ABSTRACT

A Qualitative Case Study to Explore How the Involvement of Exceptional K–12
Superintendents Impact the Success of a 1:1 Technology Learning Initiative

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Today, many school districts purchase technology devices for teaching and
learning, which provide educators and students opportunities to transform the learning
environment. Now more than ever, access to a technology device allows stakeholders to
connect, collaborate, and create in ways that were not possible before. With the influx of
technology in schools, the need for leadership guidance is critical to ensure technology
implementation is effective. Otherwise, districts potentially waste thousands of dollars on
devices that are underutilized, and the success of the initiative is hindered. Current
research indicates that when principals, or technology directors provide expectations and
a vision for technology implementation, higher levels of transformation are exhibited
(Brown & Jacobsen, 2016; Hsu, 2016; McLeod et al., 2015; Vyas, 2020). However,
minimal literature exists to understand how superintendents influence the success of a 1:1
technology learning initiative.

This qualitative multiple case study explored the involvement of two K–12 Texas
public school superintendents to understand the impact they had on the success of a 1:1

technology learning initiative. Specifically, I gained insight into each superintendent's technology expectations, vision, communication, and modeling and implementation strategies. Interviews with each superintendent and chief technology officer allowed visibility into how superintendents lead 1:1 technology initiatives. Additionally, I sent a questionnaire to technology staff and principals to gain perspectives on how they felt superintendents influenced the initiative. Following the data collection process, I conducted a within case and cross case analysis, which allowed for emerging themes to be identified. The Transformational Leadership Model (Bass & Riggio, 2008) guided the study and provided a rationale for addressing the main research and sub questions.

This study yielded four key findings related to superintendent success in a 1:1 technology initiative. The first finding revealed that superintendents set high expectations for building capacity. Second, each superintendent's vision for technology integration included a growth-mindset and positive culture. Third, superintendents actively communicated their technology vision throughout the school year. Finally, the fourth finding showed superintendents modeled technology usage in their everyday practices. Ultimately, it was evident from this study that the influence of superintendent involvement impacted the 1:1 technology learning initiative.

A Qualitative Case Study to Explore How the Involvement of Exceptional K–12
Superintendents Impact the Success of a 1:1 Technology Learning Initiative

by

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A Dissertation

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

CTIS: Campus Technology Integration Specialist

CTO: Chief Technology Officer

DLS: Digital Learning Specialist

SAMR: Substitution, Augmentation, Modification, Redefinition

TPACK: Technological Pedagogical Content Knowledge

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DEDICATION

To my love
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Without you, none of this would have been possible. My number one fan! Thank you for your endless support, encouragement, and most importantly for the inspiration to make this dream happen. You are my everything!

To my baby boy
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The best French Bulldog, writing partner, and shadow. You'll always by my #1 LPP!

CHAPTER ONE

Background and Needs Assessment

Introduction

Educational leaders face many challenges in this fast-paced, changing world, and it is imperative for leaders to understand how creativity, critical thinking, and innovation can propel teaching and learning in any classroom environment. Technological devices allow teachers and students the opportunity to connect and collaborate in creative ways and provide an endless amount of resources in an instant. By utilizing technology, any individual can strive to solve real-world problems and create solutions that could impact future generations. Access to networking and technological devices are crucial to ensuring all teachers and students have the opportunity for rich learning experiences.

Now more than ever, superintendents are asked to decide on technology solutions to enhance district performance in workspaces and classrooms and provide the best education for students overall. As K–12 students graduate and move into higher education and select their careers of choice, understanding how to leverage technology skills becomes a differentiator in the marketplace. The ability to craft a creative resume, access to more significant job opportunities, and the knowledge of how to effectively utilize technology to the fullest potential will provide individuals with a competitive edge. As educational leaders make decisions about technology integration, they must consider how a technology learning initiative can support 21st century skills and the 4 C's, communication, creation, critical thinking, and collaboration. Specifically, 1:1 initiatives provide every teacher and student with a device for teaching and learning. This

educational initiative allows both teachers and students access to the same technological device as they progress through curriculum at every level. As superintendents lead conversations around technology implementation and develop plans of action, awareness of the possibilities for success and failures should remain a primary focus. Superintendents need to communicate a clear vision and mission and lead stakeholders in developing a strategic plan that includes modeling positive learning strategies, ongoing professional learning, and robust support systems to ensure a successful implementation. This research study provides insight into the practices of two K–12 Texas Superintendents, who successfully led a 1:1 technology learning initiative utilizing Apple technology.

Statement of the Problem

The influence of educational technology on schools across the nation has increased tremendously in the last decade, and the need for clear communication of technology integration expectations and direction from leadership is evident (McLeod et al., 2015). Although research shows technology adoption within a district may affect expectations and vision from administration, such as a principal or director, currently there is little to no research on how a superintendent influences the effectiveness of a 1:1 technology learning initiative (Hsu, 2016; McLeod et al., 2015; Vyas, 2020). According to the 2017 National Education Technology Plan Update, "leaders who believe they can delegate the articulation of a vision for how technology can support their learning goals to a chief information officer or chief technology officer fundamentally misunderstand how technology can impact learning" (U.S Department of Education, 2017, p. 42). Surprisingly, many top-level school district leaders delegate tasks to other directors and

do not engage in the technology initiative at all. Ultimately, when a plan of action for the 1:1 technology initiative from the district leadership level is lacking, building-level principals and teachers assume the responsibility to determine how to best effectively utilize devices for learning. This becomes a problem when educators seek to transform teaching and look to school leadership for direction. Knowing how to support a school culture regarding technology and transformation requires involvement, communication, and a solid vision from leadership on a regular basis (Brown & Jacobsen, 2016).

Currently, many school administrators are regarded as key individuals for ensuring success in different educational initiatives, specifically, the integration of technology in the classroom to enhance student learning and development. According to the Texas Education Agency Long-Range Plan for Technology 2006–2018, administrators must "understand and illuminate the possibilities that technology brings to education, model the use of technology as an integral part of their professional activities, and take a leadership role in assuring others do as well" (TEA, 2006, p. 29). When educational leaders fail to take an active role in setting expectations for technology adoption and utilization, problems often arise.

School districts invest millions of dollars each year on technology purchases and increasingly more in recent months due to COVID-19. Additionally, according to the Consortium for School Networking (2018), over 74% of schools report that their students now have more than one device each. Educators and students must use technology devices effectively to increase student engagement, learning, and performance. If not, leaders and educators may face challenges with low technology utilization rates and potentially waste district operating technology budget funds as well as learning

opportunities for students in K–12 systems. Additionally, school reputations will exude the status quo of underperformance in achievement in a 1:1 technology environment, rather than a district producing high levels of innovation.

Further examination of the involvement of two Texas K–12 public school district superintendents who currently lead districts of innovation and transformation will provide insight into the importance of leadership involvement in a school environment. The lack of research specifically about a superintendent's impact and involvement in a 1:1 technology learning initiative calls for a deeper dive into how current district leaders share insight of best technology integration practices in their respective school districts.

Literature Review

While technology is present in many learning environments across the nation, not all individuals utilize devices to their fullest potential. However, research suggests that the improper use of many technology devices stems from lack of leadership involvement and failure to communicate the best utilization plan at the beginning of each school year (Wilmore & Betz, 2000). Waters and Marzano (2006) argue that effective leaders must enact a goal-setting process, which results in non-negotiable goals where staff members must ensure they act on throughout the school year. Outlining goals and communicating a plan of action not only ensures leadership is involved, but technology integration expectations are set at the beginning of the year.

This chapter argues that school district leadership at multiple levels should be actively involved in implementing any important technology initiative within their school district. Effective educational technology utilization, such as devices used to positively transform teaching and learning, is a crucial component throughout this study and will be

4

explored further to show connections between superintendent leadership and active engagement with a 1:1 technology learning initiative. The literature review begins with an overview of the evolution of technology in schools and the importance of understanding how the history of device innovation impacts teaching and learning. Secondly, a history of Apple Education follows, including explaining how devices such as MacBook and iPad became prominent in the educational space. Next, shown are educational technology frameworks and resources aligned to ensuring successful transformation in the classroom for all individuals. Finally, the literature review concludes with the primary goal of addressing the importance of leadership involvement in a 1:1 technology learning initiative.

The review of the literature and data collection will address the main research question: What is the leadership involvement of K–12 Texas superintendents who have successfully led a 1:1 technology learning initiative? In addition, the literature review will explore the involvement of a superintendent and their specific roles related to the research sub-questions: What expectations does a superintendent have for his/her team who assists in leading a 1:1 technology learning initiative? How does a superintendent determine his/her vision for a 1:1 technology learning initiative? How does a superintendent communicate their vision for effective technology use throughout the district? How does a superintendent model and implement technology in their day-to-day role? Each of the sub-questions helps address essential gaps in the literature.

Evolution of Technology in Education

The first section of the literature review focuses on the evolution of technology in education and its transformation throughout the last century. The importance of the

history of technology in the classroom and 1:1 initiatives are specifically highlighted. The impact of technology integration, utilization effectiveness, and the type of tools utilized in the learning environment relate to how involved leadership is in the process of implementation.

History of technology in the classroom. Today's technology tools consist of electronics, screens, devices, and additional tools expected to enhance the personal user experience. Dating back to the late 1800s, technology was known to enhance the learner experience, but the "technology" did not plug-in per se. For instance, the chalkboard is one type of technological innovation. The innovation and technological advancements provided by the chalkboard changed the classroom landscape in many ways. Chalkboards created new learning experiences because they enabled group discussion and provided collaborative learning experiences (Krause, 2000). According to Wallace (2013), following the integration of a chalkboard to engage students, "classrooms began incorporating radios into penmanship, accounting history, and arithmetic lessons" (para. 1). By the 1930s, an influx of overhead projectors started to appear in classrooms, and in 1939, the first TV appeared in the classroom in Los Angeles, California (Wallace, 2013). Technology continued to evolve, but it was not until 1984 that Apple, Inc. introduced the Macintosh computer, which had the potential to change the world (Gallagher, 2020). Typing programs such as Mavis Beacon Teaches Typing, laptops, CD-ROMs for digital storage, and SMART boards became prevalent throughout classrooms, and teachers were faced with navigating these new innovations. By 2012, 1.5 million iPads were integrated into United States schools (Master of Arts in Teaching, n.d.).

As technology integration increasingly became more affordable and quickly became a necessity in 20ᵗʰ century living, it would not be long before rapid changes would ensue in the 21ˢᵗ century. The historical evolution of educational technology integration provides insight into the importance of leaders' decision-making in any educational setting. From chalkboards and overheads to iPads, educators have been able to innovate and create transformational learning opportunities in the classroom to better enhance their learners' experience. Any individual leader who is charged with innovation in learning and leading the decision-making process in a school district should recognize the true potential of technology to impact a learning environment in K–12 systems.

1:1 initiatives. Technology learning initiatives in any school environment may look different in and throughout each learning space. Many schools choose to offer technology access throughout educational spaces by providing labs with computers, laptops, and devices for check out, or use cart model implementation in various grade levels. Other school districts, like those highlighted in this study, choose to provide all students and teachers with a technology device for teaching and learning, also known as a 1:1 initiative. As summarized by Doron & Spektor-Levy (2018), "In 1:1 programs, all the students in a class, grade level, school, or district are provided with computers for use throughout the school day and, in some cases, at home" (p. 439). Additionally, campus and district teachers and leaders also are provided equitable technology devices for productivity and effectiveness in the classroom. Providing 1:1 technology access allows stakeholders, including students, equal access and provides the same technology opportunities for all (Zheng et al., 2016). According to Shuler (2009), a 1:1 device environment allows kids to explore and develop their own passions through personalized

multimedia use. According to the assessment of Zheng et al. (2016) of Warschauer (2006), "It is when each student has access to an individual computer that the effects of technology on instruction are most likely to be felt" due to the opportunities to customize and personalize learning (p. 1053). Continuous learning in many different environments such as school and at home occurs when every individual has access to a device.

As school leaders continue to allow opportunities and provide technology access to everyone in the district, knowing how to properly use the devices in a high capacity to support the learning goals requires attention from all stakeholders, including the technology coaches or facilitators (ISTE, 2020). Jackson (2020) noted that a technology coach might possess a different title as these roles are created and developed by school districts, such as technology integrationists, professional development coaches, or tech trainers. As discovered by Stanhope and Corn (2014), teacher commitment and attitudes towards 1:1 initiatives were positively higher when individuals supporting technology integration were present. Technology coaches act as change agents and help support teacher confidence and perceptions while integrating technology into the curriculum (Ertmer & Ottenbreit-Leftwich, 2010). Adding technology focused positions such as technology coaches provides teachers and leaders with opportunities to maximize the outcomes of a 1:1 technology learning initiative. Ultimately, according to Jackson (2020), coaches help to foster innovation in technology-rich learning environments.

School districts working towards transformation and success in a 1:1 learning initiative often purchase or lease devices that are selected by the district and campus leadership at a specific time. Whether the devices are mobile tablets, laptop computers, or mobile phones, district leaders select a technology platform for all individuals in the

learning environment to use. The next section of the literature review highlights the presence of Apple, Inc., a prominent leader in the field of educational technology, and how devices such as the iPad and MacBook have integrated into classrooms across the country in the last few decades.

History of Apple Education

In 1:1 technology learning initiatives, providing a device to every individual allows for multiple opportunities to collaborate, create, and communicate within the learning environment. In fact, Apple, Google, and Microsoft have a large presence in classrooms across the United States, and many school leaders select one of these technology platforms for their K–12 systems. For over 40 years, Apple technology has helped expand how teachers and students learn, how teachers teach, and most recently, guide leaders in leveraging tools to impact learning towards transformation (Apple, 2020b). Although there has been an influx of technology over the last several years, there is a significant gap in current literature showing the importance of alignment of Apple Education resources and educational technology resources to best practices from superintendents who lead 1:1 technology learning initiatives. The next section of the literature review shares the evolution of Apple technologies in schools, current 1:1 Apple initiatives in the United States, and Apple Education leadership resources and implementation best practices.

History of iPad and MacBook in schools. According to Watters (2015), "In 1978, … Apple won a contract with the Minnesota Education Computing Consortium to supply 500 computers for schools throughout the state" (para. 4). Computer software such as "The Oregon Trail" was available to all Minnesota schools for students and teachers to

utilize in school settings. As Steve Jobs, founder and former CEO of Apple, Inc., stated in a 1995 interview, "One of the things that built Apple IIs was schools buying Apple II's" (Watters, 2015, para. 3). According to Watters (2015), although the Apple II increased productivity and creativity within learning environments, sales, and the spread of personal computing was not happening fast enough.

There were several monumental changes at Apple that impacted the educational space, and it began with Steve Jobs approaching Pete Stark in 1982. Both Jobs and Stark agreed to initiate a bill, HR 5573, the Computer Equipment Contribution Act, which would amend the "the Internal Revenue Code to allow charitable contribution income tax deduction for corporations which donate computers to qualified educational organizations" (Watters, 2015, para. 7). Jobs spent weeks lobbying to ensure Apple's idea of supporting learners throughout the United States was successful. Unfortunately, the bill passed the House but did not move quickly enough and failed in the Senate. However, in September 1982, California Governor Jerry Brown signed a similar version of the Computer Equipment Contribution Act, which allowed a 25% tax credit against the state corporate income tax for computer equipment donated to schools. The State of California felt as if computer literacy was becoming a necessity in today's world, and the bill will aid those in need (Watters, 2015).

As a result of a series of events focused on advocating for educational opportunities and technology access from Apple in the early 1980s, the Kids Can't Wait program was created. Apple donated one computer to each elementary and secondary school in California allowing students to create, explore, and learn computing in a variety of different ways. There were approximately 900 schools that received a computer. These

efforts propelled Apple to enhance their educational focus to transform classrooms across the United States.

Today, Apple holds the same core values of enhancing learning opportunities for all students and educators, as envisioned years ago by Steve Jobs, and Apple is seen as a frontrunner in the education market. Programs such as the Apple Distinguished Educator Program and the Apple Distinguished Schools program allow educators and leaders to share passions and interests of technology and pedagogical best practices. Additional Apple leadership resources are further explained later in this literature review.

The efforts of expanding technology into classrooms throughout the United States did not stop with the Kids Can't Wait program. Created in 1985, the Apple Classrooms of Tomorrow (ACOT) project was the first large-scale 1:1 initiative that provided access to teachers and students in a K–12 setting (Donovan et al., 2007). According to Sandholtz, Ringstaff, and Dwyer (1997), Apple, Inc. established ACOT not only to examine how schools were effectively utilizing Apple technologies but to promote educational change and innovation. The results of the ACOT study showed that adoption is a process for teachers, and they will begin to change their teaching practices based on their comfort levels by integrating the technology into day-to-day practices (Sandholtz et al., 1997). As noted by Dwyer (1994), following ACOT, it was promising to see digital devices continue to develop that could enhance teaching in learning for all individuals.

In 1999 Apple introduced the iBook G3 "Clamshell" line of laptop computers designed for entry-level consumer and education markets (Hackett, 2018). In 2000, Henrico County Public Schools located in Virginia, implemented one of the first laptop initiatives in the United States and were the first to distribute the iBook G3 to every

11

student in the district. A vision for equitable access, available digital content, and students becoming life-long learners were the main driving forces behind the program (HCPS, 2017). Technological advancements by Apple continued to develop throughout the 2000s, and soon the iPod, MacBook, and iPad would enter K–12 classrooms as the leading platforms for many Apple adopters and school systems across the United States.

The March 2010 release of the iPad promised a positive future and outlook for any individual experiencing the mobile device. In a 2011 Apple commercial entitled "Learn," the advertisement shows an individual using the iPad to watch a TED talk, practice writing in Chinese, look up the definition of a word, investigate human anatomy, explore astronomy, and play chess and the piano. At the end of the commercial, the narrator states, "There's never been a better time to learn" (Miller, 2012). Also, in large letters on the Apple Education website when the iPad was announced, the company declares, "The device that changed everything is now changing the classroom" (Miller, 2012, p. 54). Even today, iPad presents many learning opportunities, creating and innovating for all students and educators. The effective incorporation of digital technologies into the school requires superintendents to "take on new responsibilities and acquire new skill sets, and thus, most superintendents recognize the importance of creating new digitally infused learning environments for students" (Mcleod et al., 2015, p. 2). Leaders must understand the possibilities of how Apple technology can enhance the educational learning environment and what it takes to lead a 1:1 initiative like many present in schools today.

Current Apple 1:1 initiatives in the United States. While many schools adopt technology for teaching and learning, not all learning environments are recognized as 1:1

initiatives. As previously mentioned, a 1:1 technology initiative is defined by the fact that every student, teacher, and in most cases, every leader has a device to use for daily productivity, teaching, and learning. Many programs allow students to take home devices, and others primarily use the school provided device in the classroom when needed. The following descriptions of 1:1 initiatives below share characteristics of all students and teachers utilizing a district-issued device for instruction.

In 2002–2003, the Maine Learning Technology Initiative (MLTI) was one of the first 1:1 statewide Apple technology initiatives implemented in the United States. The goal of this program was to provide a learning device to each teacher and middle school student in seventh and eighth grade and to equip them with the skills necessary to succeed in an innovative society. Although the state offered administrative support at the time, such as professional learning and instructional resources, they charged school leaders with making decisions and communicating expectations to best fit the needs of the students and staff in their learning environments (Doykos et al., 2015). The Maine Department of Education continued to issue devices to teachers and middle school students every one to two years, and in 2009 the state decided to expand laptop distribution into high schools resulting the integration of an additional 70,000 MacBooks into Maine classrooms (Maine Department of Education, 2020). Not only did teachers and students have access to a digital device for learning, but internet availability also expanded significantly throughout the state and created additional opportunities for all individuals across the State of Maine.

Recognizing that the 2020–2021 school year would bring many additional challenges due to a worldwide pandemic, the Maine Department of Education recently

decided to utilize a "bridge year" to allow for updates and professional learning opportunities for leadership and educators. In doing so, the MLTI advisory board recognized the need to redesign the experience of the Maine Technology Learning Initiative (Maine Department of Education, 2020). However, the redesign of MLTI in response to the COVID-19 pandemic did not signify an unsuccessful decade-long implementation. Research conducted throughout the initial stages of implementation until the latest adoption showed effectiveness in eliminating the access gap for students, higher increase in school interest, and greater levels of learning comprehension and retention (Doykos et al., 2015; Silvernail et al., 2003; Berry & Wintle, 2009). The MLTI continues to be a model for many states, districts, and schools across the country.

As 1:1 technology initiatives continued to develop, national and state agencies and major technology companies began to witness the importance of equitable access for all students, especially in low socioeconomic areas. In 2013, President Obama launched the ConnectED initiative to better serve and equip students in America with devices and internet access for enriched learning experiences with the primary goal of connecting 99% of students to broadband over the next five years (Office of Educational Technology, 2020). Apple took full advantage of this opportunity in 2014 and since then has pledged over $100 million of teaching and learning resources, devices, and networking infrastructure to 114 underserved schools. Not only has Apple provided 1:1 educational technology solutions for every student, teacher, and administrator in those schools, ongoing Apple professional learning opportunities were embedded into each schools' year-long technology implementation plans (Apple, 2020a).

Research by SRI Education (2018), a research institute working to improve teaching, education policies, and student learning, shares insight into baseline findings from the principal, teacher, and student surveys on the effectiveness of classroom technology integration and system-wide implementation. Results from SRI and Apple show that while more than 60,000 devices were provided to 114 schools across the country, technology alone does not determine a successful learning experience. Leaders must continue to radiate passion towards a positive technology integration model and support themselves, staff members, teachers, and students as each school continues their technology learning journey (Apple, 2020a). As of 2020, Apple continues to innovate and provide educational resources such as Apple Professional Learning to ConnectED schools in America.

Apple education leadership resources. To ensure leaders are successful in their day-to-day transformational practices, Apple provides several educational resources to help guide any superintendent throughout their 1:1 technology journey. According to Apple's education website, leaders can "lead the way for creativity" and "explore resources designed by Apple educators to help bring creativity into the heart of learning" (Apple, 2020b). It is essential for all leaders to recognize the tools that can support the vision for teaching in learning in any environment.

