

LEADING TECHNOLOGY INTEGRATION: THE PRINCIPAL AS AN  
EDUCATIONAL TECHNOLOGY LEADER

A Record of Study

by

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Submitted to the Office of Graduate and Professional Studies of  
Texas A&M University  
in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

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December 2019

Major Subject: Curriculum and Instruction

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## ABSTRACT

Research shows that educational leaders hesitate to embrace technology because of the need to balance diverse learning approaches along with pressure to promote and expect teachers to integrate technology chosen primarily by district leaders. While educational technology marries educational theory and practice with technology tools, its intention is still to promote education for all learners. This action research study of administrative leaders in Callery Blossom Independent School District investigates the perspective and understanding of educational technology through interviews of campus principals and a content analysis of lesson plans and campus improvement plans. Educational leaders can use this research to develop and promote a collaborative understanding of educational technology to focus on continuous improvement processes by supporting successful campus technology integrations.

## DEDICATION

I dedicate this Record of Study to my grandmother, Nancy Salvagio Nicholas. She was a lifelong learner, educator, and an avid reader. She devoted her life to teaching and learning as an educator for over fifty years. Along her path, she influenced countless students to appreciate reading and literature, teaching at elementary, junior high, and high school grade levels. She strongly influenced my decision to become an educator. I also dedicate this paper to my grandparents, Anthony “Tony” and Joyce Ippolito. They taught me always to appreciate life, love deeply, and never stop growing. Their love and support were present in all endeavors throughout my life, including a promise I made to my Papa to get my doctorate from Texas A&M University. Although they are no longer with me on this earth, I felt their presence every time I visited Aggieland, and throughout my time in this program.

## ACKNOWLEDGEMENTS

I want to thank my committee chair, Dr. Radhika Viruru, and committee members, Dr. Robin Rackley, Dr. Jacqueline Stillisano, and Dr. Noelle Sweany. The support and guidance through this process have been invaluable. Thank you for being excellent examples of strong women in education who set high standards for your students.

I want to acknowledge the most significant group of co-workers and friends. To my boss, Greg Bartay, and mentor, Cary Partin, thank you for being on this journey with me. I am privileged to work with both of you. To Seth Fewell, thank you for being a sounding board and a person I can talk through ideas related to this ROS. To the faithful mustard seeds, Heather, Samantha, and Tammy, you have always provided laughter, encouragement, and friendship. To my sister in faith, Carla Salter-Eaglin, thank you for holding my hand through many peaks and valleys. To my flamingo, Margaret Bauer Lampton, although you are no longer here on earth, you are in my heart and soul daily. You were my best friend, like no other. I know you are still cheering me on and telling me to “Stand tall, Darling.”

To my mentor and friend, Dr. Jana Willis, you have never stopped encouraging me to pursue my passion for education and technology. To Sarah Hibbs, my sun and water sister, thank you for always being there for me. To my favorite uncle and aunt, Jeff and Maureen Sanders, thank you for keeping our family traditions alive. To my parents, Bill and Madeline Nicholas, and my brothers, Scott and Chris, you may now call me Doctor Reeves!

To my son Tyler Stephens, I hope I have served as a role model so that you will continue to grow and learn. To my mother-in-law, Cindy Reeves, thank you for your support through this process, but mostly, for giving me your son. Finally, to my loving husband, Don, you are my rock and my heart and soul. Thank you for your unwavering love and support. This accomplishment is unequivocally ours.

## CONTRIBUTORS AND FUNDING SOURCES

### **Contributors**

This work was supervised by a thesis (or) dissertation committee consisting of Professor Dr. Radhika Viruru, committee chair and Dr. Robin Rackley of the Department of Teaching, Learning, and Culture and Professor Jacqueline Stillisano of the Department of Teaching, Learning, and Culture and Dr. Noelle Sweany of the Department of Educational Psychology.

All other work conducted for the thesis (or) dissertation was completed by the student independently.

### **Funding Sources**

There were no funding sources provided for this research.

## NOMENCLATURE

|                        |  |
|------------------------|--|
| Educational Leadership | Directing and guiding the talents and focus of all stakeholders, such as teachers, students, and community, toward achieving common educational goals.   |
| Educational Technology | The study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources (AECT, 2012).   |
| Disruptive Innovation  | Introduction of a new technology that will change how we think, work, and interact to promote change.  |
| Long Range Planning    | A living document from Texas Education Agency that sets standards and implementation goals for Texas school districts.   |
| SAMR Model             | Also known as the revised Bloom’s Taxonomy; Substitution, Augmentation, Modification, and Redefinition (SAMR) are the components of the SAMR model. Dr. Ruben Puentedura developed this model as a way for teachers to evaluate how they are incorporating technology into their instructional practice. |
| Self-Efficacy          | Confidence in the ability to successfully teach students and promote student learning.   |

|                        |  |
|------------------------|--|
| T-PACK Model           | Technological Pedagogical Content Knowledge (T-PACK) is a framework that identifies the knowledge teachers need to teach effectively with technology. The T-PACK framework extends Shulman’s idea of Pedagogical Content Knowledge.                    |
| Teacher Proficiencies  | Technology skill levels for all teachers in Callery Blossom ISD. These proficiencies align with the new evaluation system, T-TESS.   |
| Texas Education Agency | (TEA) The state agency that oversees primary and secondary public education. The commissioner of education heads it.   |
| T-TESS                 | Texas Teacher Evaluation System and Support - Emphasis on providing continuous, appropriate, and developmental feedback to classroom teachers so they can develop their practice. This evaluation tool was implemented state-wide in the fall of 2016. |



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## CHAPTER I

### INTRODUCTION

Technology defines 21<sup>st</sup>-century schools. School districts spend millions of dollars on devices and infrastructure, providing access to online tools, apps, and collaborative spaces for students and teachers. District leadership expects that teachers and students will embrace the use of technology naturally. Leaders assume that the integration of technology will be seamless as it is already part of student and teacher lives; however, the experiences of today’s educational leaders and teachers tell a different story. According to the International Society for Technology in Education (ISTE) Standards for Students, “effective integration of technology is achieved when students use technology to take charge of their learning (2017).” While students need to know foundational technology skills with ultimate emphasis on how it will enhance learning, teachers need to know how to use technology to reinforce diverse pedagogies through professional development or coaching (McDonagh & McGarr, 2015). While district leadership strives to provide all necessary resources for success in the classroom, the principal operates as a valuable link between the central office and the classroom. Research shows that schools with influential campus administrators who embrace technology have higher levels of success with technology acceptance and implementation (Demski, 2012).

When principals do not have an expectation that teachers infuse new technologies, teachers will continue to teach in out-of-date ways, and students will continue to receive information passively. Technology in the classroom, when

implemented with fidelity, enhances student learning and collaboration. Principals must realize that their role includes allowing teachers and students to take risks by creating an environment that highlights innovation (Office of Educational Technology, 2010). Secondly, the importance of collaboration and cooperative practices between district technology leaders and campus leadership is important for the achievement of technology integration in the classroom for both teachers and students.

### **National Context**

The Office of Educational Technology under the direction of the U.S. Department of Education released *Reimagining the Role of Technology in Education* (Office of Educational Technology, 2017) to mixed reviews. This updated, innovative blueprint urges schools to employ progressive technologies used in everyday life situations to positively impact student learning, increase the adoption of valuable teaching and learning methods, and disaggregate data for constant progress. Today's classroom challenges educators to use technology to modify how teaching occurs as well as to change the perception of authentic learning taking place far beyond brick and mortar classrooms. Campus leaders must set the expectation of changing the mindset that innovative technology must be present to extend learning in meaningful ways that connect and encourage all learners.

## **Situational Context**

The researched district has a diverse population representing approximately 22,000 students and 23 campuses covering 54 square miles of Callery Blossom. Eleven elementary schools have two computer labs in each building and divide ten iPad carts by grade level, each with grade-designated apps. Each campus also has at least two mobile laptop carts. Eight middle schools (grades 5-6) and junior high (grades 7-8) campuses have four computer labs in each building and at least six mobile laptops carts. Middle school campuses also have some designated iPad sets and several iPad mobile carts. The four high schools, two of which are traditional, have over 20 dedicated computer labs, mobile laptop carts, and some designated laptop carts for advanced placement and SAT prep classes. The college and career high school has approximately 15 labs and laptop carts. The alternative campus, while much smaller, has a large number of student computers and laptops, making the campus nearly a one-to-one environment. Each classroom throughout the district boasts an interactive short-throw projector, a document camera, a teacher computer, a teacher tablet, a mirroring device, and at least three student computers. Callery Blossom ISD has invested a substantial amount of money in technology in the classroom.

