, with three years experience, they were used to technology. It would be odd for them to not have it." Mrs. Yacht explained, "Teachers were already talking anchor charts and differentiating learning. They needed to take it to that next level which involves the technology piece." Mr. Skiff explained, "You could really see our faculty get reenergized. They began Skyping with people around the world. They started projects that took the students outside of the classroom." Mr. Skiff pointed out that teacher requests for professional learning related to technology doubled in the first year of 1:1 integration.

Table 6.1 summarizes the participants' perspectives on the importance of technology in independent schools. Participants agreed that technology provided students the tools needed to engage in 21st century learning, but differed in the other areas in which technology was important for their schools.

Table 6.1

Participants' Perspectives on the Vitality of Technology

Characteristic	Mrs. Canoe	Mrs. Yacht	Mr. Pontoon	Mr. Skiff
Provide students with 21st century education	X	X	X	X
School Prestige	X			X
Student retention and recruitment		X		X
Faculty engagement	X	X		X
Faculty recruitment				X

Headmaster's Influence on Technology Integration

All participants in this study exuded influence over the process of technology integration at their schools. The areas of influence discussed by the participants were generally similar, but with differences in the areas each participant felt they displayed the greatest impact.

Three of the participants spoke at length about the influence they used in determining the financial component of technology integration. Mr. Pontoon, Mr. Skiff and Mrs. Yacht played a role in deciding how technology would be funded at their schools. Mrs. Canoe had little influence over the financing of technology integration because River Independent School's plan was already in place when she was hired.

Mr. Pontoon explained that he was responsible for deciding how the school would fund infrastructure upgrades and devices for teachers and students. He felt that it was necessary to bring in money not previously budgeted for other areas of the school. Mr. Pontoon stated, "Most of our tech money was new money. We just said, "We're going to increase our budget by this and put it in." You can't rob Peter to pay Paul, you just can't."

Because of the financial situation of his school, Mr. Pontoon allowed his director of technology to determine the financial needs for technology. Mr. Pontoon explained, "I gave Bill blank checks and said, "Go do it.""

Mr. Skiff felt that his school needed to be fiscally responsible in spending on technology. Mr. Skiff said, "Stream is a school that has no issues with money, we have that. I didn't want the school to be responsible for budgeting for new technology every year."

Mrs. Yacht's influence was evident in the schools decision to institute a hybrid BYOD program. Mrs. Yacht explained, "We decided that the best way to go 1:1 was to have each family buy their own iPad and create their own apple ID." Mrs. Yacht also exerted her influence in making the decision to use funds, originally budgeted for technology purchases, to update classroom furniture. Mrs. Yacht stated, "I didn't want to walk into a class and see kids with computers out all in a row. I decided if we were going to do this we would do it all the way." Mrs. Yacht continued, "To me, sometimes the furniture can help you get where you didn't know you wanted to be."

Three of the participants were able to leverage their influence in regard to purchases made in conjunction with technology integration. Mrs. Canoe and Mr. Skiff described an influential role in deciding which device students would use. Mrs. Canoe stated, "I tried to remain an observer, but at certain points I had to go into the meeting and say, "OK you need to make a decision."" Mr. Skiff explained, "I had seen several schools go with one device and you always hear the negative side of a decision like that. I figured if we provided multiple devices, we could fix that problem."

In addition to purchasing furniture, Mrs. Yacht began a Social Psychological Answers to Real-world Questions (SPARQ) program. Mrs. Yacht explained, "We felt we needed a program that intertwined our technology and curriculum. We added the SPARQ program. I also made sure we had 3-D printers, arduinos and other items the kids could use besides the iPad."

Three participants spoke to influence over culture change at their schools. Mrs. Yacht feels that technology is an integral part of the learning process and said to her teachers, "get on the bus or get off the bus, its your choice." Mrs. Yacht also stated, "I had to explain to them that I knew they were in different places with this and that I would get them the assistance they needed." Mr. Pontoon used a similar ploy in explaining to his staff the school would be instituting technology. Mr. Pontoon stated, "I had teachers quitting, I had people telling me I didn't know what I was doing and I said, "you're right I don't know what I'm doing, that's not for debate. We are going to move forward."" Mr. Pontoon further explained, "We broke down the wagon and we started building it from the ground up. We got the people we needed and started over."

Mrs. Canoe exerted her influence over the attitude of the school in an alternate manner. She explained that her philosophy was to model use of technology as a way of showing teachers its benefits. Mrs. Canoe stated, "I think the fact that I use new things, and I am not afraid of technology, gives my teachers the confidence to use technology."

All of the participants believe that management of technology related personnel was an area in which they influenced technology integration. Mr. Skiff and Mrs. Yacht hired technology leaders that had educational backgrounds. Mr. Skiff stated, "I wanted my tech director to be an educator. I already had the wires person. I needed someone to

help with technology in the classroom." Mrs. Yacht explained, "We had a lot of great ideas. If you don't have the right person coming in they might just be ideas or it may not be a real fit."

Mr. Pontoon felt he needed a technology leader that was competent in both infrastructure and educational technology. Finding the right person for that role, Mr. Pontoon stated, "I went out and found Bill and said, okay, come here and figure this out. I'll give you three years. No questions. Whatever money you need. Get us where you think we need to be." Mrs. Canoe said, "I knew that we had a great tech director, but that this job was too big for him to do alone." Mrs. Canoe hired two additional technology integration specialists for her school.

The introduction of technology related programs was an area addressed by two of the participants. Mrs. Yacht believes she was integral in bringing the SPARQ program and distance learning days to her school. Regarding the distance learning days, Mrs. Yacht provided, "Several years ago we had more snow days than we had allotted. I wanted a program that allowed us to interact with our kids from home. I had Dr. Schooner do some research, and we found SchoolWeb."

Mr. Pontoon instituted a virtual learning program at his school. Mr. Pontoon said, "We don't have the funding to provide a teacher for the three or four students that wanted to take Chinese or AP Computer Science. When you get three or four kids from five schools, you can fill a class."