Creating a culture of innovation is at the forefront of Apple's vision and mission for supporting leaders. Beginning with books for leaders, the *Elements of Leadership* by Apple (2017a) resource guide allows for "developing strategies around vision, culture, capacity, team, community, finance, and measure" (p. 3). "These elements of leadership influence learning, teaching, and the environment of your school, and help establish and

sustain a commitment to continuous innovation" (Apple, 2017a). As noted in their study

on leadership practice in a 1:1 computing setting, Pautz and Sadera (2017) found that

principals stressed the importance of innovation in their roles, and instructional goals

should involve risk-taking. Leaders need the opportunity to reflect on their own

leadership experiences to better serve their learning communities (Pautz & Sadera, 2017,

p. 56). By reflecting on leadership practices as a superintendent and leveraging resources

to help guide learning with technology, leaders can begin to develop a greater

understanding for themselves of possibilities leading to transformation.

Apple's *Innovation in Schools* (2017b) is an additional resource to guide

educational leaders through stages of implementation to innovation. This book includes

best practices and stories highlighting instructional technology and are shared by Apple

Distinguished Schools from across the globe. Each story, environment, and culture are

unique and exudes endless technology integration possibilities for others to replicate.

Interactive widgets in the *Innovation in Schools* (Apple, 2017b) book allow leaders and

stakeholders to explore key concepts more deeply to "make observations, identify where

they are, and consider where they want to go" (Apple, 2017b, p. 39).

Apple recognizes schools with outstanding practice through the awarding of

Apple Distinguished Schools. These schools are "centers of leadership and excellence

and demonstrate Apple's vision for learning with technology" (Apple, 2021a). With over

535 schools across the world in over 32 countries, Apple believes each of these learning

environments model outstanding culture of positive technology utilization, technology-

rich classrooms that support learning goals, and school leaders who have established

elements for continuous innovation. Through an application process and a series of on-

16

site events, the Apple Distinguished Schools recognition is a community effort provided

to the school for two to three years. Once the window has expired, schools must reapply

to showcase additional innovation and transformation in the learning environment.

Criteria are met by being an established 1:1 program, innovative use of the Apple

platform, faculty proficiency with iPad or Mac, and documented results (Apple, 2021a).

Many technology leaders across the world engage in Apple Distinguished Schools

discussions, summits, and events hosted by Apple to bring this community together. By

offering recognition to schools of innovation, other educators can learn from these

districts and align their teaching and learning practices using the same technology

platform. The opportunities are endless for all individuals, and we can glean many

possibilities if we venture outside the education silo (Scheninger & Murray, 2017). As

Apple continues to provide resources to educational institutions to inspire creativity and

innovation, leaders can seek to understand how different components of educational

technology, such as ongoing professional learning and pedagogical frameworks, can

support transformational learning.

Supporting Elements of Technology Integration

With the integration of 1:1 technology devices, leaders need to ensure accurate

and ongoing support for educators and students (Epler, 2009). Investing in resources to

enhance and maintain a successful technology learning initiative involves ensuring

systemic supports are in place. Educational technology resources provide avenues for

leaders such as principals, directors, and superintendents to understand the benefits of

technology integration. Also, teacher preparation within professional learning

communities and curriculum development with technology are just as important to ensure

success in the classroom (Paulus et al., 2020). Creativity, communication, critical thinking, and collaboration for students are possible by leveraging technology integration resources such as the creation of learning journals, digital portfolios, 3D printed objects, coding, real-world readiness, and community projects. The next sub-sections of the literature review will highlight research findings and recommendations about ongoing professional learning, teacher growth and relevancy, and opportunities for building skills in the classroom.

Ongoing professional learning. The increase of curriculum resources, instructional technology models such as SAMR (Puentedera, 2010), TPACK (Mishra & Koehler, 2006), and new digital tools in the classroom demands ongoing professional learning opportunities to ensure support for educators throughout the school year. Teachers who are challenged to take risks and innovate in the classroom need a tribe of supporters who can encourage them along the way (Helterbran, 2010). Whether that individual is another teacher or instructional leader within the district, educators will be less courageous as they begin to implement new tools into the classroom if they feel alone in the process. Also, the continued development of educator practice is essential to the overall success of students. Long-term and professional learning opportunities can be personalized and sustained, primarily when focusing on technology integration (Liao et al., 2017). Often, school districts may not have accurate systems in place, such as an instructional technology department or instructional coaches, to individually provide dedicated support to teachers. As a result, school district leaders may choose to consult outside companies specializing in educational growth and professional development aligned to the districts' technology learning plan.

Apple is one of the few technology corporations that offer paid services for ongoing professional learning support for leaders and educators at any time during the school year. Many 1:1 districts, and other schools with numerous Apple products within their learning environment, take advantage of Apple Professional Learning. A team of approximately 60 specialists, made up of former educators, provide supports for school districts and assists with the crafting of learning goals alongside leadership teams. The opportunities to collaborate with an Apple Professional Learning specialist are on-going throughout the year, and specialists create weekly and monthly schedules based on the number of days purchased by the district. Designing technology integration plans that align closely with the district's vision and mission for success occurs throughout the process. Apple Professional Learning Specialists provide on-sight, hands-on coaching and mentoring to support educators with technology integration, instructional planning ideas, and help create long-lasting experiences in the classroom (Apple, 2020c). SRI Education (2018) research shows teachers who worked with Apple Professional Learning specialists during the ConnectED initiative experienced "greater technology use in the classroom, more deeper learning opportunities for students, and stronger student outcomes" (p. 39). Investing in resources and on-going educator development such as Apple Professional Learning gives any superintendent leading a 1:1 the confidence that teachers and students experience quality support and innovation throughout the school year.

Along with on-site support, asynchronous learning platforms allow educators professional learning opportunities to enhance their skills. According to Comer and Lenaghan (2013), asynchronous online learning promotes students' participation and

meets the needs of different types of learners. Several examples of asynchronous technology integration resources are Google's Certification Trainings (Google, 2021), Apple Teacher Learning Center (Apple, 2021b), and the Microsoft Educator Center (Microsoft, 2021). Such learning platforms assist individuals in building technology integration knowledge and offer on-demand learning anytime, anywhere.

Teacher growth and relevancy. Personalized growth and relevancy to real-world content taught in the classroom are additional elements in supporting educators through technology integration initiatives. Leaders directly impact the instructional materials that are utilized for teaching and learning and should consider how teachers continue to stay fresh, relevant, and up to date with the latest educational curriculum. Also, superintendents, principals, assistant principals, and directors have the opportunity to align themselves to the resources provided to educators so they will feel just as prepared to lead successful technology learning initiatives (Kipp, 2020). Learning at every level is critical to the success of any district implemented initiative as well as the commitment each individual shows towards educational success (Fink & Resnick, 2001).

Educators spend numerous hours polishing lesson plans, creating instructional resources, and trying to find the perfect classroom content for all students (Chou et al., 2012). Staying relevant with current events and pedagogical content is important as teachers navigate how to craft experiences for current student interests and excitement in order to keep them engaged in the content. Hatten (2012) emphasizes the importance of leveraging multiple forms of professional learning models to support educators. Technology assists educators by connecting them to endless amounts of resources geared toward teaching in the 21st century (Hatten, 2012). With adequate instructional

technology materials, a robust professional learning community of support, and current curriculum, teachers feel confident with integration and become empowered to take risks in front of students (Chou et al., 2012). Building a connection with each student individually is important for building rapport and positive culture in the classroom. With students so actively involved in utilizing technology for everyday tasks, teachers can easily bring relevant concepts to the learning experience. One important consideration from *Learning Transformed: 8 Keys to Designing Tomorrow's Schools, Today* (2017), the technology device is the tool that provides access for educators and students, and the focus has to remain on the pedagogy to ensure successful implementation in the classroom (Sheninger & Murray, 2017). When teachers experience how to craft relevant lesson plans and make learning meaningful using technology, possibilities for student creation and engagement are greater.

Transforming learning by leveraging technology frameworks. Ongoing professional learning, educator growth and relevancy, and transforming learning by leveraging technology frameworks not only benefit educators and students but leaders as well. As principals and instructional coaches participate in learning experiences, they understand how best practices utilizing technology can impact their entire environment, not just one individual classroom. Hatten (2012) argues the excitement of leveraging technology begins to spread when educators see instructional benefits of technology implemented in the learning environment. Otherwise, as Chou, Block, and Jesness (2012) stated, technology devices are seen as entertainment and reading devices instead of educational tools to support learning.

To focus attention on reaching the highest levels of impactful and meaningful learning using technology, educators can align teaching practices to either the SAMR model seen in Figure 1, or TPACK seen in Figure 2. The SAMR model, a framework developed in 2010 by Dr. Ruben Puentedera, begins with laying out four components for technology integration. The bottom two layers, substitution and augmentation, represent the replacement of traditional learning tools such as paper and pencil with digital tools. For example, converting a handwritten essay to a digital copy using a word processing software (substitution), or posting recording lectures and lessons online to view at a later time (augmentation). Each step of the SAMR model is important to consider depending upon where teachers are in their integration journey. The top two levels of the SAMR model are modification and redefinition. Students focused on creating their own work, publishing books and different types of media, and collaborating with others around the world utilizing technology are innovative advancements for any learning experience.
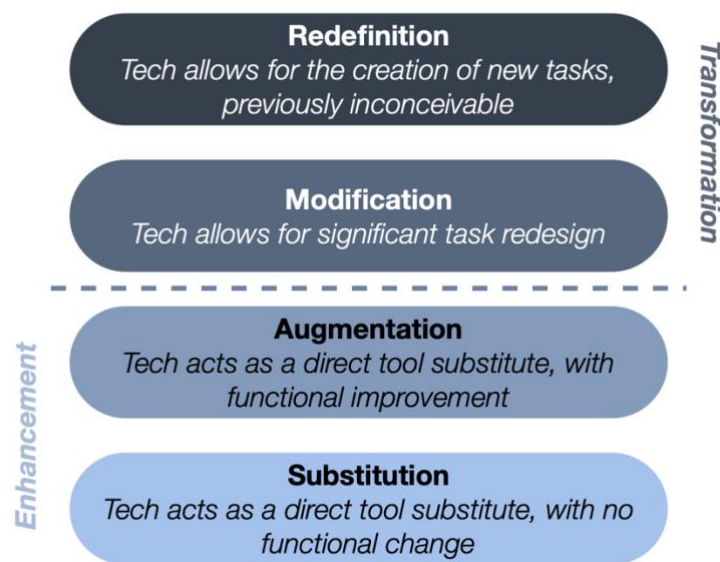

Figure 1. The SAMR model (Puentedura, 2011).

Educators who begin to think of SAMR as a toolbox for designing high-quality content rather than only focusing on the top two levels will see experiences become more relevant to what they expect students to understand when utilizing technology (Terada, 2020). McGinnis (2019) stresses the importance of moving out of the familiar comfort zone when teaching with technology to reach the highest levels of transformation.

Another opportunity for educators to transform learning by using technology is to understand and utilize the components of the TPACK framework (Mishra & Koehler, 2006) when designing learning experiences. The TPACK framework (Figure 2), which is built upon Lee Shulman's (1986, 1987) construct of pedagogical content knowledge (PCK), now includes technology as being a significant and important component in the model. The three core factors in teaching and learning are content, pedagogy, and technology. Also, establishing the relationships between each element and how they interact when designing classroom experiences shows educators how the intersections can transform teaching and learning when followed correctly (Koehler et al., 2013). Teaching with technology is not an easy task, however the utilization of the SAMR and/or TPACK models are supports for educators and leaders in areas of transformation and when utilizing technology in any area of the learning environment.

In this study specifically, superintendent leadership is just as crucial to the learning environment as any principal, instructional coach, or educator. The next section of the literature review will explore how the role of the superintendent has evolved and

transformed, creating the need for understanding many components of technology integration and implementation.
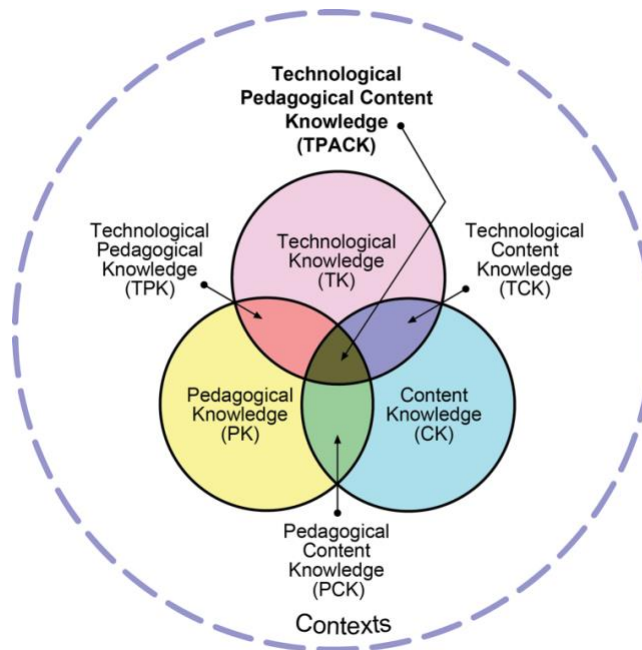
Figure 2. Technological pedagogical content knowledge (TPACK) (Koehler, 2012).

Note: The TPACK framework. Reprinted from TPACK.ORG, by M. Koehler, 2011, https://matt-koehler.com/tpack2/using-the-tpack-image/. Reproduced by permission of the publisher, © 2012 by tpack.org.

Role of the Superintendent

The role of the superintendent and their day-to-day actions play a large factor in technology integration in the classroom and whether a 1:1 technology initiative is successful in its stages of implementation (Keengwe et al., 2008; Richardson et al., 2013; Vyas, 2020; Waters & Marzano, 2006). To fully understand how a superintendent makes decisions around technology involvement, communication, and best practices, it is important to define how leaders can support each focus area to ensure successful technology implementation system wide.

Superintendent involvement. Leading a 1:1 technology learning initiative is not an easy task for a superintendent, yet rewarding outcomes are a strong possibility for all stakeholders if technology initiatives are implemented correctly. Increases in critical thinking, problem-solving, communication, and creativity are key skills for all students to learn and transform any learning experience when leveraging technology (Neaves, 2015). Learning initiatives, such as a 1:1 technology initiative, potentially brings many opportunities and challenges to a district. A large responsibility of any initiative falls in the hands of the person in charge of the school district, which outlined in this research is the superintendent. Day-to-day involvement of superintendents executing technology expectations, modeling best practices, and communicating the importance of technology integration, is key to ensuring devices utilization effectiveness (Waters & Marzano, 2006). The superintendent role has changed over time and the description of a managing chief executive officer is constantly evolving. Now, superintendents are key negotiators for technology advancements, community strategists, and financial advisors who lead thousands of educators and impact important decisions for school boards (Keengwe et al., 2008).

Waters and Marzano (2006) argue that superintendents have a large impact on student achievement and success when focused on the "right work" in the "right way" (p. 20). Collaboration between superintendents and the district technology leaders to understand how technology can transform teaching and learning requires interaction and ongoing connections. When high levels of involvement of the superintendent occur, leaders are recognized as being supporters of technology integration, and the chances of successful transformation in the classroom increase (Vyas, 2020). Superintendents who

are looking for high levels of transformation should continue involving themselves as much as possible in the implementation and integration of the 1:1 technology initiative throughout each level within their districts.

Leadership vision and communication. School leaders, specifically superintendents, communicate learning expectations, make decisions, and lead the charge for district directors and all staff. According to Bird, Dunaway, Hancock, and Wang (2013), the superintendent is in a pivotal organizational role to directly influence school board members, directors, principals, teachers, and community stakeholders. By having a strong communicated vision and impact towards these individuals, studies show they are more likely to engage in district initiatives and follow organizational changes if the superintendent is encouraging them to do so (Bird et al., 2013). Therefore, the importance of communicating the vision of any district initiative plan from the superintendent is important for all members of the school organization.

It is critical that a superintendent has a strong vision for teaching and learning with technology. Along with the vision, how the leader communicates and sets expectations for that vision is equally important. Without a well-developed implementation plan, many stakeholders fail to understand how technology can support and enhance innovation in the classroom (Richardson et al., 2013). Wilmore and Betz (2000) argued that the superintendent and principal must be involved in the visioning and communication process to ensure the successful integration of technology. Additionally, a study focused on superintendent change leadership with technology integration suggested, "superintendents of school districts integrating technology districtwide reported that vision was the strategy they utilized most often in leading the change

initiative" (Calhoun, 2004, p. 157). The emphasis of technology integration in a superintendent's vision statement, provides multiple opportunities for stakeholders to understand the importance of implementation.

According to Mirra (2004), superintendents who have a clear vision and set expectations for technology integration must continue to act and develop their vision throughout the stages of the learning initiative (p. 20). Sharing a district-wide 1:1 technology initiative vision should be a regular communication focus of the superintendent (Vyas, 2020). Ultimately, with a strong communication plan for the technology implementation, vision, and setting of expectations, all members of the district have a greater chance of understanding the importance technology plays in driving innovation forward to ensure success.

Superintendent leadership best practices with technology integration. Leadership involvement with technology integration requires an understanding of the possibilities of a device. Specifically, when superintendents learn alongside educators and students, the chances of them seeing possibilities of transformation increase tremendously. Sterrett and Richardson (2019) found that superintendents who stayed connected to a professional learning network such as Twitter helped them grow professionally. Also, participation in consortium networks and attending professional learning sessions allowed superintendents to stay up to date on best practices surrounding technology integration (Sterrett & Richardson, 2019). Modeling best practices such as walking the halls utilizing technology, sending digital messages to the school community, and participating in district and school-wide professional learning opportunities shows all stakeholders the superintendent's clear vision and expectations. By implementing these few techniques, it

is possible leaders will feel confident when they begin to see their teammates following in the same transformational direction.

As superintendents interact with technology, it is important to build a broad range of skills to show others the importance and possibilities of utilization. Literature by Plyler (2017) confirms how critical it is for superintendents to learn as much as they can about their district technology initiative. Not only does understanding the components of the initiative help leaders speak to the impact of success, but it helps superintendents build their technology knowledge (Plyler, 2017). Additionally, literature confirms superintendent knowledge of technology initiatives impacts culture, overall success rates, and higher levels of innovation. Furthermore, not only is superintendent leadership in a technology initiative critical to the success of implementation, empowering others to lead alongside the superintendent is imperative towards ultimate transformational success (Calhoun, 2004; McLeod et al., 2015; Plyler, 2017; Shuldman, 2004; Sterrett & Richardson, 2019; Vyas, 2020, Waters & Marzano, 2006).

When leaders focus on building a positive district culture around technology integration, individual campuses begin to feel the impact and expectation for utilization. According to the Creativity in Learning Study by Gallup (2019), findings confirm that teachers are more likely to focus on components such as technology integration and creativity in the classroom when leaders support their efforts. This includes opportunities for professional learning and a positive culture (Gallup, 2019). As highlighted in a study on leadership roles in school improvement, "the leadership styles of a superintendent style can permeate the culture of the school system with perhaps the most influence affecting the building principals" (Bird et al., 2013, p. 52). Research conducted on change

strategies stated that superintendents should model technology usage daily to send a positive message throughout the organization (Calhoun, 2004). Furthermore, the same study indicated high levels of the superintendent acting as a cheerleader for the technology initiative, but many did not model technology usage in front of individuals, nor did they participate in professional learning sessions (Calhoun, 2004). Leaders' vision for technology implementation are strengthened when they show high interest in technology utilization and attend and promote professional learning activities.

Synthesis of Literature

The leadership and guidance of a superintendent in any 1:1 technology learning initiative bring many challenges and opportunities for transformation, and continuous involvement is strongly needed as schools face rapid changes in the 21st century. Factors surrounding ongoing professional learning, educational technology possibilities, and even the vision and communication of a technology plan are components any leader should be aware of to lead a successful technology learning initiative. The involvement opportunities for the superintendent in a 1:1 initiative are endless, and all individuals within the school district must understand how any leaders' actions can support an innovative teaching and learning environment.

In the next section, the theoretical framework model Transformational Leadership developed by Bass and Riggo (2008) addresses four components that align to the potential impact and involvement a superintendent has on creating a positive and successful culture of technology integration and implementation.

Theoretical Framework

This study applies the components of the Transformational Leadership Model created by Bass and Riggio (2008) to the involvement of a superintendent in a 1:1 technology learning initiative. The four main components outlined in the model are idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass & Riggio, 2008). Essential factors such as leadership styles, building a community of culture, and personal growth with technology integration are important when implementing a successful 1:1 initiative, as outlined above in the literature review. The two areas of leadership referenced below, transactional and transformational leadership, have developed over time by researchers Burns (1978) and Bass and Riggio (2008) and are foundational components of the theoretical framework represented in this study.

The principles of leadership as demonstrated in *Leadership* (Burns, 1978), is either transactional or transformational. Transactional leadership concepts began in political and corporate roles and consisted of reward-based systems based on performance. As highlighted by Burns (1978), leaders led with intentions of providing promises, obligations, and rewards when individuals performed at a certain level. As a result, rewards and special recognition were reserved for individuals who met expectations. individuals failed to meet expectations, they did not receive rewards and special recognition. While transactional leadership styles offered opportunities to lead through social change, transformational leadership styles provided outcomes reflecting innovation and inspiration (Bass & Riggio, 2008). Bass and Riggio (2008) defined Transformational leadership as displaying key principles such as challenging followers to perform beyond normal expectations, allowing them to be creative and innovative, and

30

encouraging them to develop different leadership capacities throughout their careers. Similar to transactional leadership, early research demonstrated transformational leadership appeared in focused industries, primarily in military settings. Now, Avolio and Yammarino (2013) argue that transformational leadership is critical in many sectors, including education.

As seen in Figure 3 below, each component of the Transformational Leadership Model (Bass & Riggio, 2008) provides a solid foundation to why it is important to dive deeper into superintendent guidance in a 1:1 technology learning initiative. When rolling out hundreds of thousands of devices and endless amounts of resources, top-level leadership must implement a clear line of communication and a vision. According to Bass (1990),

> superior leadership performance - transformational leadership - occurs when leaders broaden and elevate the interests of their employees, generate awareness and acceptance of the purposes and mission of the group, and stir their employees to look beyond their own self-interest for the good of the group. (p. 21)

Bass (1990) indicates that when leaders see the value of something themselves, they are more inclined to inspire and excite their employees to accomplish great things with extra effort.