Callery Blossom's investment in technology is relevant to this research. The district receives very few federal funds, supports a very robust infrastructure, and has devoted substantial funding for technology in the classroom. While the district requires no professional development related to technology for teachers, the campus administrator controls that expectation or requirement. The 2019 – 2020 school year will

be the first year since the creation of the educational technology department that the district has designated professional development days on the approved district calendar. While campus leadership has not made technology integration in Callery Blossom a top priority, district leadership has cited it in the strategic plan as a priority in all learning strategies.

Educational technology specialists at Callery Blossom have district goals derived from the strategic plan based on coaching and mentoring teachers. The specialists provide teaching strategies that involve technology integration. Many times, teachers ask specialists to schedule visits after testing because faculty claim that their focus must be on teaching to the test and not using technology tools. For many in the district, technology is an afterthought. Campus administrators must work to change that prevailing mindset.

### **The Problem**

Educational Technology has moved into the spotlight in Texas schools in the past year. In the 85th Texas State Legislature, legislators signed several bills into law, effective immediately, which thrust educational technology and digital learning into the spotlight, raising the importance of its role in the K-12 classroom. As test scores are often centerstage and the focus of educational reform, educational leaders often make technology integration a low priority. Teachers and administrators may feel like adding one more task to their day would make their day unmanageable. The impossibility of squeezing more hours in the day or more tasks into the schedule feat becomes extraordinarily complex when additional professional development or learning new



strategies require new technology. With the 86<sup>th</sup> Texas State Legislature currently in session, there are no proposed bills of substance, related to educational technology although districts and schools often base requirements on state policy regarding technology.

The principal must bridge the gap between leadership and technology by taking on the role of an educational technology advocate and leader. Without the principal's support and championing of technology initiatives, millions of dollars are spent on innovations that sit unused in classrooms, and the byproduct remains that students do not develop the 21<sup>st</sup>-century skills essential to be productive in a global society. Contributing factors that exist in neglecting this initiative include missed training opportunities, ignoring the importance of integrating technology, and an unclear understanding of educational technology in theory and practice. Additional research is needed to gain the principals' perspective on the understanding and perceptions of educational technology. This project does just that through interviews and a content analysis of campus improvement plans and lesson plans. These activities can contribute to a plan for constant improvement of educational technology practices that promote technology integration district-wide.

### **Relevant History of the Problem**

When I started working in Callery Blossom, I was excited to be back in K-12 education. The team I was going to be working with was bigger and got to work in the classrooms with students and teachers. I looked forward to observing and collaborating across the district. As I met with each principal, I listened carefully to their expectations

of the educational technology specialists (ETS). They surprised me by explaining that educational technology specialists in the district were expected to troubleshoot and repair technical issues that arose throughout the day. Changing printer toner, projector light bulbs, and occasionally helping office personnel create a pivot table in Excel seemed to be the extent of what the campus expected. Specialists conducted and engaged in minimal coaching and collaboration activity. After spending weeks listening to the team discuss all the duties they were supposed to take on in a day, I began focusing on how to change the perception of educational technology holistically.

After many conversations with the curriculum and instruction team and the educational technology specialists, I defined the roles and responsibilities of an educational technology specialist and presented them to principals during a “Taking the Lead in Learning” session. I set expectations for the daily duties of the ETS on campus. I asked the principals to identify teachers who needed to be coached or who would like to learn more about integrating technology in their classroom. We had an open discussion of who was responsible for troubleshooting technical issues as we have a robust team of tech-aides and technicians who are responsible for such requests. We determined that the tech-aides and technicians should be the first line of support for problems that involved hardware and software on each campus. We laid out the responsibilities for all technology staff clearly for all campus administration.

It has taken five years to change the culture and set district expectations for educational technology. The challenge remains for my team to keep the focus on coaching, modeling, and collaborating in the classroom. I often engage in conversations

with campus administrators regarding the purpose of the ETS team. They still hold a perception that ETS personnel are glorified technicians, although most of the team have master's degrees in instructional technology. The importance of educational technology seems to be an afterthought, and principals often lack an understanding of how certain classroom technology functions, such as interactive projectors. When professional development is offered district-wide, campus administrators rarely participate, as the district does not mandate it.

### **Significance of the Problem**

The district strategic plan has a goal to provide technological opportunities to facilitate learning. The required activities included developing teacher technology proficiencies, allowing collaborative planning time for learning new technology and assessing the effectiveness of technology integration and instruction. The strategic plan does not specify full participation from each campus.

Garnering district-wide buy-in has been a struggle for a comprehensive technology integration plan. Principals create their campus accountability plan with little to no input from technology regarding needs or initiatives. While I attend every campus accountability planning meeting, participants usually only focus on raising test scores. Stakeholders usually only ask me to provide headphones or other equipment to aid in student testing. The need for raising test scores diminishes technology integration because testing strategies take precedence. District leaders fail to see the promise of technology integration. While teachers can use technology to support testing, they can also use technology to support testing strategies, facilitate practice in and out of

classrooms, and ultimately engage students in the kind of learning that will make testing conversations obsolete.

### **Research Questions**

The subsequent questions drive this study.

1. What are the principals' experiences and understanding of effective technology integration on their campuses?
  - a. What technology skills do principals identify as lacking?
2. Based on their knowledge, attitudes, and beliefs, how do principals in Callery Blossom ISD support and promote effective technology integration?
3. Is there alignment between the principals' technology use and the effective integration of technology on their campus?

Based on this research, I seek to create a comprehensive plan for effectively supporting technology integration in the classroom in cooperation with campus leadership.

### **Personal Context**

#### **Researcher's Roles and Personal Histories**

I serve Callery Blossom ISD as the director of educational technology. This research is being conducted with the support of district administration. I have been an educational technology leader for thirteen years in both K-12 and higher education. I started my career as a kindergarten teacher who used technology in my classroom for students who struggled with letter and sound identification as well as number skills. Students used computers to enhance lessons during learning center rotations.

I became very interested in educational technology and how using technology tools could provide individualized learning for students who needed additional encouragement in the classroom and beyond. The leaders on my campus provided support and resources for teachers and students. District and campus leadership must champion change and set expectations to promote technology from teaching online at the college level, supporting a team of instructional designers to develop online programs, or leading a team of educational technology specialists, one common frustration remains. If that mindset does not exist, the use of technology will remain an afterthought (Stokes-Beverly, Simoy, & Department of Education, 2016).

### **Journey to the Problem**

Throughout my career, I have carefully noted the dynamics of each campus and the adoption or resistance to change when a district introduces new technology. In my current role, I work with various stakeholders to provide technology tools to enhance collaboration, develop critical thinking skills, and promote individualized learning. I began noticing, as I walked through classrooms, that teachers sporadically integrated technology if it was integrated at all. I looked to the educational technology specialists to help me understand why classrooms lacked this integration. Technology specialists commonly noted that the campus administrators did not identify integration as a priority.

Through discussions with my internship mentor, we determined that failure to follow through with district technology initiatives is a significant issue. He urged me to identify methods to resolve this problem. Together, through mentoring and continual conversations, we slowly grew to understand the broad scale of the problem we were

attempting to solve. He encouraged me to research with input from principals how we can provide a roadmap to promote classroom technology integration for current and future campus principals. This research is designed to help me understand the various perspectives of principals and their challenges as it relates to technology integration. I plan, through this study, to gain insight into principals' struggles with technology and district initiatives while developing a solid plan that district leaders can use as an educational model for adoption and technology integration.

### **Significant Stakeholders**

District administration sets expectations of excellence in the district. Since technology has become a critical component in education, educational leaders must possess vision and include future-ready skills when planning for technology integration. Our district administrators believe in championing innovations and celebrating creativity in the classroom. They want teachers to be equipped with the proper tools and pedagogies to develop well-rounded, future-ready global citizens.

Principals face a distinct challenge as an educational technology leader in that they must focus on the development of both the teacher and the student. As a stakeholder, principals must solve problems, build consensus, and be innovative. They must set the culture and vision for their campus. The principal, as an educational technology leader, must purposefully and productively partner with technology leaders.