Interestingly, only Mrs. Canoe described her influence regarding the area of professional learning. Mrs. Canoe stated, "Another thing I did here was take a look at the professional learning going on at the school. We hadn't really done a good job of getting

our teachers outside the box." Mrs. Canoe reached out to renowned educational technology guru Heidi Hayes Jacobs and contracted Mrs. Jacobs to consult with the school for the next two years. Professional learning was not an area specifically discussed by the other three participants.

Participants' were eager to share the changes that occurred in each of their schools as a result of technology integration and their personal influences in specific areas of the integration process. Table 6.2 summarizes the areas of influence described by the participants.

Table 6.2

Participants' Perspectives on the Areas of Headmaster Influence

Characteristic	Mrs. Canoe	Mrs. Yacht	Mr. Pontoon	Mr. Skiff
Funding of Technology		X	X	X
Technology Purchases	X	X	X	X
Culture	X	X	X	
Technology Department	X	X	X	X
Technology Programs		X	X	
Professional Learning	X			

Change to the Role of the Headmaster

Evidence derived from the data of this study showed that all four headmasters experienced a change in their role as headmaster as a result of technology integration. Mrs. Canoe and Mrs. Yacht expressed a major shift in the manner in which they completed their job. Mr. Skiff expressed a mild shift, and Mr. Pontoon described minimal change in his function as headmaster.

The general belief regarding technology, as a change agent to the role of the headmaster, was summarized through a statement made by Mrs. Yacht. Mrs. Yacht explained, ""Am I doing more things using technology?" "Yes, I am." Is it more time demanding? "Yes, but would it have been just as time demanding if I had to do it the olden way?"" Mrs. Canoe expressed similar sentiment stating, "The first thing I do when I come in is power up."

One job function that all four participants describe as having changed, as result of technology integration, involved communication. Mrs. Canoe explained, "If you email me, I'm going to respond within 30 minutes. It would be really odd if I didn't respond. I might say "I'll get back to you," but I'm going to respond." Mrs. Canoe added, "Regarding my faculty, I email them if I can't find them, or if they have forgotten to turn something into me. I'll send a reminder email, or an email if I need to ask them a question." Mrs. Canoe believes that increased communication has had an effect on her school community. Mrs. Canoe explained, "One thing that's curious to me as a leader is that I live and die by email. I think that it has allowed the parents to feel that I'm responsive."

Mrs. Yacht expressed a similar sentiment stating, "Our students have email, the parents have email, and the school provides dropboxes. Technology has drastically changed our communication. Its amazing the ease its brought into management." Mrs. Yacht also explained, "Everyone knows that I am an email junkie. They know if they want an immediate response to email me. I get emails from teachers, parents and students and it helps keep us running without disruption." Describing an increased online

communication with students Mrs. Yacht stated, “Now that our students have email, I can contact them throughout the day without causing disruption. I like to inquire about them and how things are going. It keeps me in the loop.”

Mr. Pontoon described a change in the volume of communication and the effect technology has on his daily routine. Mr. Pontoon said, “Before we fixed all this technology, I had to spend a lot more time in my office.” Mr. Pontoon explained his increased volume of communication stating, “ Usually while I am walking around, I am answering emails from the board, my administrative team, and parents. Recently, I’ve been emailing with some of the students.”

Mr. Skiff expressed a change in communication explaining, “I am the same way. I always have this thing at my side (points to cell phone), and it is constantly chiming. I could not function without being able to email on this.” Mr. Skiff also expressed an affinity for the use of a particular technology tool when communicating outside the immediate Stream Independent School (SIS) Community. Mr. Skiff stated, “Twitter, who knew what Twitter was going to become. Its great. I can communicate with people around the world in 145 characters.”

Mr. Skiff added that his use of Twitter included communication with those inside the SIS community explaining, “I also have my school account that I use to share character words and updates on our latest building. I use it to share what is going on here at Stream.”

Mrs. Canoe expressed a change in the types of communication she was doing as a result of technology integration. Describing an issue regarding devices not functioning properly, Mrs. Canoe stated, “I never have to call vendors, but I called the company,

actually I Googled the CEO's name and sent him an email. The next thing I know I get a call from a vice-president." Mrs. Canoe believes that she must take a greater role in communicating with vendors and consultants to ensure quality products and professional learning in her school.

Three of the participants described new daily activities that became a part of their role as a result of technology integration. Mr. Skiff is now an avid Twitter user. He also participates in a school related blog and makes occasional posts on the SIS Facebook page. Mrs. Canoe similarly described an affinity for the use of Twitter explaining, "This year one of my goals is to send a tweet a day, and it's been pretty interesting because I noticed things that I wouldn't have noticed." Mrs. Canoe described the use of additional technology tools as enhancing her ability to do her job. Mrs. Canoe said, "I've never done a screen-cast, so I learned how, I spent countless hours this summer recording and rerecording my screencast, but I did it because it was sharing my vision with the faculty."

Mrs. Yacht described the use of a school blog that she started during the initial phases of Ocean Episcopal School's (OES) technology integration. Mrs. Yacht stated, "I have started blogging, a weekly blog to the community. I use it to tell parents things and explain different technology pieces." Mrs. Yacht added that her intended audience was the parents of students at OES. Mrs. Yacht explained, "This week I blogged about technology disruption and what that means. I try to give my parents terms that aren't really in their jargon and explain how that relates to us." She also explained that she had noticed a change in the types of activities she participated in. Mrs. Yacht described her daily visits to the schools SPARQ space stating, "I like to go to the SPARQ space at least twice a day and participate in the activities going on there."

Mrs. Canoe and Mrs. Skiff expressed a change in types of reading and research they do as a result of technology integration. Mrs. Canoe stated, “I've been doing a lot of recent research because I'm rolling out my vision to our parents. I've gotten the question, “what's next in technology?” My response is “we don't know.”” Mrs. Canoe explained the importance of this type of research stating, “I can't begin to know what’s next except that I don't think it's going to be anything we even know about yet. I just have to keep educated about what’s out there.”