Large scale implementation initiatives, such as a 1:1 technology device rollout, brings a number of considerations for any superintendent leading the charge. Any leader must ensure they have a majority of directors, principals, and educators onboard to ensure a successful initiative long-term. Depending upon a superintendents' drive and motivation to create a spark for innovation when utilizing technology, it is important to look at each component of the Transformational Leadership model to determine what inspires leaders to want to create a positive environment for digital transformation. As

31

stated by Bass and Riggio (2008), leaders "behave in ways to achieve superior results by employing one or more of the four core components of transformational leadership" (p. 5). The components of the Transformational Leadership Model (Bass & Riggio, 2008) will be described in the following sections.
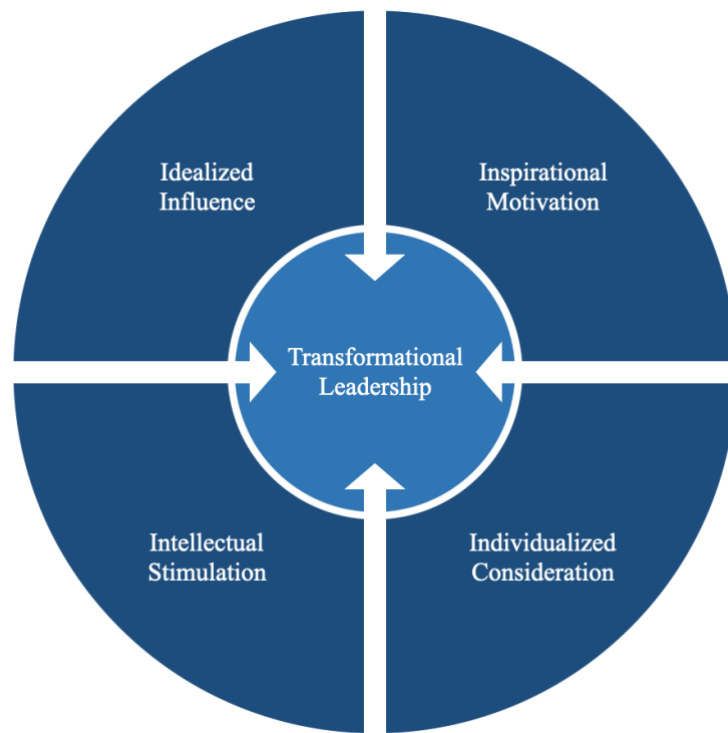
Figure 3. Transformational leadership model as derived from Bass & Riggio (2008).

The first component of the framework, Idealized Influence (II), recognizes that leaders carry specific characteristics admired by colleagues and followers. These leaders, such as a superintendent, are considered role models for others and have a significant influence in communicating the fact that many challenges, or obstacles, can be overcome (Bass & Riggio, 2008). Confidence and knowledge are elevated in this area of the framework, and superintendents who lead with these tendencies can expect educators to rise to the challenge when needed (Anderson, 2017).

Inspirational Motivation (IM) is the second component of the Transformational Leadership framework. Clear communication of expectations, motivation, and inspiration are a few of the characteristics that a transformational leader embodies. These individuals tend to be charismatic and enthusiastic and therefore have a positive team culture and spirit consistently surrounding them (Bass & Riggio, 2008). Superintendents and principals who embody Inspirational Motivation will share successes and exciting achievements together with their team. Inspirational leadership is important for any educator taking a step towards innovation by implementing new educational technology resources.

As leaders continue to innovate, creativity is an important factor for the third component in the Transformational Leadership framework. Intellectual Stimulation (IS) encourages many ideas and values and accepts an individual's problem-solving abilities. Leaders who possess characteristics of the Intellectual Stimulation component look for opportunities to see solutions to challenges from many different angles and appreciate when others take risks towards transformation (Bass & Riggio, 2008).

Lastly, the fourth component of the Transformational Leadership Model is Individualized Consideration (IC). Leaders focus on personal and individual growth of employees in this section of the model and practiced when opportunities for new learning present themselves in a supportive climate (Bass & Riggio, 2008). Knowing past conversations and remembering individual characteristics of what each person discussed is a main quality a leader would have from this component. Listening is key when leaders need to delegate tasks, monitor direction, and support others through teaching and coaching.

The research of Bass and Riggio (2008) describes leadership attributes for individuals leading teams and exposes the importance of any leader to possess characteristics of transformational leadership. Sarros and Santora (2001) confirm the responsibility of leaders to understand how they can make an impact in an organization through achievement and creativity. Leaders who continue to innovate and lead the charge for the successful implementation of technology in their learning environments should consider showcasing components of the Transformational Leadership framework. Each component of the theoretical framework model is unique to each leader, and in this case, a superintendent, and will guide this study to address the main research questions.

Conclusion: Purpose of the Study

The purpose of this qualitative multiple case study was to explore two K–12 school district environments in Texas to understand how a superintendent's day-to-day involvement, communication of the school district vision and mission statements, and leadership practices impact the implementation of a 1:1 technology initiative. Since existing research lacks findings on how superintendents leading a 1:1 technology initiative can positively impact the success of implementation, it was critical to explore the involvement, communication, and best practices of an exceptional superintendent.

With a recent increase in technology purchases, mainly due to the COVID-19 global pandemic, this study will share insight and the importance of access for all school district leaders, campus leaders, students, and teachers. The narratives and lived experiences of two K–12 superintendents provide insight to the active involvement, communication efforts, and transformational best practices each superintendent carried out in their learning environments.

Technology models in school districts in Texas vary, and this study focused on specifically a 1:1 technology learning initiative utilizing Apple technology. The two superintendents who were participants in the research modeled day-to-day best practices, communication structures, and an insight into how they lead transformational learning environments every day. This study intended to ultimately inform other leaders of possibilities in leading a 1:1 technology learning environment to ensure student transformation and success.

Definition of Key Terms

1:1 Initiative: Institutions provide a technology device to every teacher and student to utilize for learning and educational purposes. For the purposes of this study, this includes giving out district-owned tablets (iPad) and/or laptops (MacBook). A 1:1 initiative can also be referred to as one-to-one computing.

Superintendent Involvement: The day-to-day actions the district leader (superintendent) performs to show interest, understanding, and motivation towards the district technology integration efforts. This includes modeling best practices using technology, encouraging and support educators and students to utilize technology to transform teaching and learning, and embedding technology language and the importance of using devices effectively in the classroom.

CHAPTER TWO

Methodology

Introduction: Research Questions

Technology adoption and integration have increased significantly in today's society, and district leaders play a significant role in successful technology implementation. The conclusions from the previous chapter indicated a need specifically for superintendent involvement in a 1:1 technology learning initiative to ensure devices enhance transformational growth. Ultimately, this study sought to uncover the opportunities leaders had when they were involved with implementing technology with intentionality and purpose alongside teachers and students.

The current Problem of Practice focused on how superintendents leveraged their leadership skills to involve themselves in technology implementation, communicate technology expectations to the entire district, and model day-to-day technology integration best practices using Apple technologies. To explore the factors that have contributed to the success of two exceptional K–12 Texas superintendents in a 1:1 technology learning initiative environment, one main research question drove the case study: What is the leadership involvement of K–12 Texas Superintendents who have led a successful 1:1 technology learning initiative?

The sub-questions asked more specific questions which included:

1. What expectations does a superintendent have for their teams who assist in leading a 1:1 technology learning initiative?

2. How does a superintendent determine their vision for a 1:1 technology learning initiative?

3. How does a superintendent communicate their vision for effective technology use throughout the district?

4. How does a superintendent model and implement technology in their day-to-day role?

Researcher Perspective and Positionality

As a former teacher, instructional technologist, and professional in the technology industry, I did have some bias in understanding the impact a superintendent had on a 1:1 technology learning initiative. At the time of the study, my career involved working with school districts throughout the country to help craft learning plans and design exceptional experiences for educators as an Apple Education Leadership Executive. Prior to being in my current position, I was an Apple Professional Learning Specialist who worked shoulder to shoulder assisting teachers and district leadership with technology integration. Throughout my time as an educational technology advocate, I have witnessed schools succeed with technology implementation when superintendents are involved, and others fail when leaders are not as involved. Also, I previously worked with district technology teams, teachers, and staff, who often become reluctant users if there was no clear vision or set of expectations for technology integration. Thousands of dollars are spent each year on technology devices and put into the hand of educators and students. When devices are not utilized effectively, district technology initiatives fail, and money is wasted. However, when I began to witness the impact superintendents and school leaders had when involved with a 1:1 technology learning initiative, I was amazed at the high level of transformation in each learning community.

Throughout the study, I was upfront and honest with each subject as I began to conduct research and let each of them know how my positionality and professional

experiences could potentially impact the study. It is important to note that I never assumed the position as a school district superintendent, nor the position as a building level principal.

The two K–12 Texas superintendents I chose to research were involved in a 1:1 technology learning initiative specifically utilizing Apple devices. At the time of the study, School District 1 and 2, were listed as part of my account list as an Apple Education Leadership Executive. I did not know the two superintendents personally, only several members of their district instructional technology teams. Also, I continued to serve each district in an Apple Education Leadership Executive capacity to share how Apple tools supported teaching and learning throughout the study's duration and conclusion. However, one possibility is that each of these districts could align with another Apple Leadership Executive in the State of Texas in the future.

The interpretive framework used for this study was pragmatism. As stated in Creswell and Poth (2018), "this interpretive lens focuses on the outcomes of the research—the actions, situations, and consequences of inquiry—rather than antecedent conditions" (p. 462). I examined the practical reality of the superintendent's involvement in the 1:1 technology initiative and discovered what worked and what did not work. I used multiple methods of data collection and focused on practical implications to best answer the research questions. According to Creswell and Poth (2018), "in a similar way, researchers look to many approaches to collecting and analyzing data rather than subscribing to only one way (e.g., multiple qualitative approaches)" (p. 75). A variety of data collection techniques were addressed in the data collection procedures section.

Theoretical Framework Application

The theoretical framework application used throughout this study aligned superintendent leadership characteristics who lead a 1:1 technology learning initiative to the components outlined in Bass and Riggio's (2008) Transformational Leadership Model. By exploring four of the Transformational Leadership model components, idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, the researcher described how each superintendent's actions and day-to-day interactions within a 1:1 technology learning initiative aligned to the Transformational Leadership Model (Bass & Riggio, 2008). Providing a rationale for the theoretical framework application in this study helped to address the main research question and sub-questions.

To understand the leadership involvement and interaction of a superintendent in a 1:1 technology environment, this study utilized the four different components of the Transformational Leadership Model (Bass & Riggio, 2008) to gain insight into the different leadership behaviors each superintendent possessed. As indicated in the literature review, leadership guidance and involvement in a technology learning initiative require superintendents to be actively involved in the process throughout implementation (McLeod et al., 2015). Using the Transformational Leadership Model (Bass & Riggio, 2008), a greater understanding of superintendent involvement in a 1:1 technology learning initiative was addressed. Specifically highlighted was the exploration of leadership expectations, creation of a vision, communication of a technology vision, and modeling and implementation of technology at the superintendent level.

The theoretical framework guided the data collection and analysis process through a series of interviews and a questionnaire. Interviews of superintendents, directors, and

principals helped provide context of the day-to-day leadership practices each superintendent modeled and expected of educators and staff. Participants were asked several questions on how they perceived their superintendent in the 1:1 technology learning initiative and how the actions of each leader inspired them to transform learning utilizing technology. Questions were discovered regarding how each superintendent communicated expectations throughout the 1:1 technology learning initiative. This allowed an understanding of how the components of the theoretical framework aligned with each superintendent at a deeper level. Collecting various pieces of information from multiple individuals who were impacted directly by superintendent directives helped to understand how important the vision and mission of the district are for utilizing technology.

To further understand how the Transformational Leadership Model (Bass & Riggio, 2008) impacted superintendents in their own unique 1:1 technology learning environment, inquiry and assessment of the data were required. Each of the four components of the theoretical framework identifies different leadership styles that individuals can develop. The complexity of determining which of these components superintendents aligned with required interactions with district technology staff, principals, and directors to understand how other leaders could learn from their experiences. This framework incorporated multiple examples of different leadership qualities of which the two researched superintendents possessed and strong foundational knowledge for school district communities of how their leaders guide the learning environment.

The goal of leveraging this theoretical framework using a qualitative multiple case study methodology was to gain an in-depth and rich understanding of the two superintendents' leadership styles in a specific phenomenon and shared the development of their impacts in a 1:1 technology learning initiative (Creswell & Poth, 2018). The following section provides insight into the specific rationale for choosing a qualitative case study design and why this methodology was best suited for this problem of practice.

Research Design and Rationale

To gain a real understanding of superintendent involvement and impact in a 1:1 technology learning initiative, a qualitative multiple case study research design was utilized. According to Creswell and Poth (2018), qualitative research allows for the exploration of a specific problem, and to gain "a complex, detailed understanding of an issue" (p. 104). The issue specifically addressed in this study related to the importance of the role of superintendents in a district-wide technology initiative. Current literature shows research on how principals and technology integration coaches positively impact and support technology learning initiatives, but there is a significant gap related to superintendent involvement (Gold et al., 2003). The following sections describe how qualitative methodology, specifically a multiple case study, was best suited for this type of research.

Qualitative research aligned with the research questions in this Problem of Practice by empowering individuals to hear their own voices and understand how they lead in their school learning environments through interviews and a questionnaire. According to Creswell and Poth (2018), qualitative research begins with "assumptions and the use of interpretive/theoretical frameworks that inform the study of research

problems addressing the meaning individuals or groups ascribe to a social or human problem" (p. 99). In the context of the research conducted in this study, superintendent involvement in a 1:1 technology learning initiative was a focus in order to capture day-to-day best practices, communication efforts, and leadership characteristics aligned to a theoretical framework. The thick and rich data collected from the interview process allowed me to understand the individuals studied. As noted by Denzin and Lincoln (2011), qualitative research is best suited when it involves an interpretive approach to the world, studying individuals in their natural setting, and making meaning out of a specific phenomenon. Further developed by Creswell and Poth (2018), more specifically, "qualitative researchers use an emerging qualitative approach to inquiry" (p. 42) where the final presentation and development of the study brings out the voices of participants, reflexivity of the researcher, and a contribution, or outlines a call for change (p. 44). A need for a specific research design was appropriate for this problem of practice, and a multiple case study and how it aligns to the context of superintendent involvement in a 1:1 technology learning initiative is outlined below.

The work of Yin (2014) describes the foundation of case study research within a real-life context or setting and bounded by time and place. Case studies focus in-depth on relationships and allow for the understanding of complex situations (Denscombe, 2017). Specifically, the nature of this research took place in an organizational setting, a school district, which existed before the research and existed when the study concluded. Therefore, according to Denscombe (2017), the case is a "naturally occurring phenomenon" (p. 56). Not only did this case study address what was going on in the

school district environment, but it also explored certain events that occurred from a superintendent's perspective.

The type of research design selected for this study was a multiple case study. Participant selection for this study included two superintendents, chief technology officers from each school district, principals, and other district directors and technology staff. Exploring the involvement of superintendents in a 1:1 technology learning initiative from two different school districts allowed for a deep understanding in each of their natural settings. Additionally, questionnaire responses allowed voices from principals and technology staff to gain their perspective on superintendent involvement in the 1:1 initiative. The two cases were bound by the two school districts. These two cases met specific criterion listed below in the site selection and participant sampling section. Additional units of analysis, such as the two superintendents of each district, were embedded and studied throughout each case to further address the research question.

Site Selection and Participant Sampling

This qualitative multiple case study utilized purposive sampling to select the two cases. By purposefully selecting specific school districts and their superintendents, this allowed me to examine each environment to help inform the research problem (Creswell & Poth, 2018). Specifically, the study used criterion-based sampling, which provided insight to each school district that met a specific criterion and certain characteristics. Additionally, the two superintendents selected for this study experienced the same phenomenon of leading a 1:1 technology learning initiative, and the participants interviewed were employees of each school district researched. This section describes in

further detail how each site and participant selection best addressed the understanding of superintendent impacts on a 1:1 technology learning initiative.

An important step of this qualitative study was the selection of cases for this research (Creswell & Poth, 2018). The criteria for selecting each case were:

- K–12 Texas public school district

- 1:1 technology learning initiative in place utilizing Apple devices

- Superintendent researched had to be the district superintendent at the time of the study

For the purposes of this study, two K–12 public school districts in Texas were selected because they met the criterion mentioned above. The first school district selected for the study was identified as School District 1. Enrollment during the study was approximately 12,800 students and 870 teachers. Additionally, School District 1 had a total of 15 schools and a number of support departments, such as the technology department, with staff supporting the entire district throughout the year with technology integration and innovation. Although the district has focused on 1:1 technology in grades 5th–12th for the last three years, in 2019, School District 1 began distributing carts in earlier grade levels to support a district-wide 1:1 initiative. In 2020, each student and teacher had an Apple device for learning.

The second district selected for this study was identified as School District 2. During the time of the study, the district had a student enrollment of 6,500 students in grades Pre-K through 12th grade and approximately 500 teachers. School District 2 had a total of 9 schools and also a number of departments supporting teaching and learning initiatives. Additionally, in 2019, the School District 2 Board of Trustees approved funding to implement a 1:1 technology learning initiative utilizing iPad and MacBook.

Prior to that approval, leaders and educators utilized technology in every school and grade level to support learning initiatives.

An additional characteristic of this study was that both School District 1 and 2 had additional technology support individuals dedicated to each campus, specifically for technology integration. Although this was not a criterion, literature researched at the time of the study showed that Campus Technology Integration Specialists (CTIS) and Digital Learning Specialists (DLS) in general provide additional support for leadership and teachers through motivation, inspiration, and share instructional best practices for utilizing technology in the classroom (Ertmer & Ottenbreit-Leftwich, 2010, Stanhope & Corn, 2014, Jackson, 2020, ISTE, 2020).

To gain an understanding of how the superintendent of schools in each of the two districts effectively impact a 1:1 technology learning initiative, researching superintendents in their natural settings while they assumed the superintendent position was important. Each leader utilized an Apple device as their primary technology tool for daily tasks and productivity. Additional individuals such as CTISs, DLSs, district directors and school principals took part in the interview process to provide perspectives about how involved the superintendents were in daily technology integration practices. The next section describes the data collection procedure process and shares insight into district communication and documentation.

Data Collection Procedures

In case study research, Yin (2018) indicated there are four main protocols to follow when collecting data: use multiple sources of evidence, create a case study database, maintain a chain of evidence, and exercise care when using data from social

media sources. Various sources of evidence were used in this study, such as interviews, a questionnaire, and district artifacts. Also, an electronic database provided organization and structure throughout the data collection process. According to Yin (2018), the creation of a database increases the reliability of the case study and provides clarity of all sources of data. I maintained a chain of evidence by retaining digital copies of all literature and research documentation collected from the beginning of the study to the final stages of this Problem of Practice. Finally, when collecting district documents from websites and interviewing individuals through Zoom, I maintained carefulness throughout the process to protect participant confidentiality and chances of data validity. The Yin (2018) protocols were followed throughout the study, and each data collection procedure is highlighted below.

Interviews

After creating an interview protocol (see Appendix A), structured and semi-structured interviews were conducted using Zoom as the main platform. The first round of interviews began with each superintendent, and the second round of interviews were of the chief technology officers. Interview questions were slightly different for superintendents than district staff (see Appendix B) to gain a stronger insight into the perceptions of leadership from different individuals. Interviews lasted approximately one hour and were recorded to the cloud to ensure data was safe throughout the process. Each superintendent and district technology director were interviewed once during the data collection process and the interviews were conducted right before the beginning of the school year.

Questionnaire

To collect data regarding specific usage of certain technologies for teaching and learning, a questionnaire (see Appendix C) was created and sent to school principals and district technology and curriculum staff, which helped provide insight into the innovation and tools used to transform the district environment with technology integration. Questionnaire questions examined perceptions of superintendent leadership within the 1:1 technology initiative. The questionnaire included a total of thirteen open ended questions and began with name, district, devices used, number of years of experience, number of years and role in the district, leadership experience, and tools utilized to transform teaching and learning within the learning environment. Additionally, the questionnaire engaged participants in questions related to superintendent leadership through yes/no responses. Participants added additional context to the question if the response was 'yes'. By including opportunities to provide additional insight to each 'yes' question, the study yielded results aligned to the study's theoretical framework application.

District Artifacts

In addition to the above data sources, district documentation, artifacts, and archival data allowed the researcher to understand where each superintendent and school district was at with their journey of technology integration. Strategic plans, vision, and mission statements were discussed with each district superintendent and provided clarity towards the level of involvement each superintendent had specifically with the technology learning initiative. I often visited the district and campus websites to gain additional information on the technology vision and communication.

I obtained permission to record each interview of superintendents and technology directors. Documentation of the learning experience took place in a digital journal format and allowed for the organization of each participant and data collected. All data was uploaded and backed up to folders in the cloud to ensure document protection and safety from technology failure.

Data Analysis Procedures

To fully interpret and analyze the data for this case study, I used the concept of the data analysis spiral to organize, code, memo, represent, and interpret the data. As stated in Creswell and Poth (2018), the data analysis process involves "organizing the data, conducting a preliminary read-through of the database, coding and organizing themes, representing the data, and forming an interpretation of them" (p. 335). The data analysis process occurred in four steps, which are outlined in the next few paragraphs.

The first step of the data analysis process was managing and organizing the data during data collection period. Qualitative research design allows for simultaneous data collection and analysis processes (Creswell & Poth, 2018). Interviews, questionnaire responses, and district artifacts were stored in digital folders in OneDrive to ensure data protection. Additionally, interviews of each superintendent and chief technology officer were uploaded to Otter.ai and transcribed. I used the Numbers application to ensure color coding and labeling were influential throughout the process. Also, I organized interview content and questionnaire responses using multiple Sheets within the Numbers document.