Teachers can ensure that students achieve excellence in all aspects of their education. With constant changes in classroom technology, districts expect teachers to continuously perfect their technical skills and adapt to the students' needs. Districts no

longer accept classrooms where students learn passively. Teachers must offer engaging opportunities for students to develop critical thinking skills and be future-ready.

Students, as stakeholders are at the center of learning. Schools empower students through experiences that allow them to create their knowledge through content, collaboration, and real-world activities. Students invested in their future take control of their learning through flexibility and choice.

All stakeholders share the responsibility of moving towards an enhanced classroom that integrates technology and digital learning. Successful integration of technology on a large or small scale depends on students, teachers, district administrators, and campus principals. All participants must commit to transformational learning and a spirit of collaboration.

### **Closing Thoughts on Chapter 1**

Principals must commit to supporting and championing technology integration (Demski, 2012). Principals can support this effort by modeling expected behavior through the use of technology. Principals must have a sense of comfort when using technology in their daily lives and in front of teachers and students. This research aims to identify the specific needs of administrators to accomplish these goals.

As a district administrator who is expected to promote, train, and emphasize the importance of technology integration in our classrooms, this research is crucial to determine areas of growth. The research conducted and presented is not intended to be generalized and only applicable within this context. In this research, I look for an understanding of educational technology theory and identify areas where administrators

and teachers can collaborate by speaking a shared technology language. This research will lay the foundation for a comprehensive plan of action for continual improvement of technology integration in the classroom with increased technological support across the district.



## CHAPTER II

### REVIEW OF SUPPORTING SCHOLARSHIP

#### **Introduction**

Promoting technology by empowering district and campus leadership contributes to the dynamics of transforming learning. Empowering district and campus leadership to build an understanding of educational technology is necessary to invoke change, which starts at a grassroots level. Districts can make lasting change by moving one campus forward at a time with the proper educational technology frameworks, such as Technological - Pedagogical and Content Knowledge (T-PACK) (Mishra & Koehler, 2006); Substitution, Augmentation, Modification, Redefinition (SAMR) (Puentedura, 2014); and blended learning. This may be accomplished by providing professional development to promote an understanding of these models. Secondary to promoting an understanding of educational technology frameworks, technology leaders must collaborate with campus principals to develop a strong sense of skills and competence in all instructional leadership. In collaboration with the campus principals, technology specialists should evaluate current practices and make any necessary adjustments.

For the process of transformative learning to be successful, administrators must fully trust technology experts, a trust that rarely happens (Department of Education, 2010). Collaboratively working towards innovation in the classroom is a process, not an event, that needs to be kept in the forefront to affect change (Christensen, Horn, & Johnson, 2008). District leaders must implement this over time from their various roles

in order to promote transformation and excellence. Leaders must identify and define problems and discover opportunities to develop a framework for success.

### **Relevant Historical Background**

Historically, schools have evolved over the decades by formalizing education (Christensen et al., 2008). Though considered for elites at its inception in the United States (Christensen et al., 2008), reforms in education began to prepare students for a vocational workforce; however, only the provision of universal education for all broke barriers for true inclusivity. Morals training, culture and citizenship, and entering the global competition for science and math (Christensen et al., 2008) constituted the standard curriculum in schools. In modern education, schools needed additional educators to differentiate gifted and talented programs, special education, counseling, and staff to manage food services, and building maintenance.

Technology has been present in classrooms since the colonial years in the United States. Instructors used Hornbooks, printed lessons on wooden paddles, to help students memorize verses (Gutek, 2013). Initial technology, such as overhead projectors, entered the classroom in the 1930s (Schultz, 1965). Computer-aided instruction was pioneered during the 1960s and 1970s, with computers being available to students in the mid-1980s (Gutek, 2013). While technology in the classroom has evolved over the decades, the definition of technology has changed as well (Warner, Bell, & Odom, 2018).

Technology in schools has moved from analog devices, such as overhead projectors, to mobile devices and artificial intelligence. Even in 2010, technology was limited to “computer-based technologies and includes personal computers, LCD projectors, and

Palm Pilots” (Schrum, 2010). Today, broad definitions of technology can “include cognitive and physical tools for solving problems” (Warner et al., 2018).

Current challenges for educational technology include providing authentic learning experiences and improving digital literacy (Freeman, Adams-Becker, Cummins, Davis, & Hall-Giesinger, 2017). While these challenges are answerable, time, and effort need to be focused on training and supporting educators to use projects involving real-world problems in their classroom for students. Providing an experience that reflects and balances what teachers can offer their students is a workable solution. The Horizon Report noted key trends involving educational technology which include coding as a literacy and a rise in Science, Technology, Engineering, Arts, and Mathematics (STEAM) learning (Freeman et al., 2017). Adopting a culture of innovation is within reach of campus leaders who promote this mindset.

### **Alignment with Action Research Traditions**

This record of study applies action research framed within the participatory tradition to investigate the principals’ perspective and understanding of educational technology. The campus principals participating in my study have support from the district administration. This study includes creating a comprehensive plan with campus principals to support technology integration in the K-12 classroom. The practitioner directs the action research, as well as the development of design and methodology (Herr & Anderson, 2015). As an organizational member, the practitioner researches an area where they feel they can make a significant difference. Action research looks for the collaborative component to improve within the organization. This Record of Study aims

to catalyze collaboration, develop a mutual understanding, and create an overall plan for technology integration, district-wide.

### **Theoretical or Conceptual Framework**

Transformative learning theory frames this study (Mezirow, 1978). Supported by the work of Paulo Freire and Jürgen Habermas, Mezirow sought to assist learners in becoming aware of their assumptions, including self-assumptions that lead to individual understandings, principles, habits, or perspectives, as well as the other peoples' assumptions (Mezirow, 1997). The necessity lies in critically scrutinizing the beliefs or ideas that motivate practice, the results, and conclusions linked to philosophies, and the expansion of different viewpoints of the method to transform and redefine.

Transformational strategies include action plans, reflective activities, case studies, curriculum development, and critical-theory discussions (Cranton & King, 2003).

Technology enhances transformative learning through developing an understanding of essential skills, promotion of collaboration, and understanding complex relationships (Mezirow, 1997). Although initially slow to embrace technology because of cost and a paradigm shift in meeting the needs of students, schools have changed over the years. Through the adoption and integration of technology, some schools have developed new educational approaches in teaching and learning. Skills such as collaborating across the globe and solving challenging real-world problems have been impacted dramatically by technology (UNESCO, 2004).

## **Most Significant Research and Practice Studies**

As an educational leader, whether a district-level administrator or a campus principal, administrators must keep in mind that while innovation is always a part of introducing new technology, it must be done with a relentless purpose to improve and support the goals of the campus through student achievement. Because of this, a heightened sense of urgency in identifying another stakeholder for promoting educational technology looms over the K-12 classroom. The campus principal would seem to be ideal for this type of role. While district administrators set policies and initiatives, the principal manages and controls the campus culture and ensures that teachers are adequately trained to meet the needs of diverse learners (Abrego & Pankake, 2010).

The role of the principal, as an educational leader, has transformed over the years. Long ago, the principal was the “manager” of the campus (Dickers, Hughes, & McLeod, 2005). Responsibilities included student discipline, teacher observation, and if the school had site-based management, budgeting, and making curriculum decisions. The duties of a campus principal have morphed into an educational leader with immense roles and responsibilities. One such function that needs to be considered and developed is that of an educational technology leader.

Principals must bridge the gap between leadership and technology by taking on the role of an educational technology leader. Without the principal’s support and championing of technology initiatives, districts spend millions of dollars on innovations that sit unused in classrooms, and students do not develop the 21st-century skills

necessary to be productive in a global society. Contributing factors that exist include inadequate training, failure to see the importance of integrating technology, and an unclear understanding of educational technology in theory and practice (Sincar, 2013).

While the technology has changed vastly and with a pace not replicated, the challenge for all types of educational leaders remains to find that perfect balance between promoting, modeling, and engaging the innovative use of technology for teachers and students alike. Defining educational technology and understanding what it truly means in terms of integration into a classroom is crucial to embracing classroom innovations.