Mr. Skiff believes that research into current trends is a vital part of the role of a headmaster. Mr. Skiff described the change in his research topics stating, “At the beginning, I tried to get as much information as I could about devices, implementation strategies, and what BYOD meant. Now I try to keep relevant and my reading centers on classroom uses of technology.”

The data obtained in this study provided evidence of change, in the role of headmaster, specific to each of the participants. Mr. Pontoon views his role differently than the other three participants and initially struggled to determine how his job had changed. Describing his view of the headmaster at LIS, Mr. Pontoon explained, “I manage the corporation. I don't run the school. I run a 26 million dollar operation.” Mr. Pontoon pointed out that his perspective on the role of a headmaster was relative to the school in which he was employed. Mr. Pontoon stated, “Just because I have to run my school this way doesn’t mean others do.”

Two changes as a result of technology integration that Mr. Pontoon described included the type of funds he raised and the topics he discussed with his administrative team. Mr. Pontoon believed that raising funds for technology was easier than raising

funds for other necessities of the school. Mr. Pontoon explained, "…people like to give money if I explain to them we're using it for technology. It's a great way to get people to open their wallets." Mr. Pontoon discussed a change in the types of questions he asked his administrators. Mr. Pontoon said, "The [many] questions they know I am going to ask are, "what's going on in technology, what are the new things happening, what do we need to do next?" I make sure they know what their teachers are doing."

Mr. Skiff was the only participant to describe change in the way he modeled technology and the manner in which he interacted with the school vision. Mr. Skiff explained that modeling was an important part of leading. Mr. Skiff stated, "I have always modeled behaviors I want to see in my students and teachers, but now I also try to model good teaching through the use of technology." Mr. Skiff discussed the manner in which he and his team interacted with the school's vision explaining, "I am responsible for the big picture, and I also have to provide a view into the future. With our vision statement, I take that to administrative meetings, and we frame the activities of the school with that vision."

Mrs. Yacht described a change in the types of discipline that found its way to her desk. Mrs. Yacht explained, "I receive calls from parents asking what I can do about certain students and the way they use the device outside of school. In my opinion that's really a parenting issue." Mrs. Yacht pointed out that her solution to this problem was to give ownership of the devices to the students and parents. She stated, "We specifically decided to have the parents purchase the device so that they owned it and we weren't responsible for its use at home."

The topic, change in the role of a headmaster resulting from technology integration, was an area in which all four participants required specific prompting from the researcher. The researcher asked participants to describe their daily routine prior to and after technology integration. This line of questions served as a catalyst in prompting responses about changes in the participant's roles. Table 6.3 describes the areas in which the participants believe their role as a headmaster has changed as a result of technology integration.

Table 6.3

Participants' Perspectives on Changes to the Role of Headmaster

Characteristic	Mrs. Canoe	Mrs. Yacht	Mr. Pontoon	Mr. Skiff
Communication	X	X	X	X
Daily Activities	X	X		X
Research	X			
Fundraising			X	
Administrative Relationships			X	
Modeling				X
Vision				X
Discipline		X		

Change in Leadership Responsibilities

All of the participants in this study hold the title of headmaster and thus have a team of people whose roles are defined by the way in which they help the school to function. Each participant employs an organizational chart that is populated with administrative leaders that oversee the daily functions of the school. This section of the chapter provides an analysis of the data describing changes, resulting from technology integration, in the roles of the administrative leaders at each school.

Each of the four participants agrees that successful technology integration requires the "right" people in administrative or leadership roles. Mrs. Canoe explained, "You have the right people on the bus to do it well." Mrs. Canoe added, "Personalities are important. Embarking on this journey you really need to take an inventory of what you've got and decide, are they in the right place." Mrs. Yacht pointed to the three changes in headmasters at OES as an example of finding the right person to lead technology integration. Mrs. Yacht stated, "It took really three tries before I was able to get in this role and get us rolling. It's important to get the right fit." Mr. Pontoon described a change he made in the leadership of his Upper School. Mr. Pontoon explained, "I didn't have an out front leader. He didn't have passion and ran the division from behind the desk. That wasn't working for them."

A main topic of discussion, in the area of leadership, regarded finding a capable Director of Technology. Three of the participants were able to hire new Directors of Technology prior to starting technology integration. In addition to hiring the new leaders, the participants described changes made to the role of the Director of Technology.

Mrs. Yacht determined that the change in the role of Director of Technology facilitated a change in the title of the position. Mrs. Yacht explained, "I didn't wanted to be so limiting with a Director of Technology. It's so much more than that and I think that undersells and puts you back into the 20th century." The technology leadership position at OES was renamed the Director of Technology and Innovation. Mrs. Yacht noted, "When I brought Dr. Schooner on board, one of her talents was providing innovative thinking in how we educate our kids. I thought that part of her job needed to be in her

title." Mrs. Yacht believes that technology integration should be embedded in all aspects of the school and therefore adjusted the position of Director of Technology and Innovation on the organizational chart. Mrs. Yacht explained, "I think the biggest piece, in terms of the leadership team focus, changed by putting Mrs. Schooner over the division heads."

Mr. Skiff has a similar belief and explained, "I wanted my Director of Technology to be an educator. I already had a wire's person. I needed someone to help with technology in the classroom." Mr. Pontoon explained the change in the role of LIS' Director of Technology as a function of the person he hired to do the job. Mr. Pontoon stated, "When I hired Bill, I knew he was more than a nuts and bolts guy. He could lead professional learning and he was innovative. I changed that position to reflect his skills."

Mrs. Canoe did not hire a new Director of Technology, but did make changes to the scope of the role. Mrs. Canoe hired two instructional technology specialists to work under the Director of Technology. She explained, "I knew that we had a great Director of Technology, but that this job was too big for him to do alone." Mrs. Canoe added, "The school did not have any instructional technology type people. I was able to hire both the middle and lower school people for these jobs."