Second, reading and memoing the data into emergent ideas occurred. The data was read through and coded to bring out the individual results from a within case analysis. According to Creswell and Poth (2018), "memoing helps track development of

ideas through the process" (p. 346). Memoing ensured credibility because "the qualitative researcher should expect to uncover some information through informed hunches, intuition, and serendipitous occurrences that, in turn, will lead to a richer and more powerful explanation of the setting, context, and participants in any given study" (Janesick, 2011, p. 148). As participants provided context and information relevant towards technology integration and involvement, notes were taken to capture important details regarding superintendent leadership and how they supported the technology initiative.

Following the initial coding and memoing analysis process, the data were categorized into themes and I conducted a within case analysis. Coding and categories allowed for making sense of the text collected from interviews, questionnaire responses, and documents. Themes such as innovation, building a positive and supportive culture, active communication, and continuous learning were several themes that emerged from the within case analysis. The themes that emerged from the study potentially support other districts that could benefit from an active superintendent in a technology environment. Diagrams and tables were formulated and used to illustrate the data analysis process. I made sense of the data during the interpretation and representation piece of the data analysis spiral. Also, I used diagramming and learning journal visuals during the entire process to show the outcomes of each case study.

The fourth step of the data analysis process was a cross-case analysis of the two superintendents. The cross-case analysis assisted with triangulation and validity, which allowed me to find common themes between the superintendents. Additionally, themes of

capacity building, transformative practices, and a nurturing culture emerged out of the cross-case analysis. I then made connections to the study's theoretical framework.

The significance of this research exposed findings of successful district leadership involvement in a technology initiative for others who may benefit. The analysis showed common themes related to successful involvement within the technology initiative and highlighted what worked and what did not work in a school environment enriched with technology devices. Hopefully, districts that were on the verge of making a large decision, such as going with all 1:1 devices for leaders, teachers, and students, would potentially see the benefits of the involvement of a superintendent throughout the process.

Trustworthiness and Authenticity

Qualitative research focuses on connecting and understanding participants in their natural settings while ensuring reliability and validity (Creswell & Poth, 2018). Thick, rich descriptions were used throughout the case study to "make sure that the findings are transferable between the researcher and those being studied" (Creswell & Poth, 2018, p. 444). Triangulation and congruency guided this study and aligned with the research of Lincoln and Guba (1985) to establish trustworthiness. I established member checking to ensure credibility of the data. To connect with superintendents and gain insight into their district's culture, it was important to establish trust and keep the data protected throughout the study. Digital notes were taken using the Notes application and the creation of files and folders within OneDrive were organized to increase the study's reliability and validity. Numbers was used to filter, sort, and make sense of the data throughout the collection process.

The next step of the process to ensure trustworthiness and authenticity was to leverage member checking, which was briefly mentioned above. I made sure the interview data was accurate by checking with each superintendent once the data was sorted, memoed, and analyzed. After the member checking process took place, I sorted through each piece of the data analysis process to establish triangulation throughout the study.

Ethical Considerations

According to Creswell and Poth (2018), ethical issues in qualitative research can be described as "occurring prior to conducting the study, at the beginning of the study, during data collection, in conducting data analysis, in reporting the data, and in publishing a study" (p. 118). Before contacting and reaching out to each of the individual districts to conduct the case study, I obtained approval from the Baylor University Institutional Review Board. Following the process, I contacted each site individually to share ideas on the research topic and approach. I was open about my professional background experiences to gain trust upon entering. Once approval was granted, and the conducting of research was approved, I communicated the entire study design and process for participants.

Due to my role as an Apple employee at the time the research was conducted, I wanted to make sure I was upfront and clear with each school district about the boundaries I would set as a researcher. I communicated only as needed when conducting research specifically for this study and did not merge my professional role with my research goals. Additionally, I created pseudonyms for the districts and participants to protect their confidentiality.

Limitations and Delimitations

Due to the nature of the research questions and unknowns of educational statuses because of COVID-19, this study had several limitations. The global pandemic, COVID-19, provided many challenges for schools worldwide. Many schools functioned on a two-day a week schedule, others were in hybrid-based models, and some were entirely in a virtual environment. For this qualitative study, I sought to determine how a superintendent specifically impacts a 1:1 technology initiative on a day-to-day basis. With the conditions of virtual learning and guidance through digital platforms, it was difficult to understand the true "day-to-day" of a superintendent role. Many school districts chose to purchase devices due to COVID-19; therefore, I was hesitant to ask how the mission and vision at the beginning of the year was created specifically with needs in mind, or was it merely an emergency decision to purchase 1:1 technology for all students and staff. Also, an additional limitation of this study was with the increase of digital communication sent to directors, principals, and staff, the completion rate of perception surveys and interviews were low.

The worldwide pandemic caused mass confusion for many educational leaders during the 2020-2021 school year, which could potentially make a huge impact on the next decade of incoming students in many schools. Additionally, the research focused on only two K–12 superintendents in Texas, limiting the visibility into multiple school districts implementing a 1:1 technology learning initiative.

Delimitations also existed in this study. I began to set boundaries at the beginning of the study to specifically interview superintendents in their natural environment due to their expertise in leading a 1:1 technology initiative. Due to the prior relationships I had with each school district and knowledge of their use of Apple devices, this potentially

created biases throughout the study. Specifically, some participants may have attended professional learning trainings that I conducted with Apple in the past and may felt sympathy in needing to respond to the study's questionnaire. Additionally, although I did not have prior engagements with each superintendent researched, the relationships the superintendents have with Apple account teams and employees could have posed threats to the study's efficacy. Ultimately, I selected each superintendent and district based on experience and Apple device utilization. With the knowledge base and biases I have working with Apple, this could have potentially impacted the study's outcomes. Due to the current limitations and delimitations, adjustments had to be made to align research data collection techniques and analysis to best address the main research question. I ensured throughout the process that any district professional requests such as professional learning and sales were addressed separately from this study.

Conclusion

The goal of this qualitative multiple case study was to understand and share insight into how two successful Texas K–12 superintendents impacted a 1:1 technology learning initiative through their leadership involvement, communication of technology expectations, and modeling of day-to-day best practices using Apple technologies. The participants and sites in this study were selected using purposive criterion-based sampling. The data collection process included interviews, surveys, and district data collection, which were organized and analyzed for accuracy. Additionally, the data analysis process consisted of identifying emerging themes, which attempted to address the main research and sub questions of this study. The following chapter examines the results and discusses the implications of the research findings.

CHAPTER THREE

Results and Implications

Introduction

The main objective of this Problem of Practice was to examine how superintendents influence technology integration within their environments by exploring their own personal reflections of day-to-day technology interactions with leaders, educators, and students. For this study, I used a qualitative multiple case study research design to explore the leadership involvement of two K–12 Texas superintendents and the influence each had on their district's 1:1 technology learning initiative. This study sought to understand how leaders, specifically superintendents, influence technology integration to enhance teaching and learning within their school district. Through the collection of multiple data sources, including interviews with the superintendents and chief technology officers (CTOs), a questionnaire sent to principals and technology staff, and artifacts including documents related to the district's technology plan and superintendent communication, I gained insight from participants directly involved with the 1:1 technology learning initiative. Data collection and analysis aided me in answering the following research question: What is the leadership involvement of K–12 Texas Superintendents who have led a successful 1:1 technology learning initiative? Additionally, data collection and analysis were utilized to address the following sub questions:

1. What expectations does a superintendent have for their teams who assist in leading a 1:1 technology learning initiative?

2. How does a superintendent determine their vision for a 1:1 technology learning initiative?

3. How does a superintendent communicate their vision for effective technology use throughout the district?

4. How does a superintendent model and implement technology in their day-to-day role?

The sub questions were devised based on past and current literature gaps and the need of exploring each of these questions in depth. Additionally, in my current experience of working with leaders, I wanted to know specifically how each sub question supported the overall research question of the study.

This chapter presents findings in six main steps. First, I provide an overview of the research settings, School Districts 1 and 2. Second, I describe each participant involved in the study, focusing primarily on the participant superintendents, and describe how they were selected for the study. Third, I present results from within case analysis to explore the involvement of the superintendent in the district's 1:1 technology learning initiative around the themes of expectations, vision, communication, and modeling and implementation. Fourth, I present results from a cross-case analysis to show common characteristics, themes, and relationships between each case. In the fifth section, I share the results of a framework analysis that reflects how the superintendent leadership characteristics align to the study's theoretical framework. Finally, I offer several implications and recommendations for superintendents and educators involved in 1:1 technology learning environment. Adoption of these recommendations can support an increase of technology integration across the district and provide strategies for implementation at the leadership level.

Settings and Participants

This chapter provides a detailed description of each case including the setting and participants. I used purposive sampling to select two K–12 school districts in the State of Texas who met the pre-determined criteria of being a public institution in the State of Texas and of having implemented a 1:1 technology learning initiative with Apple at the time of the study. To protect the privacy of the districts, I used pseudonyms: School District 1 and School District 2. For each school district selected, I focused on the superintendent as the primary participant and the influence they have on their district's technology initiative. Also, I used pseudonyms to protect the privacy of superintendents. Accordingly, I identified them as Superintendent 1 and Superintendent 2. I conducted one round of semi-structured interviews with each superintendent. To gather more information about the superintendent's involvement in the 1:1 initiative and to triangulate the data, I also conducted interviews with the chief technology officer (CTO) from each district, referred to as CTO 1 and CTO 2. The interviews of the CTO provided rich insight into the leadership qualities of each superintendent they serve. To gather additional thick and rich data about the superintendent's leadership involvement, I also collected additional information via a questionnaire completed by campus principals, technology integration specialists, and any other technology staff who support the 1:1 technology learning initiative within each district. The questionnaire helped to gain insight on how school leaders felt their superintendent led them through technology integration and implementation. Table 3.1 provides an overview of experience levels of the superintendents and the CTO from each district. Additionally, Table 3.2 provides an overview of participant responses from the questionnaire.

Table 3.1

Participant Overview—Interview Data

School District	Role	Years in Education	Years Spent in Current Position
School District 1	Superintendent 1	33	2
	Chief Technology Officer 1	43	22
School District 2	Superintendent 2	29	8
	Chief Technology Officer 2	27	9

Table 3.2

Participant Overview—Questionnaire Data

School District	Role	Total Number of Responses	Total Number of Questionnaires Sent
School District 1	Principals	5	16
	Technology Staff	13	47
School District 2	Principals	1	9
	Technology Staff	9	24

Case Description and Thematic Analysis

To gain an in-depth understanding of how each superintendent influenced technology integration throughout the district, I conducted a within case analysis utilizing data from superintendent and CTO interviews as well as the questionnaire. I begin each case by providing an overview of findings from each school district. The main themes included throughout each within case descriptions are expectations, vision, communication, and modeling and implementation. The themes highlighted throughout utilized an a priori lens which were emphasized and connected to the theoretical framework.

School District 1

School District 1 was a suburban K–12 Texas public school and employs 1,900 individuals. At the time research was conducted, School District 1 had approximately 12,800 students, eight elementary schools, four junior high schools, three high schools, and one alternative education center. For technology purposes, every educator in the district utilized an Apple device, iPad or MacBook, for teaching, and students in the district were provided with an iPad every year for learning. To gain a better understanding of how Superintendent 1 influenced the district's 1:1 technology learning initiative, it was important to collect details about the superintendent's leadership experiences. The next section describes the superintendent's educational background and highlights the sub-themes that emerged from each case.

Superintendent 1: background. Superintendent 1 worked in education for 33 years and held various positions including a science teacher, coach, assistant principal, and assistant superintendent of safety and security. Ten of those years were spent in the classroom and coaching, and 23 of those years were spent in educational leadership roles. Superintendent 1 shared that he was in another district for seven years prior to joining his current district. At the time of the study, he was beginning his 26th year in School District 1 and his second year in the superintendent role. Superintendent 1 was also a graduate of School District 1. He shared that the 1:1 technology initiative was in place prior to him being selected as the district superintendent, although he had some involvement in the implementation process because of his previous role of being an assistant superintendent.

Expectations. Throughout the data collection process, rich narratives by participants spoke to the expectations Superintendent 1 had of educators and staff involved with the district's 1:1 technology learning initiative. By analyzing Superintendent 1's expectations and stories from district staff, three sub-themes related to expectations emerged: instructional support, professional learning opportunities, and collaboration among the technology team and curriculum and instruction team as shown in Figure 4.
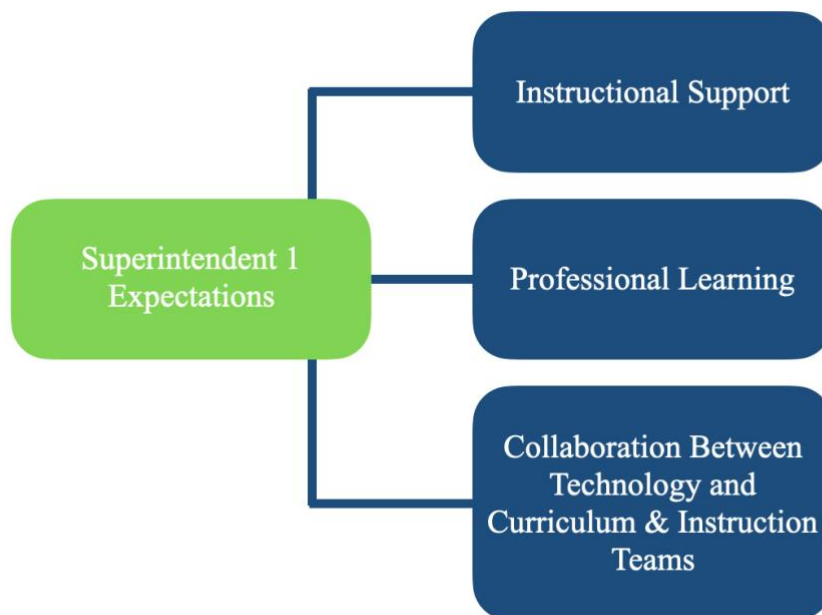

Figure 4. Superintendent expectation sub-themes.

First, the superintendent shared about how he sets expectations for utilizing technology every day throughout the learning environment. He described the importance of instructional support and his expectations for ensuring there is a Campus Technology Integration Specialist (CTIS) on every campus to assist with technology integration at all

levels. When asked about setting expectations for utilizing technology in learning

environments, Superintendent 1 commented:

> This building is always abuzz with teachers here learning in different fashions. And part of that is, it needs to be equal in the technology portion of it as well. We make sure that we have a CTIS at every campus, that we do those things to support them at the campus level too. And then they understand that technology integration is an expectation.

Superintendent 1 shared that his expectations for instructional support is one of the most

important aspects of the 1:1 technology learning initiative to ensure success. He stated:

> I want the iPad to be a support for the teacher and I want us to remember that instruction still happens with the individual and the teacher. What I want for CTO 1's team is to give teachers the tools and teach them how to use it effectively. Instead of just handing it to them and saying here is everything it can do, but how can they use it effectively in their classrooms related to hands on learning and relationship pieces.

Superintendent 1 described his expectations of technology integration as the "inspect

what you expect" model. He stated, "we have to keep pushing teachers to use technology,

to get better at it every year." Superintendent 1 continued to highlight expectations

throughout the interview process.

District 1 participants such as the CTO and technology team also shared their

perspectives on the ways Superintendent 1 set expectations for 1:1 technology

integration. When asked if Superintendent 1 had high expectations for utilizing the 1:1

technology initiative throughout the learning environment, CTO 1 responded, "he can't

see instruction happening without it, and he fully understands it's not just a device to pick

up occasionally, but it's definitely a tool." One principal shared in the questionnaire that

Superintendent 1 "utilizes technology through Zoom meetings, digital handouts, etc. to

model what he expects of us." One CTIS emphasized, "our superintendent works hand in

hand with the technology department and encourages teachers to utilize the resources

they have in the district." Gaining insight from individuals directly impacted by

Superintendent 1's leadership helped provide insight into how Superintendent 1's

instructional expectations are carried out and perceived by the team.

Another expectation highlighted throughout interviews, questionnaire responses,

and district documentation was the superintendent's emphasis on professional learning

experiences. Superintendent 1 explained his expectation that all district personnel engage

in professional development before receiving an iPad. He stated, "we aren't going to

hand it to somebody that doesn't even know how to use it." He also noted that his district

was "striving to get better each day" through professional learning opportunities.

Superintendent 1 commented:

> You know, teaching is a craft, like anything that you hope to improve upon every
> year. You should be striving to get better, and that's why we invest so much in
> professional development. Technology integration is the same way. I mean, it's a
> tool and a craft, and you have to keep striving to improve, because it evolves.
> How the kids learn, evolves. If we're stuck back in the 90s, then we're not going
> to get the results we're looking for now.

This statement showcases the emphasis he places on professional learning opportunities

related to perfecting practices through technology integration. Superintendent 1

highlighted and shared the one thing he feels like the district has done "exceedingly well"

is provide numerous amounts of professional learning for teachers.

The same feelings of Superintendent 1 investing in professional learning

experiences were reflected by CTO 1 and participants who responded to the

questionnaire. Remarking about Superintendent 1, CTO 1, who leads much of the school

wide professional learning initiatives stated, "he seeks to understand and ate up the

training we had about establishing our technology vision as a team. That didn't happen

before he was the superintendent. He made that happen. He really values what we do."

Also, principal and CTIS responses showed the same focus on professional learning

opportunities. Each one of them said there were many "resources" provided for staff and

"training" was conducted throughout the year to allow for a deeper understanding of how

to utilize the technology tools throughout the district. One principal commented,

"technology staff development is a priority in our district, and that starts at the top." A

CTIS shared, "He helps set those expectations by supporting us through professional

development in the summer and throughout the year." The responses from School

District 1 staff, highlight Superintendent 1 expectations for ongoing professional

development by all stakeholders to support the 1:1 technology learning initiative.

Additionally, professional learning expectations clearly were communicated and

emphasized in Superintendent 1's interview.

An additional expectation of Superintendent 1 was the importance of teamwork,

including the newly established partnership between the Curriculum and Instruction

Team and Technology Team. Superintendent 1 articulated his expectations and value of

teamwork among these departments. Superintendent 1 shared, "all of the meetings we

have are with the instructional team and the technology team and making sure those two

fit and are working together." CTO 1 commented that Superintendent 1's leadership was

"collaborative and inclusive" and shared that Superintendent 1 "pushes the importance of

working together as a team." CTO 1 shared an example of Superintendent 1's

expectations of teamwork, noting:

> He allowed us (the Technology Department and Curriculum and Instruction
> Department) to plan the administrator retreat together. And that was a big turning
> point, that we collaborated with instruction.

Superintendent 1 continued to stress the vital importance of the curriculum and technology teams "playing and collaborating well together." Superintendent 1 shared, "if they're divided, then we're not going to get anything accomplished. And they understand that." Additionally, participants continued to emphasize the critical role teamwork and collaboration have on the success of the technology initiative.

CTO 1 shared thoughts on Superintendent 1's commitment to collaboration within the technology department as well. CTO 1 remarked, "we have a certain routine going, we meet every week to talk about what is going on, what do we all want to see, and work on the vision he has as a superintendent." Another example of the superintendent's expectation of teamwork and collaboration was the narrative he provided on teachers learning from each other and the importance of building a team of educators who "get it". Superintendent 1 commented:

> Teachers learn so much from their colleagues when they collaborate and share ideas. For example, when they have a colleague right next door that has that, what we call teacher credibility…that got that street cred that we're all looking for, and they can show you how they did it in their classroom and how they incorporated it, you begin to see the success they all had, and it makes all the difference.

The examples and narratives above show the expectations Superintendent 1 has for his team. This includes leaders and educators in the classroom working together to transform learning for all students.

The conversations with Superintendent 1, CTO 1, and reflections of principals and other technology staff allowed for a rich understanding of how the superintendent sets clear expectations for technology utilization within School District 1. Beginning with instructional support, it was evident Superintendent 1 expects teammates such as the campus principal and CTIS to support technology integration as much as possible and

lead by example. The second expectation communicated by Superintendent 1 was the importance of professional learning opportunities made available to all staff. Additionally, the third expectation was the emphasis on collaboration between the technology team and curriculum and instruction team. Understanding the expectations of Superintendent 1 provides insight into the levels of technology utilization he envisions throughout the learning environment. The next section explores Superintendent 1's vision for technology implementation.

Vision. Interview questions and exploration of School District 1's website allowed for a deeper understanding of Superintendent 1's vision for technology implementation. While Superintendent 1 did not directly state a specific vision statement for technology, he explained that one of his goals for the year was to bring the team back together to craft a new vision for teaching and learning with technology. He mentioned that due to the changing needs of the district due to COVID-19, and the new leaders and staff on board, crafting a vision together would best serve the School District 1 community. Superintendent 1 shared his new goals for crafting a technology vision and four sub-themes related to Superintendent 1's vision emerged from data analysis. The four sub-themes are shown in Figure 5: trust, a positive and supportive culture, transformational learning, and preparedness.
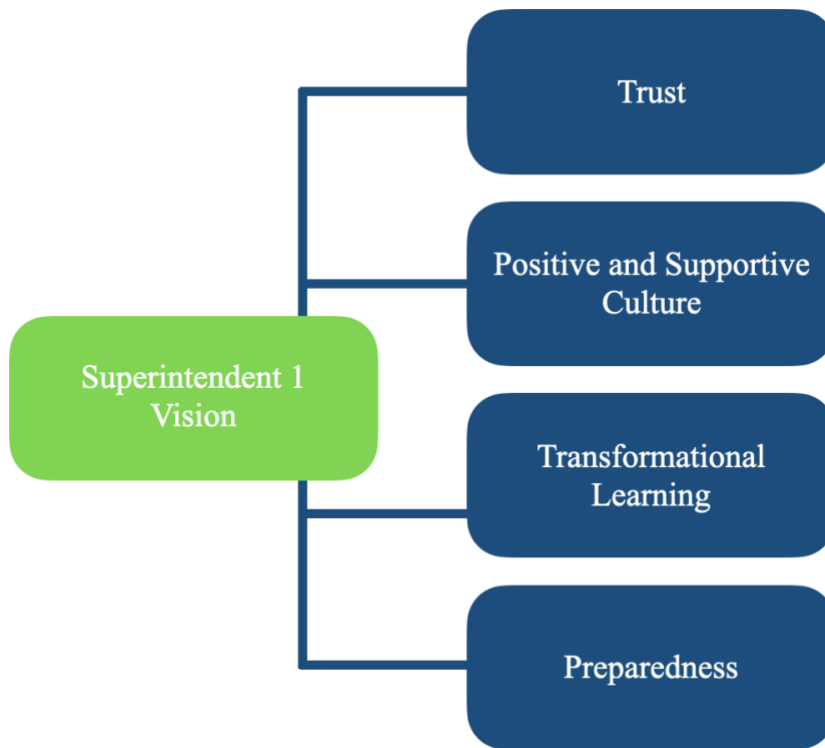
Figure 5. Superintendent vision sub-themes

One component of vision Superintendent 1 spoke to was developing trust within the team. He spoke about principal involvement and the need for principals to have a strong working knowledge and commitment to technology utilization. When asked how he determines his mission and vision for technology integration, Superintendent 1 commented:

> My job is certainly to set that mission and vision of the of the district, but a lot of it boils down to that campus principal, they have a big part to play at their campus. They're there every day with the teachers they have the pulse of the campus, you know, at their fingertips every day. And so, they're a big driver of that.