Educational technology as defined by The Association for Educational Communications and Technology (AECT), is “the study and ethical practice of facilitating learning and performance improvement by creating, using, and managing appropriate technological processes and resources” (AECT, 2012). Understanding educational technology and the value of effective technology integration are two crucial factors where future research is needed. Educational technology facilitates learning in a style that provides an opportunity for those of many varying instructional viewpoints (Richey, Silber, & Ely, 2008). Principals must model and use technology and set expectations for campus-wide adoptions to be part of an instructional focus. Educational leaders need to know what tools to implement to promote 21st-century skills using technology in the classroom, and their attitudes and beliefs of technology usage contribute to the ways a campus adopts and adapts to changes in technology in the class. When campus leadership does not set the expectation for stable technology integration,

teachers may not use technology and may become ill-equipped to effectively integrate technology in the K-12 classroom to facilitate the knowledge acquisition of 21st-century learners in a student-centered environment.

The importance of the principal's role as an educational technology leader is discussed to promote technology integration in the classroom and provide insight into the necessary skills and mindset for successful implementation of integrated technology. Currently, there are very few instruments that exist in K-12 education to prepare school leaders to comprehend and adopt innovative technologies (Dikkers, Hughes, & McLeod, 2005). If a principal cannot successfully and proficiently use technology to expand their work implicitly, they are less likely to model and set expectations for classroom use beyond basic tasks (Dikkers et al., 2005).

The principal must make connections between leadership and technology by continuously looking for ways to model technology, find innovative and creative classroom curriculum components, as well as set expectations for continuous growth and student engagement. Administrative leadership may be the solitary foremost influence affecting schools' effective integration of technology (Dikkers et al., 2005). Leadership that is proactively involved in effectively implementing technology into the classrooms can transform and empower teachers and students alike. Thoughtful planning and a shared understanding of the commitment that the district, and therefore campuses, must move to this direction to support teachers and students (McLeod, 2015) as necessary. Many public school districts across the United States have adopted the International Society for Technology in Education (ISTE) standards for campus administrators. These

standards provide a focus on leadership, promoting a culture of digital learning, and excellence in professional practice (ISTE, 2012).

A growing collection of research discusses the need for leadership technology self-efficacy and technological competence of skills, the ever-evolving role of the educational leader, the motives and explanations for continual professional development, and an understanding of the emergence of educational technology theory. Common themes across the research promote the need for continued exploration in the intersection of educational technology and leadership (Department of Education, 2010).

I investigated the attributes determined for self-efficacy that an effective educational leader must possess. Beyond self-efficacy and high-tech capabilities, I considered educational theories that have an essential place in curriculum development and integration for multiple webbing approaches that necessitate an educational leader to be well versed in classroom implementation. Although the role of the educational technology leader has evolved from the first computers in the classroom, the need for visionary leadership remains constant. From promoting innovations through modeling and assessing successes, the principal, as an educational technology leader, must stay current by attending professional development.



## **Understanding of Educational Technology Theory**

To understand the educational technology model, Technology- Pedagogy Content Knowledge (T-PACK), Lee Shulman's (1986) concept of Pedagogical Content Knowledge (PCK) was investigated as the foundation of the current T-PACK model. Shulman (1986) believed that teachers should have a deep understanding or knowledge of their content and have proven methods in developing and refining that knowledge to perform successfully as a teacher. His discernment followed and closely mirrored the philosophies of Piaget and knowledge growth. At least seven categories of teacher knowledge were determined as necessary; content, general pedagogical, curriculum, pedagogical content, learners and their characteristics, and educational contexts (Shulman, 1986). Shulman believed if learning had occurred, that learning creates new intellectual capacities and abilities by both the teacher and the student. T-PACK (Mishra & Koehler, 2006) grew from Shulman's theory.

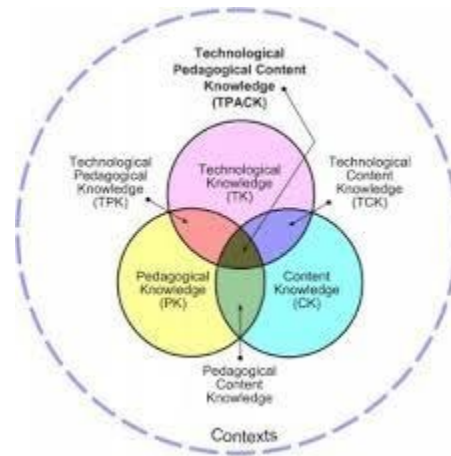
Educational technology theories are incredibly challenging to develop because of the intricacy of connections constrained by context (Mishra & Koehler, 2006). For educators, knowing how to integrate technology properly into any lesson or activity is imperative in classrooms. The primary goal of their design experiment was the development of the T-PACK framework to go beyond the norms of thinking about technology integration (Mishra & Koehler, 2006). Their argument posited that a theoretically based model, including the intersection between technology and teaching, could change perceptions and exercise of teacher education, teacher training, and

teachers' professional growth (Mishra & Koehler, 2006) and have a substantial effect on the research questions that guide this Record of Study.

The Technological Pedagogical Content Knowledge (T-PACK) model is characterized as the knowledge that results from one's concurrent and interdependent understanding of content, general pedagogy, technology and learning contexts (Harris & Hofer, 2011). T-PACK stresses the relationships among technologies, curriculum content, and specific pedagogical methods indicating the understanding of technology, pedagogy and content and how they can intermingle with one another to construct valuable discipline-based teaching with educational technologies (Harris, Mishra, & Koehler, 2009). The connection between T-PACK, educational leadership, and educational technology is grounded in theory. An educational technology leader should have an overall understanding of T-PACK to recognize its use in the classroom. Researchers have conducted studies based on PCK and T-PACK in a variety of settings and theorize that leadership knowledge is a component for an instructional leader. The connection between T-PACK, educational leadership, and educational technology is grounded in Shulman's PCK theory.

Although there have been many studies on T-PACK, the connections between technology, curriculum, and pedagogical approaches still provide many challenges for teachers who are not ready to embrace the mindset shift. Harris et al., (2009) suggested that T-PACK validates the interactions of the three inter-reliant components of teacher's knowledge within content knowledge (CK). Pedagogical knowledge (PK), and technological knowledge (TK) are outlined within and shaped by contextual knowledge

and therefore, can yield effective discipline or field-based teaching within educational technologies (Harris et al., 2009). The following model shows the overlapping knowledge areas within T-PACK.



*Figure 1.* Ven diagram showing the T-PACK Model: Technological Knowledge, Pedagogical Knowledge, and Content Knowledge by tpack.org. Reprinted from "The TPACK Framework," by tpack.org, 2012. Copyright 2012 by tpack.org.

The T-PACK model works well when teachers are motivated and interested in adapting lessons enhanced by technology. Adding a layer of organizational leadership to T-PACK expands the model to include a leadership component (Avidov-Ungar & Shamir-Inbal, 2017). Their qualitative research approach focused on the reflections of technology coordinators through descriptions and interpretations of their experiences during a course that took place for one year. The program led various educational leaders through three primary areas, including innovative technology tools, pedagogy, and directing through change. An overarching finding determined that along with the principal, the technology leaders are responsible for instilling a dynamic and innovative learning environment, including a course of action for all future technology

implementations. Akyuz (2018) analyzed lesson plans of preservice math teachers along with a self-assessment survey using a Likert scale from one to five. This mixed-methods approach produced drawbacks in technological knowledge (TK) due to a specific technology tool used in the course with pre-service math teachers. T-PACK aspires to enhance technological knowledge on par with pedagogical and content knowledge. However, the model did not clarify how to achieve methodological change or competence technically (Wang, 2018).

Parallel to T-PACK, Technology-Enhanced Learning (TEL) is at the intersection of technology and pedagogy (Balter, 2017). Many see e-learning as the bridge to access higher education for K-12 students. The focus of Balter's (2017) study was higher education, although many of the themes discussed translated for high school curriculum leaders and topics regarding technology in the K-12 setting. The research focused on leadership approaches that relied on appreciative inquiry to cull out perspectives of collaboratively working together using TEL across multiple disciplines. Balter (2017) wanted to understand the forces and views of successful TEL implementation in teaching. Three themes emerged: gaps of knowledge of different subject matter and TEL, commonalities in the use of TEL between subjects and competencies, and views of the importance of teaching (Balter, 2017). Principals must realize that they need not be subject matter experts to see technology utilized in a range of ways across all subject areas. Additionally, principals may notice that many tools can be used universally.