Mrs. Yacht and Mr. Pontoon made personnel changes in their respective schools' technology departments. Mrs. Yacht added several new roles and hired or reassigned people to fill these positions. Mrs. Yacht explained, "With Dr. Schooner on board, we next looked to how her team worked. We had some people that were doing jobs that they weren't really suited for and knew we needed to make changes." Mrs. Yacht added two instructional technology positions and created a SPARQ Director role. Mr. Pontoon noted

the changes in his Technology Department stating, “I've given him (Director of Technology) a suite of offices. I've given him a staff and I said, “You train the faculty, that's your job.””

All four participants described changes in the daily activities of school administrators resulting from technology integration. Mr. Pontoon explained, “My division heads are the people that probably saw the greatest change in how they do their jobs on a daily basis.” Describing an example of this change Mr. Pontoon pointed to his Middle School Division Head and noted, “Steven saw the flipped classroom at a conference and really felt like it would work here. He took the time to make sure his staff was capable of flipping and now requires it.”

Mrs. Canoe described a change in the way administrators handle minor tasks with students. Rather than having students in and out of the administrator’s office, administrators are spending more time dealing with issues virtually. Mrs. Canoe explained, “It (technology integration) has prevented the raising of the hand saying “I need to go talk to Mrs. Jones.”” Instead of seeing students in administrative offices, Mrs. Canoe explained that students are able to handle issues via email and spend less time out of class. Mrs. Canoe noted, “They can send an email saying, “I need to change this class” and have that happen without having to take up class time.”

Mrs. Yacht pointed to procedural changes in the role of OES’ administrators, specifically in the area of communicating with students and parents. Mrs. Yacht explained, “Children are talking from home to their teachers and administrators. They're asking for help that didn't exist before.” Mrs. Yacht added, “Now it's emails, phone calls and new types of messages, whether it's a child, teacher, or parent.”

Mr. Skiff explained that the administrators at SIS were all hired after the initial phase of technology integration. Mr. Skiff initially struggled to describe changes to the roles of administrators noting, "You know I've got these guys trained and they are good at what they do, so I rarely think about what they did before we went 1:1." Mr. Skiff eventually discussed a change in the way his administrators communicate with students and parents. Mr. Skiff noted, "Some of my heads send out weekly emails to parents and faculty. Some of them have blogs that update on a bi-weekly basis."

In addition to changes in daily tasks, Mr. Pontoon and Mr. Skiff discussed a change in the relationships between administrators and faculty members. Mr. Pontoon expects his administrators to adjust the culture of the school to invite innovative learning. Mr. Pontoon directed his administrators to make sure teachers understood that technology integration was going to happen at LIS. Teachers in the Lower School at LIS were reluctant to make changes to their educational processes. Speaking to the culture shift required of administrators, Mr. Pontoon explained a conversation he had with his Lower School Head. He noted, "I spoke with Laurie and basically told her she had to get them on board or find new teachers."

Mr. Skiff explained the relationship change between administrators and faculty as resulting from an addition to the teacher evaluation process. Mr. Skiff noted, "The evaluations, require the administrators to visit the classroom on a more regular basis. Its not just twice, three times a year. They are in the classrooms more often working to gauge the growth of the teacher." Mr. Skiff explained, "It allows them to see what's happening in the classroom with the teacher, but also gives them a better idea of where the division is moving educationally."

According to the perspectives of the participants, changes in the roles of administrators resulting from technology integration were functions of the tools available to students and teachers. Each participant provided specific areas in which administrator roles had changed, but revealed that in most cases these changes were pervasive across the school. Table 6.4 provides the areas in which each participant felt changes to the roles of administrators occurred.

Table 6.4

Participants' Perspectives on Change to the Leadership Roles

Characteristic	Mrs. Canoe	Mrs. Yacht	Mr. Pontoon	Mr. Skiff
Hiring the "right" person	X	X	X	X
Daily Activities	X	X	X	X
Hiring of New Staff	X	X	X	
Culture Shift			X	X
Evaluations				X

Summary of the Findings

It was evident from the analysis of the data that technology integration had an impact on independent school leadership. The data revealed certain areas of technology integration impact that were relative across all four schools in the study and certain areas of impact that were relevant to specific participants and their schools. Particular topics such as leadership and communication were brought up during conversations related to each of the four research questions. Each of the four participants repeatedly discussed the importance of having the proper people in leadership to provide the best opportunity for successful technology integration. Factors indicated that there were intended and unintended changes resulting from technology integration.

From the cross case analysis of the four participants, four themes emerged through the constant comparison of the data. These themes included:

1. 21st century learning is important and facilitates the need for culture change to provide teachers and students the opportunity to engage in innovative learning activities.
2. Leadership roles must be altered to fit the needs of a school participating in technology integration.
3. Change in the role of headmaster is largely dependent on the school and the individual who is in the headmaster's role.
4. Proper communication with stakeholders is vital to successful technology integration.

Chapter 7 provides a summary of the study in relation to the literature as well as discussion of the four themes that emerged from the analysis of the four case studies. Implications for further study are also discussed.

CHAPTER 7

SUMMARY, DISCUSSION, AND IMPLICATIONS

The purpose of this study was to examine the perspectives of four headmasters of independent schools to determine the changes, both real and perceived, in the role of the administration and leadership related to technology integration. To further define this study, headmasters at four independent schools in the Southeastern United States that had led schools through technology integration were interviewed to glean their perspectives about technology integration and its effect on independent school leadership. The research was conducted to answer the following research questions:

1. How vital is technology integration to the success of an independent school?
2. Does the headmaster influence determining how technology integration is approached?
3. Do changes occur in the headmaster's leadership role during technology integration?
4. What changes in leadership responsibilities do headmasters report as a result of technology integration?