One principal provided insight to Superintendent 1's vision for technology by stating "he continuously emphasizes the importance of using technology for this generation of

learners and stresses the importance of not only educating students, but families as well."

Along with Superintendent 1's vision, principals and CTISs were also challenged with

understanding the vision and mission of their respective campuses and how technology

aligns with their goals. One CTIS shared, "We have our vision and mission posted on our

website and we visit it throughout the year to make sure we are making choices for our

school and district that support our mission." Another CTIS remarked, "Superintendent

1's vision is in our mission statement; Promote the use of technology and provide

technology support empowering teachers to prepare today's students for tomorrow's

challenges." Each participant understood and could articulate the meaning of

Superintendent 1's vision for technology utilization.

Additionally, CTO 1 shared how Superintendent 1 takes a humble and trustworthy

approach to ensuring technology implementation is happening at all grade levels.

Although the CTO 's roles and responsibilities lie in ensuring her team meets

Superintendent 1's expectations, she stressed the importance of Superintendent 1 holding

her and campus leaders accountable. She shared conversations she had with

Superintendent 1 and shared, "We need our principals understanding how technology can

impact the learning environment, and as the superintendent, you have to lead that." When

asked about how Superintendent 1 trusts the leadership of the technology team, CTO 1

shared:

> Superintendent 1 always says, I trust you. I said, I know. But I want you to know,
> I said because as much as you trust, there still needs to be some accountability.
> Not that I'm going to do anything wrong, but I always need an extra set of eyes to
> say, wait, let's stop and think about this. He has helped me stop and contemplate
> something that I have rushed through, and when I talked to him about it, I went,
> you know, I need to wait on that one. He's a good listener and yes, he very much
> trusts us.

It was evident with Superintendent 1 that building trust within the team was a significant component to ensuring stakeholders understood and valued his technology vision.

Another sub-theme identified when interviewing Superintendent 1 was the positive and supportive culture he cultivated throughout the learning environment. Superintendent 1 stated, "what all teammates need from me is a positive, inspiring person that is going to be supportive of them and that allows them to fail forward." Superintendent 1 elaborated on his leadership style sharing:

> They'll be the first to tell you, they know where their weaknesses are in their staff, with their campus, and they're going to work to make those and I've got to just give them the freedom to do so in the support of that, not micromanage that and allow them to do that. I do believe in that failing forward. I believe that struggle is good for us. That having an opportunity for somebody to kind of stretch their limits, if you will, you know, makes you reach new goals and new heights in your career or in your position. And I believe that we all have opportunities to improve, and I'll be the first one, I'll raise my hand higher than anybody. There's a lot for me to learn in this job, no doubt.

Superintendent 1 made it clear that his job is to ensure all principals and staff feel supported in their roles. While the comments were not directly aligned to technology implementation, understanding how Superintendent 1 leads his team provides clarity into his vision and expectations as a leader.

Strong leadership characteristics involving Superintendent 1 were present throughout participant responses. CTO 1 was asked to share insight into Superintendent 1's leadership involvement within the technology initiative and she commented, "If I had to describe somebody, as a servant leader, it would be him. Because he never wants to take credit. And he always wants to support, encourage, and push." CTO 1 shared additional leadership qualities of Superintendent 1, "He is like a quiet giant and seeks to understand." When commenting on how Superintendent 1's shared his expectations at the

beginning of year convocation, CTO 1 noted, "Superintendent 1 said that is what I commit to you, that I will love you and love our students. That I will serve you and I will care about you and your students." One technology staff shared, "He leads by example and lets us get on with it." Superintendent 1 was described as an "encourager" and CTO 1 shared the statement, "He is such an encourager and that has increased my energy. I don't mind working until three in the morning for him!"

Along with instilling a positive culture throughout School District 1, Superintendent 1 stressed the importance of mentoring new principals to ensure they felt supported. Superintendent 1 explained that mentoring helped principals, and their teams, understand the vision of the 1:1 technology learning initiative. Superintendent 1 commented:

> I have four new principals this year coming up and two from last year that I've made a goal of mine to mentor. I want to provide them intentional time when I can meet with them, and not just say, well, I'm going to be your mentor and y'all call me when you need me, but schedule intentional time when I can go and spend time with them. And help them be successful. Because being a first-year principal is a challenge. It's not going to be just me, but it will also be CTO 1 and the Director of Curriculum and Instruction, allowing them to have a role in that too. So that they see that curriculum, instructional side, technology side, the 1:1 initiative and how important that is.

Superintendent 1's reflection above shows his dedication to leadership development and his passion for ensuring that individuals are supported. In fact, technology was an emphasis in mentoring and providing expectations for new leaders by Superintendent 1.

As Superintendent 1 continued to highlight his vision for the 1:1 technology learning initiative implementation, transformational learning was another sub-theme that emerged from the data collection process. Superintendent 1 shared his feelings about the importance of students having the tools to be successful in the future. When asked about

technology implementation and what it means for students, Superintendent 1 commented,

"I do know that it is here to stay, and it is going to be a vital part of our kid's success in

the future and how they can use it effectively." Superintendent 1 reflected on his own

daughter's personal technology use stating, "I have seen in the last three or four years

how she's used her technology, and she's in love with the iPad, now I see how that's

transformed her learning." One CTIS shared about transformational learning, "He even

encourages our students to train the school board members on the new iPads."

Superintendent 1 emphasized the need for leaders and teachers to continuously learn and

be able to understand how the 1:1 technology initiative can best support transformation in

the classroom. Superintendent 1 stated:

> It takes a lot of time to get there and takes a lot of support. It takes time for a
> teacher to take some risks, because we all know that sometimes technology
> doesn't work like we want it to. But I think we all know how attached kids are to
> their technology, and where that is taking us. If we don't tap into that, we're never
> going we're never going to reach all the kids. How we can make sure that we are
> utilizing the technology in ways that engage them, in ways that they enjoy.

Superintendent 1 reflected on transforming instruction with technology and shared it is

"effortless dance and you know that teachers got it when they can blend teaching and

using technology and vacillate between the two." Additionally, Superintendent 1 realized

the importance of leveraging technology when the worldwide COVID-19 pandemic

impacted School District 1 in 2020.

Technology preparedness was critical as School District 1 began remote learning

during the COVID-19 pandemic. Teachers and students were not able to be onsite and

Superintendent 1 stressed the importance of being ready for such challenging times.

Superintendent 1 commented:

Of course, this year with COVID, in the way we had to begin school, we were fortunate that all of our kids already had some experience with the iPad. And that made a difference for us instructionally. I felt sorry for schools that didn't have any technology at all. By the time they got it, how many weeks did it take for everyone to learn how to use it. Our kids were way ahead of everybody else in that respect, because of the 1:1 initiative that we had.

Principals and CTIS's also commented on Superintendent 1's vision of continuously staying prepared to support instruction. One principal mentioned, "Being ahead of the game when COVID-19 happened is a testament to his commitment to the utilization of technology in the district." Additionally, a CTIS shared, "During the pandemic, our students systematically had full 1:1 access, from K–12, including providing hotspots for individual homes as well as campuses and buses providing Wi-Fi to those in need." Based on the reflections of participants, and vision set by Superintendent 1, it was evident that technology utilization was imperative to the success of the learning environment during the COVID-19 pandemic and for years to come.

Four sub-themes related to Superintendent 1's vision for technology integration emerged from data analysis: trust, a positive and supportive culture, transformational learning, and technology preparedness. Instilling trust with many leaders and educators was an important factor to ensure technology implementation was occurring throughout the learning environment. Also, Superintendent 1 encouraged staff to take risks while discovering new technology integration techniques to support teaching and learning. A positive and supportive culture also contributed to the effectiveness of the 1:1 technology learning initiative. Participants shared examples of the numerous amounts of support they receive throughout the school year and remarked on how much Superintendent 1 and CTO 1 encourage them. As Superintendent 1 emphasized throughout his reflections, ensuring a positive and supportive culture helped to bring new ideas and an innovative

learning environment for all members of School District 1. The next section highlights Superintendent 1's communication strategies and how he delivers his vision and technology utilization messaging to the School District 1 community.

Communication. The vision for technology utilization throughout the district was important for Superintendent 1, and communication of that vision by Superintendent 1 was critical to the success of the 1:1 initiative. School administration and teachers stressed the importance of needing to understand what the technology expectations were, know what the vision of the district technology implementation plan was, and hear how Superintendent 1 wanted the vision to be carried out. The main theme that emerged from Superintendent 1's communication of the technology utilization vision was ongoing communication.

Figure 6. Superintendent communication sub-themes.

As illustrated in Figure 6, the main theme that emerged from participant reflections was the value of ongoing communication of the technology vision by Superintendent 1. According to multiple questionnaire responses by campus principals and CTIS's, the communication of the technology vision by Superintendent 1 is "constantly ongoing throughout the year" and an "emphasis is always placed on ensuring technology is leveraged by the team in superintendent led meetings." It was critical for

Superintendent 1 to continuously share his vision for technology utilization to show the importance of the 1:1 initiative. One CTIS reflected on Superintendent 1's communication stating, "there is always a clear message on the use of technology within Superintendent 1's own communication." CTO 1 also spoke to the expectations leaders had on understanding Superintendent 1's vision for technology utilization. CTO 1 shared:

> It is almost an underlying expectation for all of our campus leaders to understand the technology vision for the district. The superintendent doesn't even really have to say it, or maybe he feels that my team communicates the expectations alongside him, but the team is definitely onboard and sees the way the superintendent communicates the importance of technology on a daily basis.

To echo the efforts of team communication shared by CTO 1 above, Superintendent 1 continuously spoke about ensuring both the technology and curriculum team shared the vision as well. Whether the communication was in meetings, or professional learning sessions, understanding how technology was to be utilized throughout the environment was important. Superintendent 1 remarked, "You communicate that vision by demonstrating and modeling it, and through the professional learning we provide. We have many opportunities to share." Superintendent 1 emphasized the effectiveness of the technology and curriculum teams and how they prepared educators to believe in the vision through multiple opportunities. Ultimately, Superintendent 1 believed ongoing communication is one of the main reasons why School District 1 continued to be successful transforming learning while using technology.

Modeling and implementation. To understand the influence Superintendent 1 had on the 1:1 initiative, it was important to discover the modeling and implementation practices of Superintendent 1. Reflections by Superintendent 1 emphasized how he interacted with technology day-to day to influence utilization among all users within

School District 1. Two sub-themes related to modeling and implementation emerged

from the data analysis process including: active learning and innovation.
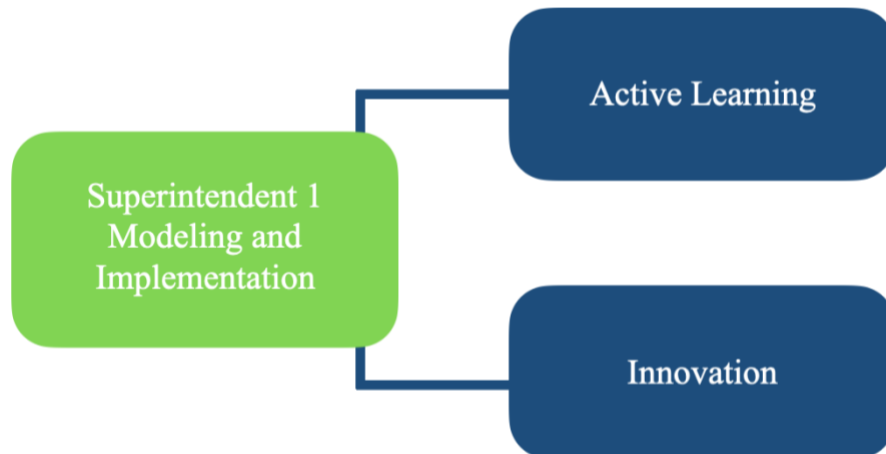
Figure 7. Superintendent modeling and implementation sub-themes.

Superintendent 1 reflected on the importance and meaning of being an "active

learner." Superintendent 1 shared, "I've got my iPad right here and I take it everywhere I

go." It was essential for Superintendent 1 to utilize a device and utilize it in front of the

team to show the importance of his technology vision and expectations. When asked if

Superintendent 1 models and implements technology in his day-to-day, CTO 1 shared,

> Is he going to lead the team through teaching the technology, not necessarily, but
> he absolutely wants to know how to use it and will jump right in. He will
> encourage the team to hop on a Zoom call or use the iPad in creative ways during
> meetings.

One participant reflected on Superintendent 1's technology usage and stated, "He leads

by example in his own technology use. He also seeks help and advice when trying to

learn something new." One CTIS shared, "Superintendent 1 uses technology during

walkthrough observations and is part of committees involved with technology." Also, a

principal reflected on Superintendent 1's technology use and said, "He speaks

knowledgeably about the seamless integration of technology into instructional planning,

he uses Zoom, social media, streams technology for conferences, etc." Although

Superintendent 1 admitted to not understanding every feature the device had to offer

instructionally, he emphasized the need to continue to grow in this area. Superintendent 1

commented:

> Well, that's a goal of mine is to try to get myself better at it, you know, I can do some of the basic things. But last time I was a principal, we weren't 1:1, so I didn't have necessarily have an iPad at the time. I didn't get an iPad until I became an assistant superintendent. So that is a goal of mine is to model the use of that much better. And also, for me to participate in staff development, they need to see me investing my time and efforts into those kinds of trainings so that they see an importance factor to that.

The emphasis Superintendent 1 placed on continuous learning showed his commitment to

the 1:1 initiative. Ultimately, Superintendent 1 was fully committed to understanding

how technology supported transformation throughout the learning environment and

wanted to model those efforts every chance he had.

Developing a mindset around using the tools every day supported Superintendent

1's goals of active learning to support technology integration at School District 1.

Superintendent 1's continuous learning encouraged others on the team to take risks and

always be willing to learn. Superintendent 1 stated humbly, "I'm not the expert in this by

any means. And I'll be the first to tell you that, but I'm working on it." Additionally,

Superintendent 1's technology modeling efforts helped to remind teammates to revisit the

importance of the technology vision and expectations throughout the school year.

Another key component of Superintendent 1's modeling and implementation of

technology in his day-to-day life was the continued innovation he expected in the 1:1

learning initiative. When asked about innovation and best practices using technology for

student success, Superintendent 1 stressed, "Everyone is wanting to do what is best for kids, and my job is to make sure our teams are working together to support instruction." Innovation within School District 1 instructional programs was another area Superintendent 1 commented on. He stated:

> Sometimes we buy a program, we think it's going to do very well, we utilize it, and we find out it's not providing the outcomes that we want. So, we move to something else. Most of the time that's some supplemental program that a kid can use, maybe in their free time or in a rotation and small group setting. But you know, we must use utilize our time wisely too. Because you can turn a kid loose on an iPad, and they spent 20 minutes and they haven't learned anything. You know, all those pieces have to fit together.

Being part of the innovative learning experiences and understanding how the tools supported success in School District 1 was critical for Superintendent 1. A questionnaire response from a member of the technology team stated that Superintendent 1 was very "proactive" and "visited our building often." Another participant shared, "He definitely supports the changing technology needs in the district and leads by example." Reflecting on the innovative practices of Superintendent 1, CTO 1 shared "He is not against looking at products or programs that will make the schools and classrooms instructionally sound. He wants to see and experience excellence and see positive change, and he models that." Superintendent 1 also modeled innovation outside of the School District 1 environment. CTO 1 shared that they presented together at numerous conferences on the topic of technology and innovating around student safety. CTO 1 commented, "It wasn't long before I started talking that he jumped right into the technology conversation and shared his passion of innovation." By maintaining and establishing an active role within the 1:1 technology initiative, Superintendent 1 set a culture of continuous growth and innovation among many School District 1 members.

As Superintendent 1 modeled and implemented best practices among his team, it was evident the technology initiative held a positive connotation throughout the learning environment. As one participant stated:

> Our superintendent is always asking questions about technology and trying to keep up with what the teachers are doing and how they feel about the technology. He listens and shares concerns if necessary. He is very involved with what the teachers and students are doing with the technology we provide.

The comment above is a testament to the influence Superintendent 1 had on the 1:1 technology learning initiative. Modeling effective best practices and sharing the same vision of technology utilization by Superintendent 1 showed to enhance morale, culture, and risk taking to stay innovative at all levels of learning.

School District 1 participants reflected several key components of Superintendent 1's involvement in the 1:1 technology initiative. Based on the participant responses, instructional support and professional learning opportunities were two of the major focal areas of Superintendent 1's expectations for successful technology implementation. Second, Superintendent 1's vision for technology utilization involved cultivating a transformative learning environment and a positive and supportive culture. Ongoing communication was the third component that was key for Superintendent 1's involvement in the 1:1 initiative. Finally, participants, including the superintendent, spoke to Superintendent 1's daily modeling and implementation efforts, which were active learning and innovation. In the next section, I report and discuss the results from School District 2.

School District 2

School District 2 is a suburban K–12 Texas Public School and employs approximately 1,000 individuals. At the time research was conducted, School District 2

had approximately 6,500 students, 5 elementary schools, 2 middle schools, 1 high school, and 1 transitioning academy. For technology purposes, every educator in the district utilized an Apple device, iPad or MacBook for teaching, and students in the district were provided with an iPad every year for learning. To gain a better understanding of how Superintendent 2 influenced the district's 1:1 technology learning initiative, details about the superintendent's leadership experiences were collected. The next section describes the superintendent's educational background and highlights the themes and subthemes that emerged in the data analysis process.

Superintendent 2: background. Superintendent 2 had worked in education for 29 years and at the time of the research study was beginning his 18th year as a superintendent. Prior to assuming the role of a superintendent, he held numerous positions such as a classroom teacher, director at a school of opportunity, career and technical education director, high school assistant principal, high school principal, and assistant superintendent for personnel. Superintendent 2 stated that he has held the superintendent role in three different school districts and was beginning his 8th year as a superintendent in School District 2.

The technology learning initiative at School District 2 was started under Superintendent 2's leadership and has evolved since 2018 into a full 1:1 technology learning initiative. Prior to being a 1:1 district, carts of iPads and MacBooks were available for students as check out devices in classrooms and were not assigned to them individually. Superintendent 2 saw a direct need to move School District 2 to a full 1:1 environment due to his experiences in his previous district. His past knowledge of curriculum and technology opportunities propelled him to instill the importance of a 1:1

initiative throughout the school environment. The focus of his first two years was to ensure School District 2 continued to innovate, and he believed that would not happen without every student and teacher having access to technology.

Expectations. The initial interview questions asked Superintendent 2 to provide a deeper understanding of his expectations for technology utilization by his district level team, educators, and students. Three sub-themes emerged from this section including: innovation, continuous learning, and leadership support. First, he made it clear from the very beginning that his goal was to work with leadership teams to modernize classrooms and determine what technology devices and programs were best for kids in School District 2. Second, Superintendent 2 spoke to the value of continuous learning and the importance of making sure learning is not impeded. Lastly, Superintendent 2 shared the expectations of district and campus level leadership support of the technology learning initiative.
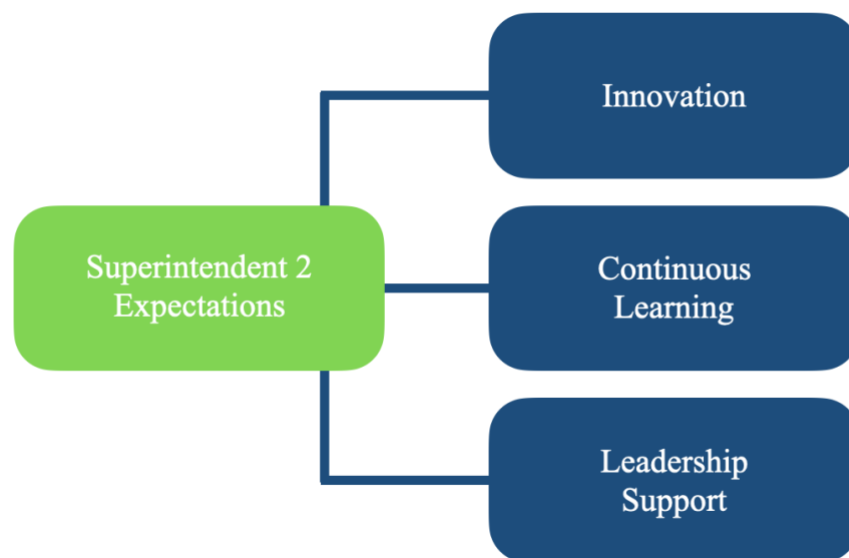

Figure 8. Superintendent 2 expectation sub-themes.

Superintendent 2 began the first two years of his superintendency in School

District 2 with high expectations of modernizing the current classroom environment and

infrastructure. Prior to stepping into the superintendent role, Superintendent 2 reflected

on his experiences of being in a 1:1 technology environment. An Apple device,

MacBook, was the main tool for teaching and learning in the district Superintendent 2

previously led school—an initiative that he actually began. Although he shared being

open to selecting an additional device for teachers and students in School District 2 when

he came onboard, he felt like Apple would be the best product moving forward.