The second educational theory, the SAMR (Substitution, Augmentation, Modification, and Redefinition) Model, (Puentedura, 2014) is a revised version of

Bloom’s Taxonomy. Puentedura hypothesizes that it pushes teachers to conquer the obstacle of ongoing substitutive use of technology (Puentedura, 2014). When developing lessons using SAMR, it is essential to remember what each level represents. Substitution takes one tool and replaces it with another. An example of this is an online textbook instead of a hard copy. Augmentation takes an application that is substituted and provides some function of improvement.

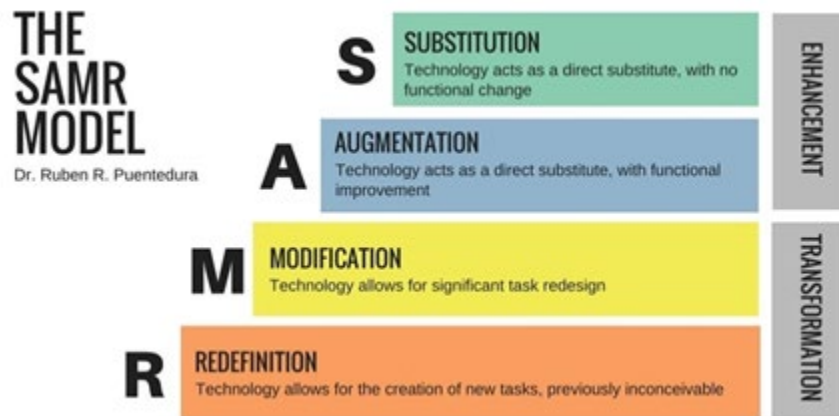


Figure 2. Model displaying levels of SAMR: Substitution, Augmentation, Modification, and Redefinition. Reprinted from "Explanation of the SAMR Model," by Leffler, 2016, [https://commons.wikimedia.org/wiki/File:The\\_SAMR\\_Model.jpg](https://commons.wikimedia.org/wiki/File:The_SAMR_Model.jpg). Copyright 2016 by Creative Commons Attribution-Share Alike 4.0 International license.

Because most educators know Bloom’s Taxonomy, shifting to the SAMR model is a smooth transition to a new educational model. It is also straightforward to couple SAMR and Bloom’s Taxonomy, but it is not necessary (Puentedura, 2014). The

recognizable steps to reach the higher-level order of Bloom's Taxonomy now also acts as an initiative to reach the upper levels of SAMR. Lastly, educators must avoid the mistake of assuming that a task is at a higher level in either model than it may be (Puentedura, 2014).

Of the two models discussed, the T-PACK model is more complicated than SAMR and requires extensive planning and buy-in from instructional leaders, coaches, teachers, and administrators. The challenge of T-PACK is how leaders can change programs into fully integrated T-PACK environments. Leadership becomes central in developing new ways of meeting this multifaceted issue to address core knowledge components, all-encompassing content, pedagogy, and technology (Thomas, Herring, Redmond, Smaldino, 2013).

### **Leadership and Technology Self-Efficacy**

While the notion of self-efficacy is not new in the field of education, it is best understood in Bandura's work (Bandura, 1997). Bandura introduced social-cognitive theory as a self-regulatory means to measure an individual's capacity to effectively complete specific tasks or face certain situations (Bandura, 1997). Bobbio and Manganelli developed a multidimensional instrument based on Bandura's development and research of self-efficacy to measure leadership abilities (Bobbio & Manganelli, 2009). The research study focused on leadership and crucial functions, but not necessarily technology skills. However, the areas discussed proved to be vital in successful technology integration and skills due to the overlapping characteristics of technology self-efficacy. Bobbio and Manganelli (2009) identified desirable leadership

characteristics as setting a focus for a group of teachers, gaining and preserving credibility, and interpersonal skills such as effective modeling, communicating, and an overall self-confidence in their leadership was discovered to be desirable leadership characteristics.

Knowledge and aptitude in technology and applications of technology in education are critical to actual instructional guidance, decision making, and capable supervision (Bozeman & Spuck, 1991). Bozeman and Spuck (1991) interviewed students seeking to become educational administrators for their research study. They determined that a principal must be knowledgeable about educational technology (Bozeman & Spuck, 1991). Principals must be able to model and communicate specific expectations and requirements for use in the classroom in order to be an effective instructional leader (Bozeman & Spuck, 1991), while complementary research intended to identify change-oriented approaches, ability to trust in the assignment of tasks, communication, and acquisition of consensus (Bobbio & Manganeli, 2009). What emerges from the research is a contrast of overarching characteristics that are needed to accurately assess one's self-efficacy regardless of the use of technology. A certain level of confidence in all areas, including the use of tools and applications, must be part of an effective leader's repertoire.

## **Technological Skills Competence**

Educational leaders must use tools and applications to increase technology integration on their campus. Administrators who use email, web tools, and district productivity software will more easily inspire and lead others to use technology to improve student achievement (Berrett, Murphy, & Sullivan, 2012). Educational leaders must understand what aptitude and skills are brought into the classroom and, thereby, the ability of teachers to act in the best interest of students (Miller & Miller, 2001).

Competencies that are not skills-based, but conceptual for institutional changes, are necessary for building support models, celebrating successes, and finding support for funding for enhanced technology education (Simerly, 1999). Finding the right balance of integrating technology into the curriculum to ensure students graduate with the advanced level of technology skills remains a challenge, while academically, the educational leader must support and provide the tools while allowing teachers to promote technological successes in the classroom (Simerly, 1999). What worked two decades ago has changed. With the bar raised, many students now know as much about technology as the teachers and administrators. Conversely, research has shown that principals may face challenges developing their own proficiencies in technology while trying to assist teachers and students who need to acquire their own skill sets (Yee, 2000). Yee (2000) examined the role of the principal, effective professional development models, the skills expected of educational leaders, and the use of technology on their campus in detail and discovered that the use of technology in schools had become both a partisan and educational issue for administrators, teachers, and students (Yee, 2000).



## **Role of the Principal as an Educational Technology Leader**

Administrators must provide daily support necessary to help teachers achieve success and to prepare the campus in general for transformative teaching and learning (Kincaid & Feldner, 2002). Educational technology leadership is vastly different in various ways from administrative leadership because of the skill set needed when computers began to enter the classroom (Kearsley & Lynch, 1992). Although the research is over twenty years old, Kearsley and Lynch's (1992) thoughts on linking innovation to educational technology leadership are still relevant. As technology transforms teaching and learning, leadership must quickly develop and express an idea of how technology can yield changes in the classroom (Kearsley & Lynch, 1992). Educational technology leaders must motivate and create change. They must fight the status quo (Havice, 2003). By taking on the role of a motivator, Havice speculated, we begin to take on new ways of thinking and therefore begin to expect that from teachers and learners as well (Havice, 2003).

The campus principals' ability to lead is a noteworthy, defining factor in the successful implementation of new technology and how principals distinguish their role and ability to listen to their teachers' needs influences the integration of technology through the entire process (Anderson & Dexter, 2005). This research of the principals' ability by Anderson and Dexter contrasts with the works of Havice and Kincaid and Feldner.

## **Importance of Continual Professional Development**

Although there are professional expectations and standards set through various organizations for school administrators, schools cannot guarantee that a principal can effectively lead technology integration nor lead their campus through integration. In a study conducted with elementary school principals, Sincar (2013) found that training is a critical factor in the context of educational technology usage. If principals do not have the knowledge and background to effectively understand how certain technologies can be used in the classroom, then the campus integration suffers. Sincar (2013) conducted interviews with elementary principals. Through that inquiry process, issues with infrequent or few training opportunities were discovered. The unequal distribution of technology across all schools also proved problematic. While the inequities of distributed technologies frustrated teachers, the lack of training proved to be a more significant problem among principals (Sincar, 2013). Recommendations were provided for the usage of technology by principals not only to learn but to ensure that their staff received learning opportunities through professional development (Thomas & Knezek, 1991).

Sincar (2013) discussed educational administrators were developing coaching skills to support teachers and face challenges presented daily in a variety of ways. Bloom, Castagna, Moir, & Warren, (2005) provided a comprehensive framework was provided for continual improvement of coaching strategies through ongoing professional development Bloom et al. (2005) categorized and determined key concentration areas for leadership coaching and the challenges faced by principals. The research expounded

through standards, self-assessment instruments, and professional development activities. Principals gained practical knowledge and skills necessary for effectively leading their campus.