Summary of Research Design

A qualitative case study approach was used to discover the perspectives of four independent school headmasters. Participants represented four individual schools in Texas that are members of the Independent Schools of the Southwest Association. At the time of the study, participants were headmasters at schools recently engaged in

technology integration leading to a 1:1 device to student ratio. Data were gathered through multiple sources to further validate the findings. Sources included:

1. Two one-hour interviews with four independent school headmasters.
2. Fieldnotes gathered before, during and after each interview.
3. Artifacts collected such as school technology plans, school promotional material, school organizational charts and job descriptions of school administrators.

Symbolic interactionism is described as a means for better understanding the perspectives of members of society and how they interpret and view their surroundings through and in social interactions (Blumer, 1969). Blumer describes the premises of symbolic interactionism as: (1) Human beings react toward things based on the meanings they have developed. (2) The source of the meanings has developed from interactions with others. (3) The meanings are further developed and modified through an applicative and interpretative process in dealing with things encountered. Crotty (1998) explained that dialogue is the only means through which one can obtain the "perceptions, feeling and attitudes of others and interpret their meanings and intent" (pp. 75-76).

This study further attempted to understand the perspectives of participants through the application of an interpretive theoretical perspective. Marshall and Rossman (2006) explained that all qualitative research is fundamentally interpretive. Denzin (2001) described interpretive interactionism as endeavoring to "capture and represent the voices, emotions and actions of those studied" (p.2). Examining the process through which participants developed their perspectives helped in understanding the reasons for their

beliefs. A constructivist theoretical approach to the interpretive analysis of data allowed the researcher to uncover themes as to what areas of independent school leadership are affected by technology integration.

A constructivist theoretical approach requires the researcher to engage in an in-depth immersion of the data. Crotty (2003) states that knowledge is "constructed in and out of interaction between human beings and their world" (p. 42). Continuous analysis and comparison of the data, to a point of saturation, allowed the construction of themes related to the experiences of the participants. This process was used in the interpretation and analysis of the data gathered from the four participants in the study.

The study was constructed to gather information from individual participants as to their perspectives on technology integrations effect on independent school leadership. Each participant reflected on their experiences and beliefs through two interviews. The researcher was also able to obtain additional data from fieldnotes and artifacts. Each case was analyzed individually and then collectively to provide commonalities among the cases.

Qualitative case study using the constructivist methodology requires researchers to construct meaning from the words and actions of the respondents (Denzin &Lincoln, 2005). Transcripts were coded according to the method prescribed by Saldana (2012). Key phrases from the transcripts led to the development of four categories related to the research questions posed by the study. Categories were then used to determine common themes.

Four stages of the constant comparative method including comparing categorical incidents, creating categorical data, reducing data into theory, and writing theory were used to guide the specific analysis of data (Glasser & Strauss, 1999). Data from individual cases were compared and analyzed to discover each participant's perspective. Cross case analysis of multiple case studies provided an expansion of the generalizability and validity of the findings (Yin, 2003). After the emergence of each category, the researcher compared the data to other data and other categories to ensure accuracy of interpretation. The constant comparative method was used again for analyzing common categories from all four cases. Through the final comparison of categories theory began to emerge.

Research conducted based on symbolic interactionism through constructivist multiple case study methodology allows participants perspectives to emerge from their personal experiences and interactions with others. The impact of technology was conveyed through discussion of events and conversations participants experienced during the process of technology integration. Four themes emerged from the data related to the impact of technology on independent schools and independent school leadership.

Discussion

Referring to the review of relevant literature, the four themes that emerged from the analysis of the case studies of four headmasters are discussed in relation to technology integration on independent school leadership.

Theme 1: *21st century learning is important and facilitates the need for culture change to provide teachers and students the opportunity to engage in innovative learning activities.*

The participants agreed that 21st century learning was an important part of independent school education. According to ISTE (2011), 21st century leaders, "create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students" (para. 3). Mrs. Canoe expressed a desire to provide students with the "best education," and she had a need to provide students with "as much information as possible." Mrs. Yacht explained, "If you're not going to be 21st century School, you fall behind. It's just the reality of education." Deubel (2006), Glasser (1998), and Prensky (2001) explained that students of the current generation need visual manipulatives, can process information quickly, and learn best through trial and error. Prensky (2001) coined the term "Digital Natives" and described the phenomenon as "native speakers of the language of computers, video games, and the internet" (p. 1).

Mr. Skiff and Mr. Pontoon believe that technology is an integral part of preparing students for the future. According to a study by Rideout et al. (2010), 80% of middle grade students own iPods or MP3 players, 69% have cell phones, 69% own handheld gaming devices, and 27% have their own laptop. Mr. Skiff stated, "In today's world, that means they have to be comfortable using technology." Mr. Pontoon said, "We are training kids to be successful in college and beyond. If we ignored technology, we are not serving our kids."

The International Society for Technology in Education – Administrators (ISTE-A) (2011) standard four, systemic improvement, explains, "Educational Administrators provide digital age leadership and management to continuously improve the organization

through the effective use of information and technology resources" (para. 7). The importance of this standard was evident in the tactics employed by participants in creating cultural shift in their schools.

Mrs. Yacht used a "get on the bus or get off the bus" philosophy extolling her belief that the faculty should believe in the importance of technology integration. Mrs. Yacht added, "I wanted to make sure everyone was on board. Its like the book we read a few years ago that basically said if you get on board, you will see how much it can benefit you." Mr. Pontoon made changes in personnel to bring in faulty members that believed in the use of technology. Mr. Pontoon said, "We got the people we needed and started over."

Mrs. Yacht attempted to change the culture of the school by altering the physical nature of classrooms. Mrs. Yacht stated, "To me, sometimes the furniture can help you get where you didn't know you wanted to be." Hassell (2011) reported that mobile furniture can be used to create the proper environment for the learning activity and can combat the confinement of classroom space.