However, it was important for Superintendent 2 to allow the teams to make the decision

about which device would be utilized. Superintendent 2 stated:

> When I came in the first year, what I told CTO 2 and our leadership is that we're
> going to spend a year looking at all sorts of devices, so we can determine what is
> best for our kids going forward. But what was a non-negotiable was that we stay
> where we are. And we continue to do school, the way we've done it, that we
> needed to be innovative.

Superintendent 2 continued to reflect on the opportunities of selecting a device for School

District 2 and the importance of setting technology expectations from the very beginning.

He shared an impactful story of how he asked the school board for two main items when

he was hired. Superintendent 2 stated:

> I walked into the district, and I said I need two things … and I told the board this
> when I interviewed … One I need a MacBook, because I'm an Apple guy. And
> that's the way I'll operate. Two, I need a good desk chair, because the one I
> inherited was broken. Those are the only two things I will need!

Superintendent 2 stressed the need of leveraging technology throughout the learning

environment, and he would do that by showing the device potential during his first two

years. Although this section concerns superintendent expectations, modeling and

implementation were critical to Superintendent 2's vision, which I discuss in a later section.

Recognizing the steps it took to select a technology platform for learning, Superintendent 2 wanted to ensure the district leadership team made the best decision for students. Superintendent 2 commented, "What we saw during that year, and what everybody else saw, was that there's a good, a better, and a best when it comes to technology products." After deciding on iPad as the main device for learning for School District 2, Superintendent 2 encouraged the team to continue innovating around goals for teaching and learning. CTO 2 commented on Superintendent 2's expectations for innovation stating, "Our superintendent spent an entire year working with me on what our goals were for learning, creating, and innovating." A Digital Learning Specialist (DLS) stated, "Our superintendent has established a 1:1 iPad initiative for our district. Every student from K–12 has an iPad, and he encourages innovation." Not only was Superintendent 2 supportive of an innovative culture at the campus level, but at the district level as well. A member of the technology team shared that Superintendent 2 was "very supportive of the technology department" and made it clear from day one that "technology will have a major emphasis in our district." Participant responses suggest that Superintendent 2 set expectations focused on innovation to ensure the best learning opportunities for students, educators, and leaders.

The second sub-theme that emerged from Superintendent 2's technology expectations was continuous learning. When asked to elaborate about technology integration and expectations for the team, Superintendent 2 shared that his number one expectation is that "learning does not stop." He stressed the importance of doing

80

whatever he can to ensure teachers' lives are easier, and learning is continuous in the classroom and throughout every environment in School District 2. To support that expectation, Superintendent 2 highlighted the support individuals dedicated at each campus to make continuous learning while utilizing technology a priority. The two positions Superintendent 2 referred to were the campus technician and Digital Learning Specialist (DLS). According to Superintendent 2, these two positions on each campus School District 2 play a critical role in supporting all stakeholders in the learning environment. Without the two positions working together to support technology integration, teachers are left with little support and could potentially become frustrated. Superintendent 2 commented:

> What we have on each campus is two different people. The first one is a technology person who's really on the technical side. Their job is to make sure iPads are fixed and take care of all the behind the scenes things. The other one is our Digital Learning Specialists. I want teachers having the support, so they're not worried about the what to teach, but how do I do this with technology. Their job is to make teachers lives easier from the standpoint of integrating technology and instruction in the classroom. It's not to evaluate them. It's not to say you're not teaching this well, is to say what are you trying to teach, let me make sure you you're using digital tools, and using the iPads to maximize the learning and here's how you do that.

Superintendent 2 added that recently there has been a concerted effort of collaboration to support educators between the campus technician, digital learning specialists, and district academic coaches. He recognized that the collaboration between these three support positions allowed technology integration to occur seamlessly and not be siloed. Superintendent 2 stated, "Everybody understands we're working the same way and working together continuously to support student achievement." By encouraging the three departments to work together, Superintendent 2 recognized the importance of being in sync and wanted to ensure the collaboration continued.

The focus on continuous learning extended further through the professional learning opportunities Superintendent 2 expected the district to provide. One DLS commented on continuous learning and shared, "Our superintendent has made it clear that he expects classroom teachers to become Apple Teachers in order to develop proficiency with the tools we are using in class." Another member of the technology staff shared, "Our superintendent continues to promote professional development that encourages teachers to take risks and provide students with opportunities for creativity, connection, and collaboration." Additionally, CTO 2 spoke in depth of the support Superintendent 2 provided for the technology department. CTO 2 commented, "He supports and inspires school board approval to support Apple Professional Learning for teachers and administrators." Professional learning reflections shared throughout many of the conversations spoke to the importance Superintendent 2 placed on supporting every individual in the district. Whether that support was through district level professional learning, or outside support such as leveraging Apple resources such as Apple Teacher and Apple Professional Learning, it was evident that Superintendent 2 valued supporting educators with multiple resources to ensure teachers and students were successful.

Along with continuous learning, leadership support was another critical component in Superintendent 2's expectations for technology integration. The two sub-themes of continuous learning and leadership support shared common characteristics. For example, Superintendent 2 stressed the importance of continuous learning to effectively understand technology integration, but the digital learning specialist support position was critical for teachers to ensure successful technology implementation in the classroom. Whether the leadership support was provided by Superintendent 2, CTO 2, DLSs, or

campus administrators, the superintendent's expectation for a successful 1:1 initiative was to provide an abundance of support for all stakeholders in School District 2. The common theme, an abundance of support, reflected on by participants spoke to the superintendent's expectations. CTO 2 shared, "The Superintendent said when we were going to go 1:1, that it was absolutely necessary to have a full-time digital learning specialist position on each campus." One campus principal commented, "He sets up supports for teachers, principals, and other by offering training, personnel, and leadership opportunities." Superintendent 2 shared,

> The expectation that I have as a leader is that we are going to use these and then I'm going to support you. I'm going to provide funds and provide training, and we'll provide folks from Apple to come in or Zoom, whatever we need to do to help you be successful.

As stated by a member of the technology team, "We have access to the tools, trainings, and support for all teachers to be successful in the classroom!" Educators and technology team members' responses suggest that Superintendent 2's support efforts enabled a positive district culture and morale, and demonstrated a willingness to take risks while leveraging technology throughout the learning environment.

Superintendent 2 clearly defined and articulated expectations throughout the data collection process. It was easy to understand how he as a leader set technology expectations through innovation, continuous learning, and leadership support. Along with the overwhelming responses his team had of his expectations, he also referred to technology expectations throughout his personal goals and vision. The reflections of how he determines his vision for technology and the experiences of others witnessing that vision, are shared in the following section.

Vision. Another important component in understanding how Superintendent 2 influenced the 1:1 technology learning initiative was to investigate the elements of Superintendent 2's vision for technology implementation. The three sub-themes that emerged from vision were trust and relationships, intentionality, and inspiration. Superintendent 2 spoke to many of these in other areas of the study but focused on the following sub-themes as his anchor for his technology vision.
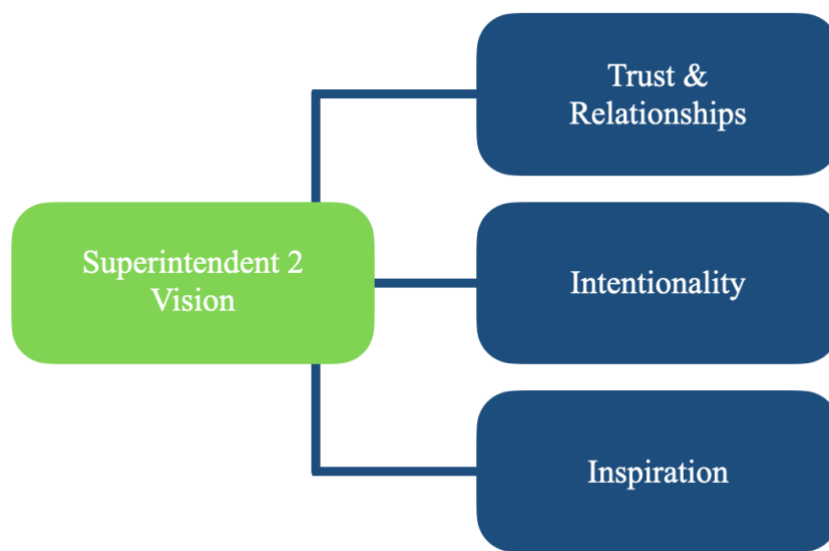
Figure 9. Superintendent 2 vision sub-themes.

The first theme that emerged from Superintendent 2's reflection of vision was his dedication to building relationships and trust among his team. In fact, one of the critical components of selecting a 1:1 learning device for School District 2 under Superintendent 2's leadership was the trust he established and maintain throughout the process. His goal was not to come into the district and tell the team what device they should use. Instead, he set out to build relationships with the team and create a trusting environment. Superintendent 2 commented, "I knew that if I allowed my team to get to that conclusion,

that this is the best technology to use, then there'll be more buy-in, and that is exactly what happened." When asked about creating a vision for technology implementation and the timeframe of when the device selection took place, Superintendent 2 commented:

> Hey, by December, everybody's going to have MacBook. everybody's going to have iPads, because people were still trying to figure out who is this guy? Right? Can we trust him? Is he going to be here two years and leave? Does he care about us? Is he trying to pad him his own resume, and that's just not who I am. I buy into the community, and I'm here to stay.

It was not long after that decision was made when individuals started to recognize the potential of the device for everyday productivity and learning. People began to recognize him as a leader of the community and one who provides support and opportunities.

Superintendent 2's vision of building trust within different departments also attributed to the success of the technology initiative. CTO 2 shared insight into the opportunities created for the technology team and curriculum and instruction team to collaborate and share best practices. CTO 2 commented, "It was not long ago that the superintendent went to the curriculum team and said the entire back to school professional development would be dedicated solely to digital learning support." CTO reflected on Superintendent 2's focus of digital learning being the driving force behind the strong collaboration the technology team and the curriculum and instruction team had, and still currently at the time the research was conducted. The collaboration efforts Superintendent 2 built between these two teams showed his dedication to growing relationships between multiple individuals in School District 2 to support student success.

Additionally, CTO 2 spoke to Superintendent 2's efforts of revisiting the vision for technology implementation. Although a district vision for technology was in place, Superintendent 2 decided to reestablish the focus on the technology vision to ensure the

leadership team was onboard. The leadership team along with the superintendent

attended an Apple Executive Briefing where they brainstormed, collaborated, and set a

foundation for technology moving forward. CTO 2 commented, "We went down to

Austin, which was so great, and the team did a wonderful job. We took administrators

and the superintendent recaptured the vision now that we were a 1:1." The Apple

Executive Briefing experience provided a new beginning and allowed Superintendent 2

the ability to design new strategies with his team as they moved forward. Furthermore,

the experience provided Superintendent 2 and the team an opportunity to build trust as a

new leadership team.

The second sub-theme that emerged from the vision around technology

integration was intentionality. As Superintendent 2 continued to reflect on the technology

vision, being intentional about device implementation was a major factor in the success

of the learning initiative. Superintendent 2 shared the initial process of beginning the 1:1

technology rollout. Superintendent 2 commented:

> Being intentional who we started with, we started with the swimmers, so we
> weren't wasting our time in technology support with people that didn't want to do
> it anyway. We spent our time with the doers that wanted to expand. So, we're
> going to start with the with the swimmers. And we're going to move the shark
> watchers and the flagpole holders, we're not mess with you right now, but
> eventually, we're going to burn that flagpole, and we're going to leave the island
> and go the new island. That is where we are now.

Superintendent 2's remarks towards the swimming analogy above showcased its impact

on his decision-making of selecting educators to be part of the technology initiative. The

swimmers, shark watchers, and flagpole holders were references to the types of

individuals who make up an organization and their feelings towards implementing

something new. Once the implementation plan was shared with the team, Superintendent

2 spoke to the excitement teachers had when they knew School District 2 would begin to

implement a 1:1 technology initiative through an application process. Superintendent 2

reflected on the first teacher who was awarded a classroom set of iPads stating,

> It was so cool because in her application she wanted to transform the way she
> taught. I walked into her room and handed her those 25 iPads the first day and she
> cried, and she was the first one and now she's a DLS. She's one of our leaders of
> teachers with technology.

The intentionality Superintendent 2 had for the technology initiative ultimately gained

buy-in of other educators. Superintendent 2 remarked, "I came into the district as the

Apple expert and less than two years later, everybody passed me up." Buy-in was

extremely important to Superintendent 2 and by being intentional and establishing a

strong foundation, this allowed for a successful technology integration experience within

School District 2.

Inspiration was the third sub-theme that emerged from Superintendent 2's vision

of technology implementation. Superintendent 2 shared his passion of being an

inspiration for members of his team and students within School District 2. Whether the

inspiration was directly related to technology integration or leadership in general, the

focus was always to encourage and support. Superintendent 2 commented, "Anything I

can do to inspire … my goal is to be the cheerleader and the inspiration for our folks to

keep doing what they're doing." One phrase Superintendent 2 shared aligned to his

overall vision of technology implementation. Superintendent 2 remarked:

> We're over the hump. You know, you got the long slow climb everybody's
> buying in, and what is this, is it just a fad? No this is real, and let's buy into it, and
> then then you start getting the downhill moment and you start really going good.
> And so, I'm filling the potholes and I'm making sure the road is wide enough.
> Then, I'm providing some encouragement and vision for where we're going
> moving forward.

Even though Superintendent 2 was humble in his approach when speaking about his vision and inspiration, himself and the team shared stories about his passion for transformational learning. One technology staff member commented, "Without a doubt, he is a technology driven leader." CTO 2 shared information on Superintendent 2 being selected as the Texas superintendent of the year, and runner up for national superintendent of the year. CTO 2 commented,

> During his acceptance speeches he shared a lot about his high expectations and vision for infusing technology because it's not going away. So, teaching students how to use it well, and having teachers supported to use it effectively has been his message, and so I really appreciate that.

Superintendent 2 shared, "If today's classrooms look like the classrooms in the 80s and 90s, then we're not doing our job. So that's not only me knowing my vision and my mission, but it's my passion." The reflections by the School District 2 team and Superintendent 2 spoke to the importance Superintendent 2 had on making a difference for students while leveraging technology.

Additionally, two additional visionary efforts by Superintendent 2 were reflected throughout the data collection process and are important to share as part of this research study. First, Superintendent 2 commented on the holistic vision for transformation in School District 2. At the time of data collection, Superintendent 2 had just shared his vision with a local community-based organization. Superintendent 2 stated:

> We define School District 2 in three words. I said, excellence, because everything we do is excellent. Innovative, everybody has an iPad. We want kids to have the latest and greatest tools so they can maximize their educational capacity. Then the third one was family. We're all family here we help one another. That culture was here before I got here, on the family side, maybe on the excellent side a little bit, but not on the innovative side at all. It wasn't because of the team; it was because there just wasn't vision.

Superintendent 2's vision carries on throughout the community and projects he

implemented within School District 2. The second effort worth mentioning was the

creation of a transitional academy in School District 2, which provides individual and

personalized learning opportunities for students in need. The transformational leadership

Superintendent 2 embodies impacts individuals on his team and speaks to his innovative

practices. CTO 2 shared:

> He started the academy because he knows there are students who traditional
> school and traditional high school does not meet their needs. Just that, to me,
> speaks to his vision, and his transformational leadership that he designs and
> creates opportunities to meet individualized and personalized needs. There are
> opportunities for students to use technology to enhance their learning experiences
> too.

While these two experiences do not directly speak to technology implementation per se,

they provided insight into how Superintendent 2 inspired his team and created

opportunities to showcase School District 2 in an innovative way. Superintendent 2's

visionary efforts exemplify how impactful has been as a leader who has influenced

technology integration to support student success. The sub-themes of Superintendent 2's

vision including, building trust and relationships, intentionality, and inspiration are a

testament to his contributions towards a successful learning environment.

Communication. An important component in understanding Superintendent 2's

influence within the 1:1 initiative was to explore the communication efforts of the

technology vision. Participants reflected on numerous ways Superintendent 2

communicated the importance of technology integration throughout the learning

environment. As seen in Figure 10, the two sub-themes found within communication

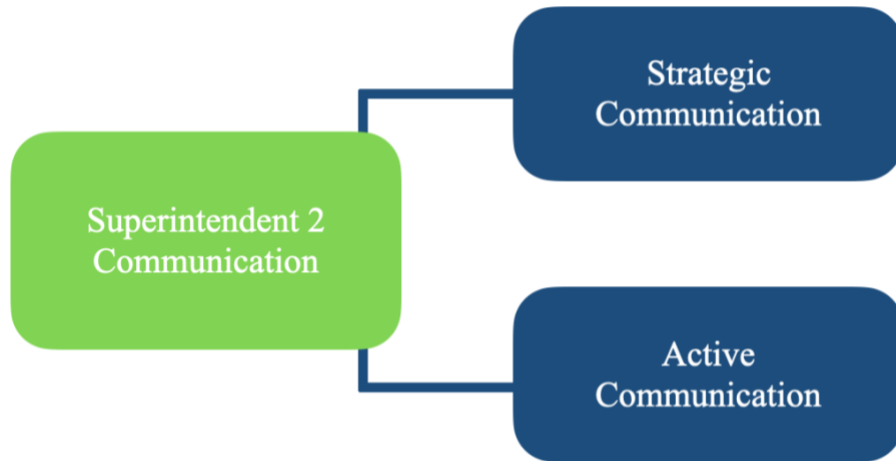were strategic communication and active communication.

Figure 10. Superintendent 2 communication sub-themes.

Beginning with strategic communication, Superintendent 2 emphasized the importance of communicating the technology vision through multiple avenues within the school district. For example, Superintendent 2 shared the vision of technology integration and expectations with many stakeholders in the community to ensure everyone understood and received the same messaging. When asked how Superintendent 2 communicates the vision, he remarked:

> I do it through district convocation, my blogs multiple times a year, through monthly administrator meetings, and other various way of communication. All the dialogue we have is always talking about how we can change and get better. The status quo is never okay. That's never going to be the case with me.

Additionally, a district technology staff member commented, "He also speaks about Apple technology utilization every time he is in front of the staff. He also makes sure that staff knows we have IT support and Digital Learning support on every campus." By leveraging multiple individuals such as CTO 2 and DLSs, Superintendent 2 strategically wove the technology vision throughout different environments in School District 2. Whether those environments were beginning of the year events, in individual schools, or

at district level meetings, Superintendent 2 made every effort to communicate the technology vision across the district.

The second sub-theme that emerged from sharing the vision of technology was active communication. When participants were asked how Superintendent 2 communicated the vision of technology integration, many reflected on his active efforts to instill the vision throughout everything he does. One DLS remarked, "Superintendent 2 communicates often through district level encouragement, media (local news) to share great things teachers are doing, and even has a district technology innovator of the year award." Also, CTO 2 remarked on active communication and sharing the vision stating, "When he has his one-on-one meetings with principals for sure. I think communicates with them about hiring people that have a growth mindset and that are willing to teach with technology." The communication strategies by Superintendent 2 speak to the passion he had to share the technology vision in others. Additionally, Superintendent 2 actively communicated with teacher, parent, and student cohorts to gain valuable insight about the changing needs and concerns of the district.

By communicating the technology vision with many stakeholders, CTO 2 shared, "The superintendent was able to take the voices from key stakeholders to help inform and make his decisions." Participant reflections about the communication theme addressed how Superintendent 2 influenced technology integration through multiple layers within School District 2. The next section explores how Superintendent 2 modeled and implemented his own technology best practices in his day-to-day environment.

Modeling and implementation. Along with expectations, vision, and communication, modeling and implementation were two major components of Superintendent 2's influence on the technology initiative. To understand how Superintendent 2 placed an importance on technology implementation, knowing how he utilized technology in his day-to-day workflow was critical. The two main sub-themes that emerged from modeling and implementation discussions were Superintendent 2's technology knowledge and being a technology advocate for all teams within School District 2.
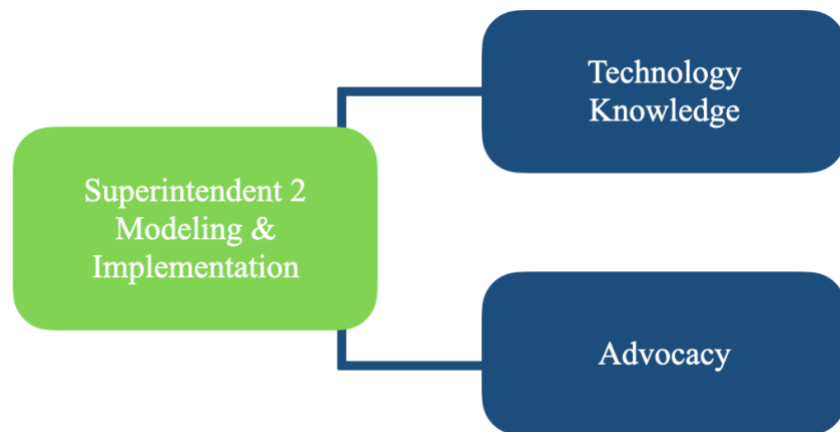
Figure 11. Superintendent 2 modeling and implementation sub-themes.

The first sub-theme frequently discussed during the data collection process was Superintendent 2's technology knowledge. During Superintendent 2's interview, it was evident that his understanding of how technology devices could enhance teaching and learning was well-defined. Superintendent shared a story of his first time walking into an administrator meeting in School District 2 and not even half of the leaders in the room were on a technology device; they were using notepads. Since Superintendent 2 was passionate about modeling technology usage in front of his team, during that same

administrator meeting he opened a Keynote presentation and began his discussions.

Superintendent 2 stated, "I'm giving a Keynote and they're like, what is a Keynote?!"

Superintendent 2 was referring to the Apple presentation application, Keynote. He

continued saying,

> By the end of that year, I took a picture and sent it to the Apple Development
> Executive. By the 11th month, I looked around the room and everybody except
> one person had a MacBook. It had taken them a year to not only go through the
> process and make a decision, but also to buy-in and learn.