### **Closing Thoughts on Chapter 2**

K-12 administrators struggle with what they need to know about technology and how to support the initiatives of classroom technology integration. As noted throughout the review of the literature, it is the responsibility of the principal and educational technology leaders, together, to ensure the implementation through constant care and assessment. When implementing an innovation, regardless of the technology, a plan of action must be a focus so that the new technology is deployed with intention and fidelity. Various stakeholders can help to promote this innovation through training, modeling, coaching, and assessment of implementation. Principals can identify teachers who are eager to try new technologies and support them as champions. District administrators, campus leaders, and teachers must implement technology with intention. The relationships forged while seeking to understand the implications of a successful curriculum and technology integration for teachers and students predict the success of any project. Understanding the overall needs of all stakeholders and ensuring collaboration through continued monitoring and communication are two of the many ways to support and promote effective technology integration on campus or full scale.

It is important to note that campus leaders must continually plan to incorporate new skills and technological uses. Principals must also allow themselves time to understand the latest technology and how it will be incorporated into the curriculum.

Principals cannot stand idly by during staff development. They must be skilled in a technology-rich atmosphere that supports the curriculum and instructional goals of the campus and district at large. These ideas are achievable when district and campus educational leaders work together for the benefit of teachers and students.

Just as we do with our teachers, districts should provide support and training to school administrators for any technology implemented on campus. Districts should make instructional coaches available to model and suggest efficient and effective ways to use technology in all settings. School principals should be highly encouraged to attend continuing education programs, which emphasize technology and leadership.

Educational technology leadership matters because technology efforts fail in schools for a variety of reasons. Administrators must learn to manage and effectively integrate technology in schools as part of their leadership role. Further research is also needed to conclude if factors such as managing technology monies, the ability to cope successfully with change, and organizational capacity for continuous learning are among the characteristics required to succeed as an educational technology leader.

Research must consider both theoretical and empirical work to determine how technology leadership and administrative leadership may be integrated. Technology administrators must support implementation processes with information, but principals motivate and set campus expectations. Future research to consider is whether a relationship exists between leadership where technology-enhanced learning (TEL) is and is not being implemented. For successful TEL implementation, schools need cooperation between faculty, technology professionals, and pedagogical developers.

Finally, principals have noted that they want students immersed in technology. Principals want their teachers innovating with technology and their students fully engaged. Modeling successful technology implementation throughout the school day in all facets sets the expectation, allowing teachers to be immersed fully in professional development and exploration of new methods and risk-taking to promote critical thinking while allowing creativity and innovation that supports best practices. With constant open dialog and support, new ways of learning can be discovered for all types of students using variations of new technologies through the principal's continued leadership, support, and motivation.

## CHAPTER III

### SOLUTION AND METHOD

#### **Proposed Solution**

With approval and support from the superintendent of schools, I worked with campus administrators to develop a comprehensive plan for technology integration throughout the district. This plan included recommendations and feedback from principals including exploring educational technology frameworks and strategies. I also sought guidance regarding the timeline for implementing the policy across the district. The research was limited by time constraints built-in during the spring semester because of state assessments. I worked with the principals to ensure the research did not interrupt principals' schedules. As an insider, I have a great understanding of the issue this project focuses on and worked diligently to protect authenticity and trustworthiness, discussed in detail in this chapter.

#### **Outline of the Proposed Solution**

To discover the varying viewpoints and understanding of educational technology by administrators, I interviewed a variety of campus administrators from the twenty-three schools within Callery Blossom ISD. I chose the administrators through purposeful sampling. The administrator interviews allowed me to gain an understanding of the principals' perspective of educational technology. I interviewed six administrators. The open-ended interview questions permitted authentic conversations with principals. During this time, I also gathered lesson plans, campus handbooks, and district policies to

determine expectations of integrating technology in their campus's classrooms. I used a rubric for content analysis to look for support, access to technology, use of educational technology models, and innovation of technology in the classroom. Once I gathered all of this information, I worked with campus administrators to develop a comprehensive plan for technology integration on all campuses.

### **Justification of Proposed Solution**

The rationale for this research study stemmed from the need to understand educational technology and support when implementing district-level technology initiatives. This research will hopefully encourage campus leadership to set expectations for classroom use of technology. While district-level leaders set these initiatives and requirements, support from campus leadership is imperative in the implementation and success in teachers using these strategies, and students learning 21<sup>st</sup>-century skills.

### **Study Context and Participants**

#### **Participants and Sample**

All campus administrators from the twenty-three campuses within Callery Blossom ISD were asked to participate in interviews regarding educational technology theory and technology integration used on their campus. Interviews were conducted with six principals. Lesson plans were collected randomly from two elementary campuses, one middle school, one junior high, and one high school campus.

Callery Blossom ISD has twenty-three campuses located within a fifty-four-mile radius of the city of Callery Blossom. Approximately 22,000 students attend with the average class size ratio being 15.8 students to one teacher. The student ethnic

distribution is 35.5% White, 34.6% Hispanic, 14.8% Black, 11.0% Asian, 3.7% Multi-racial, .3% American Indian, and .1% Native Hawaiian. Callery Blossom boasts 1,364 teachers with an average of 10 years teaching experience. Various diverse programs are offered within Callery Blossom such as a Gifted and Talented Academy, Dual Language Programs at elementary and middle school campuses, a College and Career High School, and a variety of dual credit classes and dual degrees through local colleges. With the world-class programs offered within the district, the district supports a robust technology infrastructure and new technologies within each classroom and lab.

### **Proposed Research Paradigm**

This qualitative study of the 2018 – 2019 campus administrators offered insight into information about understanding educational technology theory and how to best support technology integration on the twenty-three campuses in Callery Blossom ISD. The purpose of this study was to determine what more we need to know about educational technology adoption, promotion, and integration and to develop a comprehensive and supported plan for integration in the classrooms across the district.

I chose to engage in qualitative research because I wanted to understand the views and perspectives of the campus principal related to technology integration. By starting with a qualitative study, concepts, and theories discovered could lead to new thoughts and distinct views not considered before. Due to the limitations of this study, I do not attempt to use this study's information to generalize in any other context. This project helped me to understand these phenomena deeply rather than broadly.



## **Data Collection Methods**

### **Justification of the Use of Instruments in Context**

I developed interview questions to obtain information from the principals involved in this study and to gain initial profile information. The interview questions were formulated to glean an understanding of educational technology theories and the principals' initial motivation regarding technology usage. I conducted a pilot test of the questions on directors of instruction and special education and made revisions based on feedback. The interviews also took a deeper dive into educational technology perceptions with open-ended questions developed by the researcher, allowing flexibility in the interview process. The interview questions aim to find perceptions, meanings, and descriptions of educational technology, as seen through the lens of the principal. The interview questions were standardized and open-ended, which I sequenced and worded in advance. I worded the questions in a manner to show empathy and develop the relationship, yet I made sure they remained neutral enough to receive unbiased information. Empathic neutrality helped to develop a rapport that allowed the principals to feel comfortable with clear answers that showed an impartial approach and a willingness to work toward a comprehensive plan for technology integration on their campus.

## **Data Analysis Strategy**

Before analysis began, a process was determined to convert the interview audio files into written transcriptions through the use of technology. Once the files were converted, I listened to the interviews to ensure the handwritten notes, the audio recordings, and the digitized transcripts contained the same information. This process was repeated for each interview and lasted several weeks to ensure all information was properly documented. To determine the results from the interviews, I employed a cross-case pattern or cross interview analysis (Patton, 2015).

The method of cross interview analysis required spending hours of time each day reading the interview transcripts, while highlighting and noting possible themes and patterns. As the themes emerged, I began using a qualitative software to acknowledge my findings. Answers and reactions from different principals were clustered by topics. I supported the discovery of themes, categories, and supporting quotes from interviews by coding for a descriptive analysis using the MaxQDA software. The analysis highlighted the rich descriptions given during the discussions with principals.

Once saturation was reached within the coding of interview documentation, I employed the data analysis sampling strategy and looked for patterns and themes in lesson plans and campus improvement plans from the identified schools within Callery Blossom. I explored how Callery Blossom principals promoted technology integration by investigating a random sample of lesson plans and campus improvement plans to see if a structure existed for technology usage. I conducted content analysis using a rubric developed and revised to include an analysis of T-PACK and SAMR.