Mr. Skiff pointed to a change in the demeanor of his faulty as a result of technology integration. Mr. Skiff said, "A few years back we got a little stagnant with our technology and you could see it in the teachers. We decided to require students to bring devices and teachers were able to plan new and exciting activities." ISTE-A standard four, substandard one describes the need for administrators to "Lead purposeful change to maximize the achievement of learning goals through the appropriate use of technology and media-rich resources" (para. 8) Mrs. Canoe attempted to alter the culture at her school by modeling technology use. Mrs. Canoe stated, "I think the fact that I use new

things, and I am not afraid of technology, gives my teachers the confidence to use technology." Interestingly, participants spoke to numerous ideals found in the ISTE standards, but none of the participants mentioned ISTE by name. In fact, most independent schools avoid "the reliance on standards" because of "unnatural entanglements with federal and state funding and governance," according to Mrs. Canoe.

Theme 2: *Leadership roles must be altered to fit the needs of a school participating in technology integration.*

According to Huse (1980), a role is defined as the set of activities that the individual is expected to perform and constitutes a psychological linkage between the individual and the organization. Participants described a need to alter leadership roles to fulfill the responsibilities required for technology integration. Blair (2012) stated that it is important for a 21st century leader to first assemble a team consisting of administrators, technology specialists, educators, parents, and students that can come together to create a shared vision for the school. Participants' responses depicted changes in the roles of technology leaders and school administrators.

Mrs. Yacht made the most prominent change when she altered the title of her Director of Technology and elevated the position on the organizational chart. Conrad (2004) explains, "Through socialization, individuals learn societal expectations for the enactment of the roles associated with the status positions they occupy." Mrs. Yacht explained, "I didn't wanted to be so limiting with a Director of Technology. It's so much more than that and I think that undersells and puts you back into the 20th century." Mrs. Yacht similarly reported matching the right people to the work of what a technology leader must do and the importance of this role on the administrative team when she

shared, "I think the biggest piece, in terms of the leadership team focus, changed by putting Mrs. Schooner over the division heads." Dawon and Rakes (2003) and Schiller (2003) determined that for successful technology integration, school administration must understand, believe in, and lead any major change that is occurring in their schools.

Mr. Skiff believes that a technology leader should focus on the educational component of technology integration. Mr. Skiff stated, "I wanted my Director of Technology to be an educator… I needed someone to help with technology in the classroom." Similarly, a study by Anderson and Dexter (2005) reported that administrators' technology leadership was even more important than the actual technology infrastructure. Mr. Pontoon altered the role of his Director of Technology to fit the skill set of the person he hired. Mr. Pontoon said, "When I hired Bill, I knew he was more than a nuts and bolts guy. He could lead professional learning and he was innovative. I changed that position to reflect his skills."

Mrs. Canoe did not hire a new Director of Technology or change the position's scope of work. Instead, Mrs. Canoe altered the leadership roles at her school by adding two instructional technology positions to her technology department. Mrs. Canoe stated, "The school did not have any instructional technology type people. I was able to hire both the middle and lower school people for these jobs." A study by Ausband (2006) found that the instructional technology specialist role included helping teachers to integrate technology through professional learning, helping teachers develop lesson plans, and supporting teachers as they developed technology portfolios. Two additional participants, Mrs. Yacht and Mr. Pontoon, described hiring personnel to fill the role of instructional technology specialist.

Mrs. Yacht felt the Technology Department at Ocean Episcopal School needed to be changed to create the best opportunity for successful technology integration. Mrs. Yacht explained, "We had some people that were doing jobs that they weren't really suited for and knew we needed to make changes." Mrs. Yacht changed the roles of three people already on staff at OES and hired two people to fill roles created as a result of technology integration.

Participants also noted other changes in the roles of school administrators as a result of technology integration. Research findings have shown that technology leadership is an important part of and positively influences the leadership skills of school administration (Dexter, 2011; McLeod & Richardson, 2011). Mr. Skiff explained that his administrators had become more involved in classroom observations as a result of a change he made to annual evaluation. Mr. Skiff said, "The evaluations, require the administrators to visit the classroom on a more regular basis. Its not just twice, three times a year. They are in the classrooms more often working to gauge the growth of the teacher." Additional changes to administrator roles were noted in the areas of communication, daily activities, and disciplinary issues.

Theme 3: *Change in the role of headmaster is largely dependent on the school and the individual who is in the headmaster's role.*

Participants in this study described changes that occurred to their headmaster roles. These changes resulted from technology integration. While several common threads were evident across the cases, a majority of the role changes were specific to a particular participant or related to the participant's school. Huse (1980) explained, "Role behavior is caused by not only the characteristics of the individual, but also the

expectations of others within the total system" (p.53). Mrs. Yacht described the change in her role as headmaster stating, "Am I doing more things using technology?" "Yes, I am."

The one area in which all four participants agreed had changed involved communication. Participants described a change in the manner and volume with which they communicated with students, staff, parents, and board members. Mrs. Yacht stated, "Now that our students have email, I can contact them throughout the day without causing disruption." Mr. Pontoon explained, " Usually while I am walking around, I am answering emails from the board, my administrative team, and parents. Recently, I've been emailing with some of the students." The researcher found, at the time of this study, no prior research studies involving changes in the way educational leaders communicate. However, a study by McGhee (2005), found that one to one environments provide the occasion for around the clock communication and collaboration between students and teachers. Light, McDermott, and Honey (2002) also noted that 1:1 computing environments can also alter student interactions and communication both inside and outside the classroom.

Beyond communication, there were no areas of change across the board among four participants. Mrs. Canoe and Mr. Skiff described the use of new tools in completing their daily activities. Mrs. Canoe said, "I began using as many new tools as I could find and sharing them with my teachers." Mrs. Canoe added, "This year one of my goals is to send a Tweet a day." Mr. Skiff also uses Twitter to do both research and communicate with school stakeholders. Mr. Skiff said, "Twitter, who knew what Twitter was going to become. It's great. I can communicate with people around the world in 145 characters." ISTE-A (2011) standard three, substandard three describes the need for educational

administrators to "Stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning (para. 6)."