Superintendent 2 began instilling his vision with leaders by modeling his expectations.

Additionally, other technology staff commented, "The superintendent uses

technology often when presenting to staff." CTO 2 shared, "Our superintendent is

knowledgeable of the 1:1 technology within the district and models it himself during

campus visits, meetings, and even community events." Superintendent 2 shared that he

even uses his iPad when visiting campuses to take pictures, notes, and capture great

learning experiences. Superintendent 2 stated, "I wanted to model it, get other people

excited involved, and then be able to let them run with it." By showing members of his

school district the possibilities of learning with technology as a leader, encouraged them

to follow in his path.

Individuals on the team followed Superintendent 2's lead and began to understand

the power of the device. Principals and other members of School District 2 began to

utilize their Apple devices for everyday use. A member of the technology team

commented, "All administrators are expected to use their iPads and MacBooks daily. He

also carries around his iPad when he visits campuses." A principal stated, "Wow! If I had

known 7 years ago where we would be today, I would not have believed the success we

have had." The opportunities Superintendent 2 created for leadership speaks to his

passion for others to recognize how technology supports student and teacher success. Additionally, Superintendent 2's technology understanding and awareness provided many opportunities to showcase the importance of technology integration throughout all learning environments.

The second sub-theme highlights Superintendent 2's advocacy of technology implementation for his leadership team, educators, and students. CTO 2 shared various examples of how Superintendent 2 supported the technology team's efforts with professional learning opportunities and multiple funding sources. CTO 2 stated, "He really helps support the resources and efforts and he's very good at showcasing and highlighting technology projects. He also gives time at board meetings and things like that, and highlights teachers and students who do really well." Also, CTO 2 spoke to the district wide technology conference held every year and shared that the idea of implementing the conference was all Superintendent 2's decision. CTO commented, "He's been so supportive of our digital learning expo, we have an annual event that he wanted us to create that could be the model for this area of how to do 1:1 and how to do quality technology integration with solid pedagogy." Additionally, a member of the technology team remarked, "Our superintendent also communicates well with our campus administrators and supports our Technology department with adequate funding and training." CTO 2 commented on professional learning efforts sharing:

> He supports and inspires school board approval to support Apple Professional Learning for teachers and administrators and the addition of Digital Learning Specialist positions for each campus. He encouraged the development of a teacher leader professional learning community, and he provides dedicated time for them to collaborate and encourages them to share.

Superintendent 2's advocacy and efforts to support his team showed his dedication and impact towards the 1:1 technology initiative.

To emphasize Superintendent 2's modeling and implementation efforts, teammates also commented on his focus on advocacy for transformational learning and student led experiences. Superintendent 2 shared:

> Everything used to be teacher centered. I'll just tell you when I first got it here was all about what the teacher was doing. Now, it has turned into an environment being truly student-centered and student content creation. It's about student achievement. It's about the teacher truly conforming and becoming or turning into a learning facilitator.

When speaking to student involvement with technology, a DLSs shared, "During campus visits, he interacts with students to ask them about what they're working on. He knows exactly what technology we're utilizing on each campus." Superintendent 2's focus on student success while leveraging technology helps leaders understand the importance of modeling too. CTO 2 shared, "Our superintendent meets with student groups to get insight on how 1:1 iPads supports and grows their learning." The excitement by the superintendent and participants during the interview process truly showcased the team effort put forth in the 1:1 technology initiative.

The expectations, vision, communication, and modeling and implementation strategies of Superintendent 2 highlight the leadership qualities he embodied. From instilling innovation throughout the learning environment, to influential technology leadership, effective integration takes an entire team to ensure successful implementation, but it begins with the superintendent as exemplified in School District 2.

As a result of the within case analysis, I was able to identify and describe the multiple ways each superintendent led their teams to successful technology integration

utilizing Apple technology. Participants provided thick, rich narratives into the involvement of Superintendent 1 and 2, which allowed me to develop emerging themes within each case. Additionally, the analysis showed how the study results aligned to the theoretical framework and addressed the main research and sub-questions.

Cross Case Thematic Analysis

To gain a better understanding of the influence the two superintendents had on 1:1 technology learning initiatives, I conducted a cross-case analysis. Exploring the different experiences of the two superintendents in the cross-case analysis allowed me to compare superintendent characteristics to see how each leader impacted their school district's technology initiative. In the next section I discuss the most impactful themes discovered from a comparison of the two participant superintendents leading 1:1 technology learning initiative. The cross-case analysis highlighted that both superintendents were successful leaders of 1:1 technology initiatives due to three emerging themes. Figure 12 showcases the cross-case themes emerging from both cases: capacity building, transformative practices, and a nurturing culture.

Capacity Building

- Employ district and campus support positions
- Encourage collaboration between technology and curriculum teams
- Involve principals in decisions
- Provide multiple professional learning opportunities

Transformative Practices

- Communicate technology expectations and share how innovation drives student success
- Create opportunities for new instructional strategies aligned to technology integration
- Focus on student driven experiences

Nurturing Culture

- Instill trust within the learning environment
- Support and encourage a growth-mindset
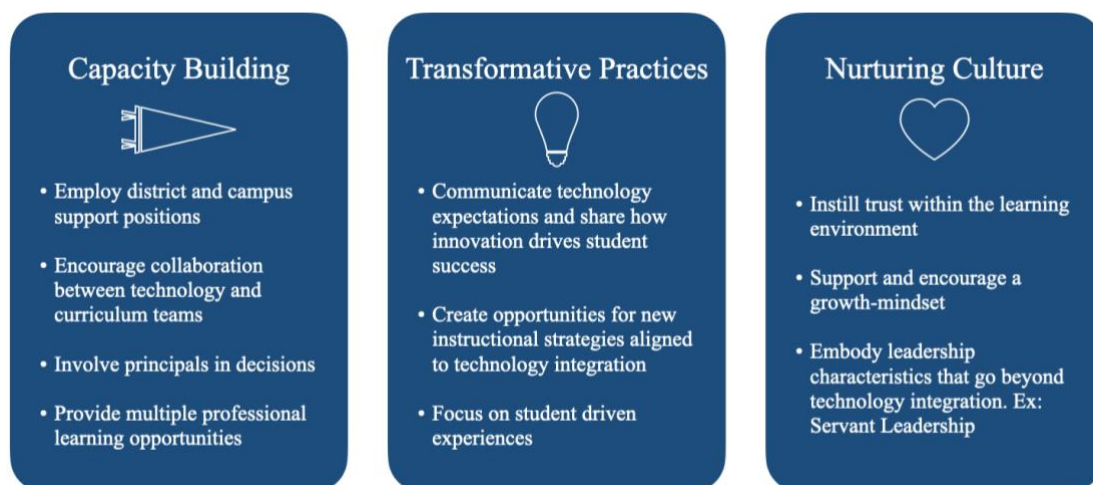- Embody leadership characteristics that go beyond technology integration. Ex: Servant Leadership

Figure 12. Cross-case analysis major themes.

Capacity building. Capacity building among staff members emerged as both superintendents led their school districts to high levels of transformation. Superintendents from both cases spoke directly to the importance of having multiple support structures in place to ensure successful technology implementation occurred. Whether the support structures were teammates such as Digital Learning Specialists or Campus Technology Integration Specialists, or opportunities for professional learning experiences, participants from each school district recognized the abundant number of resources provided to support all stakeholders.

Having multiple individuals at the district level and campus level supporting technology integration conversations assisted all stakeholders in the 1:1 initiative's success. Both superintendents noted the incredible teams they each had at the district level who assisted in carrying out daily expectations of utilizing technology. Reflections by participants highlighted the continuous efforts put forth by all individuals on the technology teams. Specifically in Case Two, the superintendent spoke to the efforts it took to ensure there was an individual on each campus that supported the device troubleshooting and management needs, a campus technician, and a Campus Technology Integration Specialist, which supported instructional needs. This aided collaboration efforts for both individuals working together to support leadership, educators, and students while they leveraged technology. Although Case One did not employ a campus technician for every campus, Superintendent 1 spoke to the technology team having multiple individuals who contributed services to each campus.

Superintendents noted the importance of the technology and curriculum departments being critical players in supporting teachers and students in the classroom

with technology integration. Despite challenges of collaboration efforts in the past, findings from participants in both cases noted the improvements each department made to continue working together to support instructional technology. Also, each superintendent placed an emphasis on making sure the technology team and curriculum teams were on the same page.

Superintendents 1 and 2 noted that leadership involvement at the principal level was critical to the success of the 1:1 technology initiative. As superintendents set their vision and expectations for technology integration, many participants noted it was imperative for all principals to encourage active involvement throughout school environments. Also, superintendents spoke to the importance of modeling and implementing technology in their own day-to-day workflows and noted principal modeling in front of educators and students was crucial as well.

Professional learning opportunities were found to be key factors across cases as noted by all participants. Both superintendents found Apple Professional Learning, an Apple service to help support technology integration, as an integral component to supporting leadership, district level staff, and campus staff. Additionally, CTOs in both cases spoke to the abundance of opportunities everyone had for understanding new ways in incorporate technology into the learning environment. These efforts were supported and carried out by both superintendents. The evidence of capacity building throughout both cases spoke volumes to the leadership capacities each superintendent possessed.

Transformative practices. As prominent as technology was in both school districts, participant voices noted a strongly communicated vision of transformative practices by the superintendents. Many participants from each case shared that the

superintendents believed using 1:1 technology impacted learning, and technology integration should continue to be a focus of each district. Superintendent 1 and 2 each reflected on opportunities to communicate the technology vision with the team, and emphasized the need to keep all stakeholders updated throughout the school year. Any opportunity Superintendent 1 and 2 had to communicate the importance of technology integration, it occurred. District-wide kickoffs, administrator meetings, professional learning communities, and school district website artifacts were just a few places each superintendent communicated the importance of utilizing technology to enhance student success.

Also, participant data showed that the superintendents themselves spoke to the expectations of high-quality instruction while integrating technology into the classroom. Superintendent 2 noted that leading School District 2 would never be the "status quo" and that always works to create educational opportunities for students. Both superintendents spoke to the excitement of seeing students create products to transform learning. Superintendent 2 noted numerous times how much he enjoyed walking into classrooms to see students creating with technology and "totally understanding the content." Additionally, Superintendent 1 responded with the same sentiments about the importance of innovation and transformational learning. He shared examples of students smiling and displaying their love for learning when creating with a device, and to him that was transformative learning. Participants recognized the expectations superintendents had for transforming learning environments by the emphasis each of the superintendents placed on understanding the 1:1 initiative.

Nurturing culture. One of the most prominent themes appearing across both cases was the nurturing culture superintendents exhibited throughout the learning environment. Participants could not say enough about the trusting and positive culture each superintendent encouraged when individuals utilized technology. In fact, both CTOs shared reflections on how their superintendent focused on instilling a growth mindset throughout the school community. Taking risks when integrating technology, or trying something new for the first time, was encouraged by superintendents and their leadership teams. Both superintendents shared the importance of growing as leaders and educators to support student achievement, and technology would be the tool to assist those efforts.

Furthermore, many participants reported each of the superintendents had outstanding leadership characteristics aside from utilizing technology. Specifically, CTO 1 spoke to Superintendent 1 having a servant's heart and was willing to support any initiative even when technology was not the focus. CTO 2 shared Superintendent 2 was a transformational leader even throughout the community. Throughout interviews with the CTOs, they each noted how much they appreciated the superintendents support and excitement around technology integration. Questionnaire responses from both cases reflected on how amazing it was to have leaders who "get it" and assist with transforming learning while leveraging technology.

Discussion

This qualitative multiple case study explored superintendent involvement and the impact it has on the success of a 1:1 technology learning initiative. Current research indicates there is little evidence on how leaders, specifically superintendents, influence technology utilization within the learning environment (Hsu, 2016; McLeod et al., 2015;

Vyas, 2020). As superintendents lead the charge for transformation within a school district, communication of technology expectations and having a clear vision is necessary (Brown & Jacobson, 2016; McLeod et al., 2015). In fact, the findings of this study are significant due to the vast amount of technology devices utilized in many schools across the world (Consortium for School Networking, 2018). The results of the study lead to several key findings about superintendent involvement within a technology initiative and the characteristics exhibited by leaders in two K–12 public school districts. In this section I provide a discussion of findings related to the theoretical framework and align the study results to current literature by highlighting key findings.

Connections to the Theoretical Framework

The involvement of each superintendent in their respective 1:1 technology learning initiatives show evidence of findings aligning to the study's theoretical framework, the Transformational Leadership Model by Bass and Riggio (2008). The model includes four main components including: idealized influence (II), inspirational motivation (IM), intellectual stimulation (IS), and individualized consideration (IC). Each component of the model demonstrates potential key characteristics leaders should possess if looking to transform learning environments. Early research indicates that leadership is either transactional or transformational, but outcomes involving innovation and creation begin with transformational leadership (Bass & Riggio, 2008; Burns, 1978). Now more than ever, transformational leadership is critical in professional settings to successfully initiate and influence change (Avolio & Yammarino, 2013). By looking at the four components of the Transformational Leadership Model and making comparisons to

superintendent qualities from this study, I was able to understand how each leader influences the success of the 1:1 technology learning initiative in their school district.

Participant interviews and responses from questionnaire data showed evidence that both superintendents from School District 1 and 2 possessed leadership qualities aligned to the Transformational Leadership Model (Bass & Riggio, 2008). Table 3.3 outlines superintendent characteristics and the specific transformational leadership components identified from the research findings. Additionally, the answers to the study's primary research question and sub-questions showed emerging themes that connected to the Transformational Leadership Model (Bass & Riggio, 2008). As superintendents lead their teams through successful technology implementation efforts, it is important to highlight which components of this study's framework assist with transformation.

Table 3.3

Themes of Superintendent Leadership Characteristics Aligned to the Theoretical Framework: Transformational Leadership Model

Participants	Expectations	Vision	Communication	Modeling & Implementation
Superintendent 1	II, IM, IC	II, IM, IC	II, IM, IC	II, IM, IC
Superintendent 2	II, IM, IS, IC	II, IM, IS, IC	II, IM, IS	II, IM, IS

The study's findings indicate Superintendents 1 and 2 demonstrate high levels of transformational leadership throughout all four components of the theoretical framework and they lead their teams through diverse leadership styles. While they have varying leadership styles, both superintendents share leadership similarities that influence success in their 1:1 technology learning initiatives.

Both superintendents display behaviors of idealized influence across all major themes of the study (expectations, vision, communication, modeling and implementation). Beginning with idealized influence, Superintendents 1 and 2 both serve as role models for others in their districts. Individuals admire them for their ability to lead and adapt to challenging situations. One key component of idealized influence is having the ability to provide a sense of vision and mission as a leader. As confirmed by Anderson (2017), when leaders demonstrate idealized influence by committing to a clear vision and mission, greater opportunities for transformation in the classroom occur. Data from both cases, show that Superintendents 1 and 2 both regularly communicate the importance of the vision and mission of technology integration for principals, directors, teachers, and students. Results of this study also confirmed the opportunities teammates have to connect with each superintendent to share innovation and best practices. Additionally, members of the team trust and respect decisions, and findings confirm both superintendents have high levels of respect throughout their organizations.

Inspirational motivation is another behavior from the theoretical framework that both superintendents possess. Positivity, charisma, and enthusiasm are several characteristics leaders embody within inspirational motivation, and the results of this study show Superintendents 1 and 2 cultivate positive relationship experiences and motivation within their learning environments. They also share learning achievements related to successful technology integration and exhibit an innovative team culture (Bass & Riggio, 2008). As devices are utilized within schools, inspirational motivation by superintendents is critical to the buy-in and success of the learning initiative.

Furthermore, behaviors aligning to the emerging themes show a strong influence of inspirational motivation by both superintendents.

The two remaining components of the framework, intellectual stimulation and individualized consideration also are evident in the results of research study, although the two superintendents embody and enact these characteristics differently. Intellectual stimulation involves leaders engaging in problem solving, creativity, and allowing members of the team to take risks without judgement (Bass & Riggio, 2008). Using intellectual stimulation, leaders encourage ideas and values and approach opportunities with a solution-oriented mindset. The results of this study confirm Superintendent 2 favors intellectual stimulation behavior when it comes to technology and innovation within the district environment in all emerging themes of the study. One example from Superintendent 2 that was aligned to intellectual stimulation shows Superintendent 2 effortlessly moving the needle with technology implementation and innovation. Due to his prior experiences working in a 1:1 environment, he understood what it takes to be successful with technology integration. Additionally, Superintendent 2 shared his personal passion for keeping up with the latest technology trends, which assisted in innovation in his professional setting. Superintendent 2 empowers his team to take risks with technology integration and move beyond the status quo. Superintendent 1 admitted to making it a goal to understand technology integration at a more innovative level by participating in professional learning activities when possible. By doing so, this would help Superintendent 1 connect the dots between technological possibilities and leading his team towards higher levels of transformation.

While Superintendent 1often modeled intellectual stimulation, the most prominent behavior of his transformational leadership style is individualized consideration. The results of this study highlight Superintendent 1's efforts to knowing his team, community, and students. Coaching and mentoring individuals on a team is one of the main factors of intellectual stimulation, and the results of this study provide examples of Superintendent 1's willingness to lead with a supportive, mentoring approach. In fact, Superintendent 1 remarked that his main goal at the time of the study was to mentor and support principals to the best of his ability. By doing so, principals would understand and be able to implement Superintendent 1's technology vision and expectations. Superintendent 2 also exhibited behaviors of intellectual consideration by constantly communicating the technology vision for all stakeholders. When multiple individuals understood the expectations and vision of the technology initiative, Superintendent 2 felt confident in his ability to support his team's needs through technology integration. Although the components of idealized influence and intellectual stimulation favor each superintendent in different ways, Superintendent 1 relied more heavily on the characteristic of individualized consideration and Superintendent 2 on intellectual stimulation.

Research conducted in this case study found that Superintendents 1 and 2 possess behaviors aligned to the Transformational Leadership Model (Bass & Riggio, 2008). Through superintendent technology expectations, vision, communication of the vision and mission, and modeling and implementation, the findings confirm the critical need of a transformational leader to lead a 1:1 technology learning initiative in a school setting. Ultimately, superintendents who apply transformational leadership behaviors for their

teams can hope to impact change and influence technology integration throughout the

learning environment to enhance teaching practices and student success.

Findings

From the data collection and analysis of this qualitative multiple case study,

including within and cross case analysis as well as framework analysis, I identified four

key findings related to superintendent involvement in a 1:1 technology learning initiative.

The study's findings and cross-case analysis as highlighted above answer the primary

research question. Additionally, the within case analysis addresses the specific

involvement of the superintendent in the 1:1 initiative and the sub-questions of the study

aligned to superintendent technology expectations, vision, communication, and modeling

and implementation. The results of this study revealed four significant findings:

- Finding 1: Superintendents set high expectations for building capacity through support team collaboration and professional learning opportunities;

- Finding 2: Superintendents' vision for technology integration includes developing a growth-mindset and positive culture, which enhances technology integration by all stakeholders;

- Finding 3: Superintendents actively communicate their technology vision throughout the school year to reaffirm the importance of technology integration; and

- Finding 4: Superintendents model technology usage in their day-to-day practices, which encourages others to follow.

In the following section, I present a discussion of each finding, and conclude with

implications of these findings for specific audiences.

Finding 1: Superintendents set high expectations for building capacity through

support team collaboration and professional learning opportunities. Both

superintendents from each case explained the importance of collaboration between individuals who support the district-wide technology initiative. This includes the technology team, curriculum and instruction team, and campus leadership such as the principal and assistant principal. Superintendents 1 and 2 both set expectations for their teams to ensure they are in sync, working towards the same technology and instructional goals (Mirra, 2004). Participant data reflected strong encouragement from their superintendent to ensure each team understood how technology can support transformation in the classroom.

Additionally, Superintendents 1 and 2 stated the importance of having technology support at the district and campus level. This includes technology integration specialists who focus on supporting leadership and teachers with effective technology integration best practices in the classroom. As the literature confirms, technology coaches assist with transformation and are change agents for the learning environment (Ertmer & Ottenbreit-Leftwich, 2010; Jackson, 2020; Stanhope & Corn, 2014). Furthermore, to meet the demands of implementing technology into the curriculum, results show that support teams require multiple professional learning experiences. Superintendents from both cases highlighted the critical need for resources to support themselves and their own teams (Sterrett & Richardson, 2019). Examples include internally led professional learning sessions as well as external support structures such as Apple Professional Learning coaching.

Finding 2: Superintendent's vision for technology integration includes developing a growth-mindset and positive culture, which enhances technology integration by all stakeholders. Actions of Superintendents 1 and 2 within the technology initiative

displayed high levels of transformational leadership behaviors. The research of Bass and Riggio (2008) confirm that individuals possessing leadership styles from the four components of the Transformational Leadership Model led to effective change strategies. In the context of this study, both superintendents displayed many behaviors from the Transformational Leadership Model (Bass & Riggio, 2008) in the 1:1 technology learning initiative.

Additionally, the results of the study confirmed stakeholders felt the support of their superintendents and both leaders encourage a growth-mindset. Existing literature provides insight into the significance of leadership support at the district and campus level to enhance transformation (Chou et al., 2012; Helterbran, 2010). Superintendents 1 and 2 encouraged taking risks when implementing technology and offer a trusting culture for educators. In fact, participants from both cases indicated their superintendent demonstrated trust throughout the learning environment. These behaviors result in positive outcomes as educators leverage technology to enhance student success.

Finding 3: Superintendents actively communicate their technology vision throughout the school year to reaffirm the importance of technology integration. While creating a vision specific to technology integration is important for superintendents, this study highlights that ongoing and active communication of that vision assists stakeholders in understanding the importance of technology utilization (Bird et al., 2013). For Superintendent 2, ongoing communication was key to ensuring the technology and curriculum teams supported the goals of the campuses. Superintendent 1 displayed another approach by mentoring leaders and coaching them through the technology expectations within the district. Superintendent 1 also leaned on his CTO for guidance on

how to support campus leadership with technology expectations. Although each leader varied in communication styles, the key takeaway is that all stakeholders understand and receive a consistent message throughout the school year.