I analyzed the lesson plans by looking for criteria based on curriculum goals and technologies, instructional strategies, technology selection, and fit. The content analysis rubric (Harris, Grandgenett, & Hofer, 2010) was adapted because the lesson plans were very incomplete in the determined categories. I looked for evidence of each category and whether or not they existed within the lesson plan, instead of the scope to which the category was implemented. I also examined the presence and level of SAMR integration.

With the analysis of interviews, lesson plans, and campus improvement plans, I used triangulation to determine a comprehensive understanding of the phenomena of technology integration and leadership promotion and support (Patton, 2015). By using triangulation, I compared interviews against lesson plans and campus improvement plans for technology usage to substantiate what was reported by the principals.

These methods also considered the relationships between experiences using technology and a clear understanding of educational technology theories. I used narrative reports along with tables to show the occurrence of coded themes. The themes and categories captured principals' experiences and understanding of technology integration and showed if a principal understands educational technology, its associated theories, and has an overall positive experience using technology. The research also showed if principals set expectations on their campus for using technology in the classroom to help students develop 21<sup>st</sup>-century skills.

## Timeline

Table 1

*Timeline of Research Activities*

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|   |
|---|
| Activity 1 – Introduction to action research study during a principal meeting                             |
| Activity 2 – Schedule and conduct interviews with principals  |
| Activity 3 – Collect Lesson Plans and Campus Improvement Plans  |
| Activity 4 – Develop a plan for educational technology based on interview feedback and document analysis. |
| Activity 5 – Schedule follow up questions and concerns  |
| Activity 6 – Presentation of educational technology leadership plan at the principal or cabinet meeting.  |

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*Note.* The timeline of activities took place over the spring and summer semesters of 2019.

As shown above in Table 1, the timeline of activities included an introduction of this action research, as well as a scheduling and conducting interviews with participating principals. Lesson plans and campus improvement plans were collected during the interview process. Based on feedback from the interviews and various conversations with district leadership, a plan started to emerge for non-negotiables based on grade levels and student skill sets. Presentations to district administrators and campus principals began the fall semester to implement the non-negotiables as a starting point for technology integration in all classrooms.

Table 2

*Principal Interview Questions*

|  |
|--|
| <ol style="list-style-type: none"><li>1. How long have you been an administrator?</li><li>2. How long were you a classroom teacher?</li><li>3. What technology was available to you as a classroom teacher?</li><li>4. What are your beliefs in Educational Technology?</li><li>5. How much do you research Educational Technology and then apply what you learn?</li><li>6. How do you use the SAMR model and T-PACK in your evaluations?</li><li>7. How do you ensure that instruction on your campus is enhanced by technology that can be accessed by all learners?</li><li>8. How do you collaborate with your Educational Technology Specialist?<ol style="list-style-type: none"><li>a. What is your perspective of your ETS as an educational and technology expert?</li><li>b. Do you see your ETS as an equal to your curriculum and instruction content specialist?</li></ol></li></ol> |
| <ol style="list-style-type: none"><li>9. How do you support district educational technology initiatives in professional development?</li><li>10. What kind of support do you provide once technology PD has been provided for your teachers?</li><li>11. How does technology effectively prepare our students for careers and college?<ol style="list-style-type: none"><li>a. At your grade level, what is that one technology skill that students should master?</li></ol></li></ol>   |
| <ol style="list-style-type: none"><li>12. Tell me about a time when you modeled technology use.<ol style="list-style-type: none"><li>a. What was that technology?</li><li>b. What was your experience?</li></ol></li><li>13. How do you use technology to model expectations of infusing digital tools in procedural and instructional tasks?</li><li>14. How do you model and facilitate digital citizenship?</li><li>15. How do you promote a digital age learning environment?</li><li>16. How do you advocate for technology use on your campus?</li><li>17. What else would you like to add to this conversation?</li></ol>   |

*Note:* The table depicts a standard set of open-ended questions used in all principal interviews.

Table 3

*Document Content Analysis Rubric*

| Criteria   |   |  |
|--|---|--|
| <b>Curriculum Goals &amp; Technologies</b><br>(Curriculum-based technology use)                    | Technologies selected for use in the instructional plan are <u>aligned</u> with one or more curriculum goals. | Technologies selected for use in the instructional plan are <u>not aligned</u> with any curriculum goals.  |
| <b>Instructional Strategies &amp; Technologies</b><br>(Using technology in teaching/ learning)     | Technology use <u>supports</u> instructional strategies.  | Technology use <u>does not support</u> instructional strategies.   |
| <b>Technology Selection(s)</b><br>(Compatibility with curriculum goals & instructional strategies) | Technology selection(s) are <u>compatible</u> given curriculum goal(s) and instructional strategies.          | Technology selection(s) are <u>inappropriate</u> , given curriculum goal(s) and instructional strategies.  |
| <b>“Fit”</b><br>(Content, pedagogy, and technology together)                                       | Content, instructional strategies and technology <u>fit together</u> within the instructional plan.           | Content, instructional strategies and technology <u>do not fit together</u> within the instructional plan. |

*Note.* Adapted from “Testing a T-PACK-Based Technology Integration Assessment Rubric,” by J. Harris, N. Grandgenett, and M. Hofer, 2010, *Proceedings of SITE 2010--Society for Information Technology & Teacher Education International Conference* (pp. 3833-3840). Copyright 2010 by J. Harris, N. Grandgenett, and M. Hofer.

### **Reliability and Validity Concerns or Equivalent**

This study considered principals' understanding of educational technology and how their attitudes and perspectives affect supporting and implementing district initiatives of current and new technologies in the classroom. Since this study was conducted in cooperation and collaboration with the principals and supported by the district stakeholders, the results should render transformative learning and empowerment to lead future implementations with the guidance and support from district technology leadership. My reflection of the processes added to the rich descriptive information shared as part of the evaluation process with all district stakeholders.

As the researcher of this study, I was aware of my biases. Since my area of expertise is in technology, I remained objective to produce more accurate interpretations which involved establishing that the results of this qualitative research are credible and believable from the participant's viewpoint in the research (Lincoln & Guba, 1985). The interviews were at least an hour in length, with follow-up conversations when necessary for clarification of responses. Prolonged interview times allowed for the continuation of trust building and becoming more familiar with the setting and context from the principals' point of view (Korstjens & Moser, 2018). Data triangulation of multiple sources to confirm

This research can be transferred to other contexts or settings because the process was documented in a logical and traceable manner through rich descriptions provided from the interviews. Through these descriptions, not just behavior and experiences of the

principals were discussed and uncovered, but their context may become meaningful to outside individuals not involved in this research (Korstjens & Moser, 2018).

Through dependability, other researchers would likely come to similar conclusions (Lincoln & Guba, 1985). I ensured that data and interpretations were confirmable, which is why triangulating the data was necessary. It was essential to recognize that this problem exists not just from my perspective, but the principals as well. The entire process of interviewing, transcribing, and analyzing of supporting documents was recorded throughout this research study. Research steps taken.

To keep my own biases and preconceived notions in check, I used technology in the transcription process of interviews, as well as coding through the use of qualitative software. After listening to each interview and reading the electronically produced transcripts, I would go back to my handwritten notes to ensure accuracy between the two mediums. I spent time reflecting on the outcome of the interviews through my own notes and looked for patterns where I believed themes existed. I also critically reflected on the discovery of themes and how my biases as the director of educational technology could affect the outcome of this research.

I explored the relationships between myself and the six principals interviewed. The level of trust and comfortability built over the years affected the principals' answers. I considered each principals' experiences using technology as a classroom teacher and an administrator, and focused on their understandings of effective technology integration, their knowledge educational technology theories, and the skills they



identified as lacking. This process of reflexivity provided necessary critical self-reflection of biases, preferences, and preconceived notions (Korstjens & Moser, 2018). Finally, the expectation will be that this research will be the catalyst of favorable action and promote the collaborative nature for change and engagement when implementing technology across the district.

### **Closing Thoughts on Chapter 3**

This action research study was shared with district administration and stakeholders. I used the results of the interviews as the primary data source. By looking at the interview data, I determined patterns of understanding and the connection between campus leaders and technology integration. The literature used during this study looked at various technology integration strategies used by campus administrators and their comprehension of educational technology theory and practice.