Mrs. Yacht described a change in the type of discipline that occurred in her school and how she handled disciplinary infractions. Mrs. Yacht explained that a portion of the discipline issues that she deals with involve student's use of technology at home. Mrs. Yacht said, "I receive calls from parents asking what I can do about certain students and the way they use the device outside of school. In my opinion, that's really a parenting issue." ISTE- student (ISTE-S) (2011) standard four, digital citizenship, calls for students to learn to, "Demonstrate personal responsibility for lifelong learning." Mrs. Yacht was the only participant to explain that she actually handled discipline issues related to digital citizenship. All three of the other participants allowed school level administrators to handle these types of discipline problems.

Mr. Pontoon discussed a change in the types of fundraising he does, and the types of conversations he has with his administrative team. Mr. Pontoon suggested that funds for technology were easier to raise because of the tax implications tied to donations of technology. According to Mr. Pontoon, "donations of technology are deductible at the fair market value of the donated items." Mr. Pontoon also believes that a change has occurred in the conversations he has with his administrators as a result of technology integration. Mr. Pontoon explained, "The [many] questions they know I am going to ask are, "what's going on in technology, what are the new things happening, what do we need to do next?"" His conversations were purposefully focused on the uses of technology both in and outside if the classroom.

Mr. Skiff expressed a belief that technology integration had affected the manner in which he and his school interacted with the school's vision statement. According to the ISTE website, visionary leadership involves inspiring and leading the "development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization"(para. 1). Mr. Skiff stated, "It used to be the school had a vision and mission statement posted on the wall. We learned it. We told people how it benefits their children, but we never really interacted with it." The change resulting from technology integration was explained by Mr. Skiff this way: "We talk about whether the vision still fits what we are doing. We have actually changed the vision five times since I have been here."

The finding that change in the headmaster's role is relative to the school and individual was not unexpected. Independent schools are created to provide an alternative means of education and to hire leaders that have different backgrounds and experiences.

Theme 4: *Proper communication with stakeholders is vital to successful technology integration.*

Communication was the topic most prominent in discussions across the four areas related to the research questions of the study. Participants discussed the importance of communicating with school stakeholders and the changes that occurred in the manner of communications. ISTE (2011) explains that educational leaders should "promote and model effective communication and collaboration among stakeholders using digital age tools." All four participants described an attachment to devices that allowed them access to email. Mrs. Canoe explained that she was in constant contact via email sharing, "One thing that's curious to me as a leader is that I live and die by email… If you email me, I'm

going to respond within 30 minutes. It would be really odd if I didn't respond." Mrs. Yacht stated, "Everyone knows that I am an email junkie. They know if they want an immediate response to email me. I get emails from teachers, parents and students and it helps keep us running without disruption." Mr. Skiff said, "I always have this thing at my side (points to cell phone), and it is constantly chiming. I could not function without being able to email on this."

Mrs. Canoe and Mr. Pontoon portrayed a changed in the way they communicated with the governing boards at their schools. Mrs. Canoe stated, "I've got my board of about 20 or 22 board members, and we're paperless now." Mr. Pontoon described a change in the number of board meetings resulting from the use of email and digital documents. Mr. Pontoon said, "We actually have fewer board meetings because we can handle some of our issues electronically." Mr. Pontoon consistently referenced being "more efficient" and using "resources such as paper" more cost effective.

Three participants described innovative tools with which they communicated with stakeholders. Standard two, substandard two from ISTE-A (2011) explains that a 21st century administrator should "model and promote the frequent and effective use of technology for learning" (para. 4). Mr. Skiff stated, "I have my school (Twitter) account that I use to share character words and updates on our latest building. I use it to share what is going on here at Stream." Mr. Skiff also contributes to a school blog and makes posts on the school Facebook page. Mrs. Yacht uses her school blog to share technology related information with parents. Mrs. Yacht stated, "I have been blogging, a weekly blog to the community on our website, telling parents things and explaining different technology pieces." Mrs. Canoe used screen casting to communicate with her teachers.

Participants' illustrated a change in the way students were communicating with teachers and administrators as a result of technology integration. Lei and Zhao (2008) presented findings that showed one to one environments could encourage safe communication for students that may not have felt comfortable participating in classroom discussions and activities. Mr. Pontoon described his digital interactions with students stating, "Kids email me asking to write them a recommendation, or occasionally to tell me they have an issue with a teacher." Mrs. Canoe explained, "I see fewer kids coming to the main office needing forms or transcripts. Instead they email the person and ask that it be sent to them electronically." Research by Lei and Zhao(2008), Silvernail (2008), Newhouse and Rennie (2001), and Zucker and McGhee (2005) found that one to one environments provide the occasion for around the clock communication and collaboration between students and teachers.

Mrs. Canoe noted that teacher to parent communication was an area that she felt needed improvement. Mrs. Canoe said,

> I understand not wanting to get a parent on the other end of the phone. But to send a quick email that says, "Johnny didn't look right today. Hope he's okay, let me know," or to say, "Johnny bombed a test [and] it's not like him. I just want to give you a heads up maybe you could talk to him tonight."

Mrs. Canoe explained that her administrative team has drastically changed the efficiency of their communication, but they needed to do a better job of holding teachers accountable for communicating with parents.

All participants agreed that a major component of the headmaster's role was to understand the vision for technology integration and to communicate that vision across the school community. A study by Thomas (2010) established, leaders with success in

technology integration cast vision, support and model a high degree of technology expectations, understand implications of technology integration, and have a strong sense of distributed leadership. Mrs. Canoe explained that a lack of communication prior to her arrival led to the first major technology related problem that she had to deal with as the headmaster.. Mrs. Canoe openly shared, "The parents here felt there wasn't enough communication, they didn't know what was happening, and they didn't have a say in it." Mrs. Canoe added, "It was surprising. They had done a really good job of getting everything in place but not a good job in communicating what we're doing with our parents."

ISTE-A (2011) standard one states that 21st century leaders should, "engage in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision." Mr. Pontoon explained, "My role was to get a grasp of where we wanted to go, at the executive level." Mr. Pontoon added, "I started at an executive committee of the board saying, here is our plan for technology. Then I took it to the whole board and said this is what we want to do in technology."