Finding 4: Superintendents model technology usage in their day-to-day practices, which encourages others to follow. This study addressed an area of inquiry least represented in the literature by exploring how superintendents lead by modeling technology utilization in their day-to-day practices. Vyas (2020) reported that superintendent and principals must empower students in schools through technology mastery so they can thrive in today's society, which confirms the importance of leading by example. Participant data from this study showed the importance of leadership within technology initiatives and confirms the research of Vyas (2020). Additionally, the work of Waters and Marzano (2006) discovered when leaders focus on effective district practices and instructional goals, and support effective leadership responsibilities, success is demonstrated throughout the learning environment. While the research of Waters and Marzano (2006) was not specific to a 1:1 technology initiative, findings of this study align with the importance of leaders being actively involved in any initiative to show successful outcomes.

Participants, primarily each CTO, addressed the need for their superintendents to hold teams accountable for technology integration. For example, the directors within the technology department led principals and other administrators through professional learning activities focused on technology implementation, but it was ultimately up to the superintendent to model best practices and set expectations for all stakeholders (Sterrett & Richardson, 2019). Superintendents 1 and 2 displayed active involvement of

technology integration in several different ways. First, they both used their devices anytime they are in front of district administrators and school leadership teams. Secondly, both utilized technology in day-to-day activities such as campus walkthroughs, virtual meetings, and when communicating with different stakeholders such as parents and school board members. Also, Superintendents 1 and 2 placed an emphasis on their own professional growth and continuous learning. They participated in professional learning sessions throughout the school year and value learning new innovative ideas to transform their learning environments.

Overall, the findings of this study illustrate the key components and best practices of superintendent involvement in a 1:1 technology learning initiative. Key findings include; superintendents set high expectations for building capacity through support team collaboration and professional learning opportunities; superintendent's vision for technology integration includes developing a growth-mindset and positive culture, which enhances technology integration by all stakeholders; superintendents actively communicate their technology vision throughout the school year to reaffirm the importance of technology integration; and superintendents model technology usage in their day-to-day practices, which encourages others to follow. Also, findings suggest that superintendents who possess leadership behaviors aligning to the Transformational Leadership Model (Bass & Riggio, 2008) are influential in impacting successful technology integration. Furthermore, provided below are implications and recommendations to assist in understanding the influence superintendents have on a learning initiative and to support further research.

Implications

The data collected in this multiple case study provides participant reflections of superintendent involvement while leading 1:1 technology learning initiatives. Responding to the lack existing research on superintendent involvement within technology environments, this study provides school leaders with key insight into how two superintendents helped cultivate successful 1:1 technology initiatives in their districts. The findings from this study have implications for superintendents, educational leaders such as technology directors and campus integration specialists, principals, and Apple Education employees. In the following section, I provide a discussion of these implications.

Superintendents

Superintendents in today's society are responsible for leading technology rich learning environments and findings of this study confirm leadership involvement can lead to success of a technology initiative (Keengwe et al., 2008). Whether the involvement is through modeling and implementation of day-to-day practices, or communicating a strong vision for technology implementation, superintendents should consider active involvement in the technology initiative to enrich transformation throughout the district. Study results confirm that leaders such as the CTO, technology integration coaches, and principals, are more inclined to effectively integrate technology when the superintendent is supporting their efforts. This includes being active and leading technology conversations, modeling technology usage throughout daily activities, and understanding possibilities of how the 1:1 initiative can transform the learning environment.

Educational Technology Leaders

Technology directors and integration coaches are change-agents for educators who implement technology in the classroom (Jackson, 2020). These individuals set the foundation for teaching others how to successfully integrate technology to help assist with a variety of needs including device support and curriculum ideas. This study's findings argue for the need for educational technology leaders to include district and campus leaders such as the superintendent and campus principals into the daily practices of technology integration. This includes sharing transformative lesson ideas, highlighting student created products, and offering suggestions on how leaders can continue to innovate using technology. Results from this study confirm educational technology leaders are a critical layer to the transformation within a 1:1 technology learning initiative and provide proactive support to engage leaders through new, best practices implementing technology.

Principals

Current literature addresses the impact principals have on implementation of technology at the campus level and confirms the need to collaborate with technology leaders to ensure technology integration is effective (Brown & Jacobsen, 2016; Pautz & Sadera, 2017; Vyas, 2020). Results of this study confirm principals feel supported when their superintendent values the efforts they are making towards technology integration at the campus level. It is important for principals to communicate with superintendents and technology directors to express the technology needs they may have on their campuses. For example, additional resources or devices may be needed to best support educators and students with teaching and learning efforts.

Apple Education Employees

With the knowledge gained from participants in this study, educational technology professionals working at Apple have the opportunity to share best practices with other leaders in similar school environments. Although findings provide insight into only two public school settings, an emphasis is placed on superintendent involvement levering Apple technologies and can support conversations with other school leaders. Additionally, as Apple Education looks to create resources for educators leading 1:1 technology initiatives utilizing their devices, it is imperative to provide supporting documentation indicating current research findings.

Summary and Conclusion

In today's society, learning environments are filled with technology devices more than ever before and the need for leadership guidance is critical. Not only is the guidance critical to the success of the 1:1 technology initiative, but involvement by the superintendent is also crucial to witness transformation in the classroom. Without the involvement and influence of leadership, schools are at risk of wasting thousands of dollars and the chances of devices sitting on shelves are high. Research indicates that when principals or technology directors provide a vision for technology implementation, higher levels of transformation are exhibited (Brown & Jacobsen, 2016; Hsu, 2016; McLeod et al., 2015; Vyas, 2020). With the lack of literature specifically on superintendent involvement in a 1:1 initiative, this study shared best practices and insight into how influential leaders could be in district-wide technology initiatives.

This qualitative multiple case study intended to understand the involvement of superintendents and the impact they have on a 1:1 technology learning initiative. To gain

deeper knowledge on how each superintendent interacted with the technology initiative, I included multiple participant groups. Interviews allowed Superintendents to share examples of how they set expectations and determined the vision for technology implementation throughout the school district. Additionally, interviews allowed for thick, rich descriptions into the day-to-day involvement of superintendents within the technology initiative. Interviews of the chief technology officers allowed insight into their perspectives of superintendent involvement and confirmed ongoing collaboration to ensure technology integration success. Also, I collected data using a questionnaire and gained further insight from technology integration coaches, principals, and additional technology staff within the district. I conducted a within and cross-case analysis to identify key findings and aligned emerging themes to the study's theoretical framework. Results of the study revealed that active involvement of superintendents, including technology leaders and principals leads to a positive and successful experience implementing 1:1 technology.

With the increase of technology devices in schools, educational leaders must consider how to best support their principals, district staff, educators, and students through technology integration efforts (COSN, 2018; Texas Education Agency, 2018; U.S. Department of Education, 2017). Leaders, specifically superintendents, can implement components of this study's key findings to best support their stakeholders through technology implementation. First, it is important to set high expectations for building capacity through support team collaboration and professional learning opportunities. Second, creating a vision for technology integration should include developing a growth-mindset and positive culture. Third, it is critical to actively

communicate technology visions throughout the school year to reaffirm the importance of technology integration. Finally, findings showed when superintendents modeled technology usage in day-to-day practices, this encouraged others to follow.

As educational leaders seek to transform their learning environments by leveraging technology devices, the involvement of the superintendent is critical to the success of any 1:1 initiative. The results of this study encourage multiple stakeholders to engage in collaborate efforts with superintendents in order to enrich technology experiences. Furthermore, technology corporations such as Apple may consider developing resources aligned to educational leadership best practices as highlighted in this study. Chapter Four presents a distribution of findings, which includes an executive summary and findings distribution proposal.

CHAPTER FOUR

Distribution of Findings

Executive Summary

Due to the increase of educational technology implementation in schools across the country, the need for superintendent involvement in 1:1 technology learning initiatives is critical. Clear expectations and a well-defined vision for technology utilization by leaders is imperative to ensure transformation occurs throughout the learning environment (Brown & Jacobsen, 2016; Hsu, 2016; McLeod et al., 2015; Vyas, 2020). Although current research indicates evidence of technology directors and principals making an impact on a technology initiative, hardly any literature exists highlighting the involvement of superintendents who lead in a 1:1 technology district (Pautz & Sadera, 2017; Vyas, 2020). There is still a need for research in this area.

Districts spend millions of dollars year after year to provide students access to a technology device for learning (COSN, 2018). Technology can enhance teaching and learning practices by allowing educators and students opportunities to collaborate, create, communication, and think critically. When leadership can communicate expectations and a vision for technology integration, the higher levels of innovation may occur. This study adds insight specific to superintendent leadership and involvement in a 1:1 technology initiative.

This qualitative multiple case study identifies the involvement of superintendents who lead 1:1 technology learning initiatives and explores the impact they have on the success of the initiative. Additionally, this study intends to provide educational leaders

116

with knowledge on how they can best support individuals in technology learning environments. The following section will review the data collection and analysis process, provide a summary of key findings and informed recommendations, and discuss how findings will be distributed to specific audiences.

Overview of Data Collection and Analysis Procedures

A qualitative multiple case study was an appropriate fit to explore how superintendents influenced technology integration in a 1:1 learning environment. This multiple case study utilized interviews, a questionnaire, and district documentation such as vision and mission statements located on district websites to understand the influence of the superintendent in a 1:1 technology learning initiative and answer the main research question: What is the leadership involvement of K–12 Texas Superintendents who have led a successful 1:1 technology learning initiative? Specifically, the sub-questions provided depth for participant narratives and allowed me to discover additional stories aligned to superintendent expectations, vision, communication, and modeling and implementation practices.

I focused on two K–12 Texas public school districts for this case study and utilized purposive sampling techniques. Participants from each case included the superintendent, chief technology officer, principals, and technology staff. I conducted one round of semi-structured interviews with each superintendent and chief technology officer that focused on participant backgrounds, experiences, and involvement in the 1:1 technology initiative. I asked each superintendent specific questions related to their technology expectations, visioning, communication, and modeling. Additionally, I asked the same questions to each chief technology offer, but the questions focused on their

perceptions of superintendent involvement. I utilized the Zoom platform to conduct and record each interview for further analysis. Following the interview process, I sent out a questionnaire using Office 365 forms to district principals and other technology staff involved with the technology initiative. Questions on the questionnaire aligned to the research question and sub-questions and participants shared their reflections on how they felt the superintendent influenced technology utilization throughout the learning environment.

Once the data was collected, I utilized two main technology platforms for the analysis process. First, I uploaded the four Zoom interviews to Otter.ai and each one was transcribed. Second, I leveraged the Numbers application to organize, code, and analyze themes from participant narratives and questionnaire data. After the coding process took place, I conducted a within case analysis and a cross-case, thematic analysis followed. The analysis process helped me to identify themes to answer the central research question.

Summary of Key Findings

After completing a within case and cross-case analysis, this qualitative multiple case study discovered findings that addressed the main research and sub questions of superintendent technology expectations, vision, communication and modeling and implementation. Following the case analysis process, I conducted a framework analysis aligned to the study's theoretical framework, the Transformational Leadership Model (Bass & Riggio, 2008). Based on the data collected from participant interviews and a questionnaire, and by aligning findings to the analysis process, four key findings

appeared. The findings provided insight into the involvement superintendents had on the success of the 1:1 technology learning initiative with their district.

- Finding 1: Superintendents set high expectations for building capacity through support team collaboration and professional learning opportunities;

- Finding 2: Superintendent's vision for technology integration includes developing a growth-mindset and positive culture, which enhances technology integration by all stakeholders;

- Finding 3: Superintendents actively communicate their technology vision throughout the school year to reaffirm the importance of technology integration; and

- Finding 4: Superintendents model technology usage in their day-to-day practices, which encourages others to follow.

The first key finding of this study was that superintendents each set high expectations for building capacity through support team collaboration and professional learning opportunities. Superintendents found that having multiple layers of support at the district and campus levels, such as technology specialists and coaches, supported all stakeholders with technology integration. Also, these teammates helped with promoting the superintendent's technology expectations and vision throughout the district and campus environments. Another component of this finding was the emphasis each superintendent placed on professional learning opportunities. Internal professional learning sessions and external services provided school district individuals with new, innovative ideas aligned to teaching with technology.

The second finding that was critical to the superintendent's impact on a 1:1 initiative was creating a technology vision that included fostering a growth-mindset and positive culture. Findings showed superintendents displayed characteristics of transformational leadership and possessed behaviors that influenced stakeholders to want

to innovate and utilize technology within the learning environment. Furthermore, both superintendents instilled a culture of taking risks when implementing new technology practices and participants spoke to the culture of feeling supported by the leadership team.

Along with creating a solid vision for technology integration, actively communicating the vision throughout the school year to reaffirm the importance of technology implementation was equally important. This finding emphasized that superintendents communicated their vision for technology in multiple settings; administrator meetings, district-wide kick-off at the beginning of the year, email communications, professional learning sessions, and additional district held events.

Finally, the fourth finding of the study showed that both superintendents modeled technology usage in day-to-day practices, which encouraged others to follow. Participants spoke to witnessing superintendents using technology in meetings and when they are participating in professional learning sessions. Also, principals spoke to seeing superintendents use iPads during campus walkthroughs. By modeling and using their technologies often in front of district stakeholders, this provided insight into each superintendent's passion of transformation and life-long learning.

Informed Recommendations

Based on the research findings, the active involvement of the superintendent in a 1:1 technology learning initiative can enhance transformation throughout the learning environment. It was found that superintendents who possess transformational leadership qualities can influence their teams to successful innovative practices. Below I provide several recommendations for superintendents and stakeholders who influence and support

a district's 1:1 technology initiative. Additionally, one recommendation is directed

towards Apple Education teammates who work with district and school leadership to

enhance teaching and learning practices. The study's recommendations include:

Superintendents:

- Active participation and daily involvement within the 1:1 technology learning initiative

- Emphasize the technology vision and set expectations for technology integration throughout the school year

- Participate in professional learning focused on technology integration and provide the same training opportunities for the team.

- Employ technology integration coaches at each school within the district to support leader and educator technology requests

Educational Technology Leaders:

- Highlight technology integration best practices for superintendent and technology leadership teams to emphasize the importance of innovation

- Reference student created products and showcase samples of success when educators and students are successful implementing technology

Principals:

- Communicate with superintendents and strategize technology efforts for campus stakeholders

- Collaborate with technology department and teammates to build support structures for educators and students within the school environment

- Model and implement technology just as the superintendent does to create excitement for technology transformation.

Apple Education Employees:

- Share study findings with educational leaders around the world

- Create documentation highlighting effective practices in Apple 1:1 technology learning initiatives

Findings Distribution Proposal

The findings and recommendations of this study target school leadership, specifically superintendents, and other relevant individuals directly involved with 1:1 technology learning initiatives within school environments. Knowledge of how superintendents influence technology integration will inform school leaders and hopefully provide several opportunities to impact practices learned from this study. The following sections provide an overview of the target audience, proposed distribution method and venue, and distribution materials.

Target Audience

Superintendents, assistant superintendents, school directors, principals, and educational technology leaders may benefit most from this study. Superintendents leading 1:1 initiatives, or those looking to invest in technologies for their districts, can gain a deeper understanding of strategies and best practices to implement in their own learning environments. Assistant superintendents, directors, and educational technology leaders could emphasize the findings of this study and communicate successful efforts for superintendents in their districts. Additionally, campus principals could explore innovative technology implementation ideas from participant reflections on integration specifically at the campus level.

Proposed Distribution Method and Venue

Research findings will be shared in a variety of different ways focused on targeting multiple participants. In my current role as an Apple Education Leadership Executive, I have the opportunity of speaking to school leaders every day. Leaders often look for exemplars and models of success, and I will be able to explain the findings of

this study and connect their current practices to successful 1:1 technology initiatives. Also, communicating this study's findings could assist many leaders with their own implementation plans and solid visions for technology integration.

Another method for distributing the findings of this study is through presentations at state and national conferences. The Texas Computer Education Association (TCEA) is a national conference held in Texas focused on transforming teaching and learning while leveraging technology. Participants will benefit from understanding the best practices of this research study. Also, the Texas Association of School Administrators (TASA) holds an annual conference focused on networking and developing leaders within school environments. This will be an opportunity to share findings of this study with superintendents, directors, and principals.

Additionally, I intend to submit articles of this Problem of Practice to multiple journals targeted towards school district leaders and enhanced educational technology efforts. Article submissions in *TechTrends: Linking Research and Practice to Improve Learning,* a publication of the Association for Educational Communications & Technology, *Journal of Research on Technology in Education (JRTE)*, and *Journal of Texas Women School Executives,* will allow me to reach broader audiences involving technology individuals and executives.

Distribution Materials

I will distribute the study's findings through a variety of different methods. First, a presentation created using Keynote with graphics and figures will allow individuals a visual representation of discoveries. Also, I will verbally communicate the study's stories and experiences for participants in hopes of them implementing best practices in their

own environments. Other materials include the presentation as a PDF file, webinars, journal articles, and an infographic of the research summary.

Conclusion

This chapter of the study provided an executive summary, which included an overview of data collection and analysis procedures, key findings, and informed recommendations. Additionally, I identified a target audience that could hopefully benefit from the findings of superintendent involvement in a 1:1 technology learning initiative. The intended audience will have the opportunity to engage in this study's overall highlights by reviewing multiple distribution materials. By including the study results in various forms of distribution, educational leaders will be able to apply what they discover into their own practices.

APPENDICES

APPENDIX A

Superintendent Interview Protocol

1. Can you please introduce yourself? (name, school district, position)

2. How many years have you been in education?

3. How many of those years were spent in a leadership role and what was/were the position(s)?

4. How many years have you spent in your current role?

5. Can you share your involvement of adopting a 1:1 technology initiative? Where you part of the process or was the initiative in place when you stepped into your current role? If not, why?

6. Can you share details about the district 1:1 technology learning initiative? (type of devices, number of devices, team supporting the technology infrastructure)

7. What expectations do you have for your teams assisting and supporting the 1:1 technology learning initiative?

8. How do you determine your vision and mission for utilizing technology throughout the learning environment?

9. As a leader, how do you communicate and promote your vision for effective technology use throughout the learning environment?

10. Can you share insight into your day-to-day involvement with the 1:1 technology learning initiative?

11. How do you model and promote effective uses of technology integration for all stakeholders within the district?

12. How do you support leaders and educators as they engage students through technology integration?

13. As a leader, have you participated in any professional learning focused on technology integration? If so, what was that experience like? If not, do you have teams within the district who participate in professional learning support for technology integration?

14. How would you describe transformational learning when utilizing technology?

15. Are there any additional details about your role as a leader in a 1:1 technology environment you would like to include in this study?

APPENDIX B

Chief Technology Officer Interview Protocol

1. Can you please introduce yourself? (name, school district, position)

2. How many years have you been in education?

3. How many of those years were spent in a leadership role and what was/were the position(s)?

4. How many years have you spent in your current role?

5. Can you share your involvement of adopting a 1:1 technology initiative? Where you part of the process or was the initiative in place when you stepped into your current role? If not, why?

6. Can you share details about the district 1:1 technology learning initiative? (type of devices, number of devices, team supporting the technology infrastructure)

7. Do you feel that the district superintendent has high expectations for utilizing 1:1 technology in your learning environment?

   If you answered yes, how has the district superintendent set those expectations? Can you provide any examples?

8. Do you feel that the district superintendent clearly defines and communicates their mission and vision for utilizing 1:1 technology in your learning environment?

   If you answered yes, how has the district superintendent communicated their vision and mission for technology utilization? Can you provide any examples?

9. Do you feel that the district superintendent models effective use of technology integration in their day-to-day learning environment?

   If you answered yes above, in what ways have you seen the district superintendent model and implement technology within their learning environment? (Example: Using technology during walk-throughs, knowledge of 1:1 technology within the district, etc.)

10. How do you support leaders and educators as they engage students through technology integration?

11. As a leader, have you participated in any professional learning focused on technology integration? If so, what was that experience like? If not, do you have teams within the district who participate in professional learning support for technology integration?

12. How would you describe transformational learning when utilizing technology?

13. Are there any additional details about your role as a leader in a 1:1 technology environment you would like to include in this study?

APPENDIX C

Qualitative Research Questionnaire

Request: Qualitative Research Questionnaire on Superintendent Leadership

The survey will take approximately 7 minutes to complete.

Thank you for your interest in this research study.

Please answer the following questions below regarding 'A Qualitative Case Study to Explore How the Involvement of Exceptional K–12 Superintendents Impact the Success of a Technology Learning Initiative'.

Section 1   ...

Questionnaire:

1. School District: *

Enter your answer

2. Position/Title: *

Enter your answer

3. School: (If located elsewhere, such as the district office, please enter that here.) *

Enter your answer

4. Number of years you have been with the district: *

Enter your answer

5. What is/are the main technology device(s) you use in your current learning environment? *

☐ iPad

☐ MacBook

☐ Other

6. Please list the main technology tools, programs, and frameworks that make your learning environment successful. Why do these make the learning environment successful? *

Enter your answer

7. Do you feel that the district superintendent has high expectations for utilizing 1:1 technology in your learning environment? *

☐ Yes

☐ No

8. If you answered yes above, how has the district superintendent set those expectations? Can you provide any examples?

Enter your answer

9. Do you feel that the district superintendent clearly defines and communicates their mission and vision for utilizing 1:1 technology in your learning environment? *

○ Yes

○ No

10. If you answered yes above, how has the district superintendent communicated their vision and mission for technology utilization? Can you provide any examples?

Enter your answer

11. Do you feel that the district superintendent models effective use of technology integration in their day-to-day learning environment? *

○ Yes

○ No

12. If you answered yes above, in what ways have you seen the district superintendent model and implement technology within their learning environment? (Example: Using technology during walk-throughs, knowledge of 1:1 technology within the district, etc.)

> Enter your answer

13. Please add any additional information you would like to share regarding the innovation and technology integration within the district:

> Enter your answer

Section 2   ...

Additional Information?

If you are willing to add additional context to your responses and do not mind being contacted for follow up questions if necessary, please add your information below. Thank you!

14. Name:

> Enter your answer

15. Email:

> Enter your answer

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