Implications for Further Research

The research model used in this study allowed for headmasters' perspectives to be heard in the context of their own school. Through two interviews, fieldnotes, observations and artifacts, a robust understanding of participant perspectives was gained. There are several implications for future research associated with the findings and themes of this study.

One of the unintended results s of this study was the communication that occurs within a school. It was evident through conversations with participants, on a variety of topics, that communication was seen as a major component of the daily functions of a school. Participants revealed information about communications that occurred between students, teachers, parents, board members, and outside entities. Mrs. Yacht extolled the importance of communication explaining, "If I had to give a new headmaster one piece of advice. I would say, "Communicate, Communicate, Communicate."

Gale (2010) reported that teachers often struggle to initiate meaningful contact with students and thus proposed the use of emailed one minute papers as a way to fuel conversation. The findings of this study revealed a need to examine the greater network of school communication that occurs on a daily basis, during and after school hours. Research investigating the types of communications that occur between school stakeholders and the effect of those conversations would be beneficial. Further research could determine the most effective manner of communicating with each type of stakeholder in a school.

More research is needed in determining the effect of administrative modeling of technology. Stuart, Mills, and Remus (2009) found a correlation between an administrator's competence and frequency of technology use and the perceived success of a school's technology integration. However, the study by Stuart, Mills, and Remus does not explicate the response of the teacher to administrative modeling. It would be relevant to gain an understanding of how teachers reacted to modeling of technology by school administrators.

Finally, studies are needed to identify the strengths and weaknesses of alternative types of 1:1 technology initiatives. In this study, the four schools used four different types of technology integrations. Three of the participating schools used a hybrid version of a Bring Your Own Device program. Another school purchased certain devices but did not check them out to students. At the time of this study, little research on the impact of specific types of technology integration was found. Perhaps the findings from this study and further research into the effect of certain characteristics of technology integration may provide a greater understanding of the impact of specific styles of technology integration.

The research presented in this study, although an important first step to understanding the uses of technology and the leadership of headmasters in independent schools, were limited in that the sample size was small, teachers or other leaders were not included in the research design; therefore, the findings resided in what was shared by only the headmasters. Overall, the research about independent schools is sparse with no studies about leadership and technology integration could be found.

Implications for School Leaders

The findings of this study have implications for school leaders in both public and independent educational settings. Although technology integration is not guaranteed to effect the educational process in a positive manner, findings suggest that properly integrated, technology can engage all stakeholders in learning activities. These headmasters described mainly positive interactions with all types of stakeholders as a result of the technology integrations in their school. Mr. Skiff noted a renewed sense of purpose in the faculty at Stream Independent School. Mrs. Canoe explained her use of

"tweetables" as providing opportunities to share student experiences that might have otherwise been unnoticed. Mrs. Yacht created a Social Psychological Answers to Real-World Questions (SPARQ) space within her school that encouraged parent participation in the application of student ideas. The initial process of deciding the minute details that are necessary for successful technology integration, is eventually worthwhile in the payoff of engaging learning experiences.

It must also be noted that school culture and climate are major factors in determining the timing and extent to which technology integration should be instituted in a school. Each of the participants suggested specific reasons for when and why they moved forward integrating technology. Three participants suggested competition with other schools. Mr. Pontoon cited a conversation with his sons as prompting his desire to integrate technology at his school. Regardless of the reason behind integration, it is vital for school leaders to understand the culture and climate of a school prior to implementing any type of educational change. In instituting technology in their schools, three of the participants employed tactics that required teachers to either participate effectively with or leave the school. Tactics like this may be better suited for independent schools because of the inherent flexibility in independent school educational practices.

It is vital for school leaders to communicate the vision and plan for any major educational change, especially regarding technology integration. Communication allows all parties to understand the decisions made and the reasons behind those decisions. Technology integration is a process that involves every stakeholder and every physical space within a school. If communication does not properly occur, certain parties are left unaware of the actions of the school and issues arise. For example, Mrs. Canoe ran into a

substantial issue because her predecessor had not communicated fully with parents. Parents were led to believe one thing, while actions at the school contradicted that belief. Educational leaders should devise ways to involve all school stakeholders in the process of technology integration.

Concluding Thoughts

Through case study design, four independent school headmasters in Texas described the intended and unintended consequences of technology integration as they enacted their roles as leaders. It was important to employ methodology that allowed the researcher to listen and to gain an understanding about the experiences of the participants and why they believed as they did about technology integration Interpretive analysis of the data enabled the study to extract themes as to how technology integration effected the leadership of independent schools.

The literature related to this study discussed the effect of technology on students and teachers but did not explicate characteristics of administrators that were necessary for successful integration. The perspectives of the participants in this study further confirmed the conclusions from other studies as to the intended and unintended impact of technology use in education but this same body of literature did not address independent schools or their leaders, students, or teachers.

The perspectives of the participants in this study revealed findings related to impact of technology integration on students, teachers, administrative personnel, and the headmasters themselves. Participants agreed that the greatest area of impact is evident in the changing role of the Director of Technology. Participants discussed the need to employ a Director of Technology to work beyond the scope of infrastructure to invite

innovative practices in classrooms. Mrs. Yacht's desire to alter the perceived role of the Director of Technology led her to change the title of the position by including the word innovation.

Participants perceived communication as an area of great importance for successful implementation and as an area that was most effected by the use of technology. Communication was described as the most integral part of a headmaster's role regarding technology integration. Mrs. Canoe stated, "It is important to make sure parents, students, and teachers are aware of the plan for technology. It is vital that my vision was communicated to them." Participants described the numerous ways in which they now communicated with their school community. Email, blogs, and Twitter allowed the participants to relate information more efficiently.

The availability of information through the use of the Internet and Internet capable devices requires teachers to alter the way they engage students in the learning process. It is vital for educational leaders to understand the nuances that occur as a result of major change and for those leaders to effect the change in a positive manner. Much remains to do in researching and developing school leadership with regard to 21st century learning and technology integration focused on independent schools.

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