## CHAPTER IV

### ANALYSIS AND RESULTS/FINDINGS

#### **Introducing the Analysis**

The rationale of this study was to explore varying viewpoints and gain an understanding of how principals perceive educational technology. I interviewed six district principals with open-ended questions that stimulated in-depth and open conversations about the implementation of educational technology on their campuses. I analyzed data using coding, and the development of a codebook was used for descriptive analysis. I conducted interviews which explored the principals' perspectives, understandings, and beliefs. Through content analysis of lesson plans and campus improvement plans, I found connections between administrator perceptions and the actual importance of technology integration in the classroom. I answered the research questions through the interviews and content analysis. Data analysis of interviews, lesson plans, and campus instructional plans took place in July of 2019 using the software, MaxQDA Analytics.

#### **Presentation of Data**

In this chapter, I provide a comprehensive representation of this research. I discuss the findings within each research question. The themes will be characterized by the framework of the research questions and will be described through carefully chosen text from the transcripts. I examined the content analysis of campus improvement plans

and lesson plans with the use of the T-PACK (Harris, J., Grandgenett, N., & Hofer, M., 2010) content analysis rubric.

My research questions consisted of the following:

1. What are the principal's experiences and understanding of effective technology integration on their campuses?
  - a. What technology skills do principals identify as lacking?
2. Based on their knowledge, attitudes, and beliefs, how do principals in Callery Blossom ISD support and promote effective technology integration?
3. Is there alignment between the principal's technology use and the effective integration of technology on campus?

Six principals within Callery Blossom participated in the interviews. Two elementary principals and one middle school principal participated in the individual conversations, while two junior high principals and one high school principal agreed to be interviewed. Four of the six principals were female and two were male. Ethnically, of the six principals, one principal was Hispanic, two were African American, and three were Caucasian. Classroom experience ranged from four years to seventeen, while administrator experience was from four years to twenty. Overall, the sample size was appropriate to gather rich descriptions of beliefs and understandings of educational technology.

During the Curriculum and Instruction Principal meetings in the spring semester, I shared information about the upcoming research study related to principals and educational technology and noted the need for interview participants. After receiving approval to move forward with collecting data, I sent an email to all twenty-three principals with a flyer describing the study and requesting an opportunity to meet. After receiving eight responses, I scheduled interviews based on availability. Interviews were planned according to principal availability to ensure no interference occurred with any end of the school year activities or the state testing schedule. Each principal was very accommodating with their time at a very hectic period of the year. At every interview, each principal was presented with the informed consent paperwork, which they gladly filled out. As the discussions continued, patterns began to emerge and continued to present themselves through all six conversations. Those patterns would develop into the themes discussed within this framework of research.

The interviews were each enlightening in their way. The structure of the interview sessions varied in formality with each campus. The most formal meeting occurred in the high school principal's office. The principal sat behind the desk, and I sat in a chair, most often occupied by students. Usually, when meeting with this campus leader, the conference room adjacent to the office is reserved, but for this interview, it was all business, which also showed in the principal's body language. With arms folded, the desk was used as a barrier, implying what could be perceived as distrust. This formal approach represented a deviation from the typical banter of our meetings and perhaps an air of authority on the part of the principal. As the interview progressed, the conversation

became less formal, and more relaxed, sharing information regarding background, beliefs, and experiences in the role as a principal.

The least formal interview session was conducted via phone instead of the planned face-to-face session due to time constraints. The phone interview provided a physical obstacle since we could not see each other to read the cues of body language. However, the relationship with this leader developed over the last two years as she went from an assistant principal to running her campus and remains open with a high level of mutual trust. Before becoming an administrator, she was an educational technology specialist who did not appreciate the technology aspect of her job. While she admitted that she is not afraid to use technology, she does not consider herself a “techy person” and felt that role did not suit her as an educator.

It was important to note the variations in body language given that one interview was conducted over the phone. Since we could not see each other, it was believed that the principal was focused on the conversation and not another task. Within each face to face interview, the principals focused on the questions asked and sometimes spoke informally and often with hand gestures denoting a secure environment.

The principals all openly shared mutual and varying perspectives of teaching, leadership, and technology. Those perspectives were uncovered through the themes which will be discussed in the context of each research question. Three of the six principals had teaching experiences in both Texas and Louisiana. All six principals had different exposure to available technologies when beginning their teaching and administrative careers.

The following themes emerged from the analysis and coding of the interviews, which produced detailed descriptions of

- experience;
- technology use;
- beliefs in educational technology;
- attitudes;
- and knowledge.

Each principal's experience as a classroom teacher and as an administrator was broken down into two categories or sub-themes in the interview to gain an understanding of their exposure to technology in their past and current positions. Technology use also emerged as a theme in both procedural and instructional sub-themes, and as the principals discussed how they used technology as a teacher and an administrator. Beliefs in how technology fit with collaboration, training, expectations, and research and application were also noted in the interviews. Each administrator shared different beliefs and attitudes when identifying the support and promotion of technology.

For the purpose of this study, the word attitude was defined as a feeling about any subject (Merriam-Webster, 2019), and a belief was described as something that is held as true (Merriam-Webster, 2019). Principals' attitudes tended to cluster in supporting and promoting technology integration, while their beliefs grouped around collaboration, training, setting expectations, and research and application. Surprisingly, overall, their knowledge of educational technology was on par with one another except one principal.

Table 4

*Principal Interview Themes*

| <b>Major Theme</b> | <b>Sub-Themes</b>   | <b>Coded Extractions</b> |
|--------------------|---|--------------------------|
| Experience         | Classroom<br>Administrator  | 24                       |
| Technology Use     | Classroom<br>Administrator<br>Procedural<br>Instructional             | 39                       |
| Beliefs            | Collaboration<br>Training<br>Expectations<br>Research and Application | 49                       |
| Attitudes          | Support of Technology<br>Promotion of Technology                      | 66                       |
| Knowledge          | Understanding of<br>Educational Technology                            | 16                       |

*Note.* This table depicts the major themes and subthemes found in the principals' interviews.

The campus improvement plans offered common themes through the modified content analysis rubric, although they did not have a consistent format. Campus improvement plans were developed by a committee of teachers, administrators, and district personnel. Out of the six plans analyzed, the campuses did not include any educational technology staff in writing the campus improvement plans, although the plans had goals, rationale, and strategies written that held the educational technology department accountable.

The lesson plans were incomplete, with little usable data. The lesson plans, although a requirement of the district, had minimal information, with some plans not meeting the minimum criteria of the modified content analysis rubric. Teachers in

Callery Blossom ISD are required to include not only subject matter Texas Essential Knowledge and Skills (TEKS), but technology TEKS to show integration is involved in the teaching and learning process. The district also provided anchor lessons that were created and vetted by the curriculum and educational technology specialists when Bring Your Own Device (BYOD) was implemented, making lesson plan preparation easier. Through the lesson plan analysis process, I discovered that teachers do not use the anchor lessons provided. Teachers also did not include TEKS for their subject matter nor technology integration in their lesson plans.

### **Research Question 1**

#### **What Are the Principals' Experiences and Understanding of Effective Technology Integration on Their Campuses?**

##### **a. What Technology Skills Do Principals Identify as Lacking?**

**Experiences.** All six principals had varying experiences in their classrooms that began with the introduction of computer labs in schools to some personal student use of handheld calculators and v-tech devices. Their classroom experience was the beginning of the disruption of personal computing that began inundating schools across the nation. All six principals are digital immigrants who taught in classrooms with very little technology available for the teacher or students. The standard technology available during their classroom days was a teacher computer and an overhead projector. Principal F discussed the arrival of the Apple 2E in her classroom and how students would “play Oregon Trail or use the program to take Accelerated Reader tests.”



As administrators, all six principals determined they needed more experience in using technology to provide more opportunities to model for their teachers. They all believed that technology integration is part of their responsibility as leaders, and they should be able to use the tools their teachers have access to in the classroom. The skills they believed could be more thoroughly developed through these experiences included using the teacher tablet for mobility, digital citizenship, Office 365 tools, and the Canvas learning management system.

**Understanding educational technology.** While educational technology theories are new in terms of instructional strategies in the K-12 classroom, behaviorism, constructivism, and transformative learning theories have been in practice for hundreds of years (Ouyang & Stanley, 2014). SAMR and T-PACK are beginning to gain traction in Callery Blossom ISD as educational technology theories that can transform learning and allow students the opportunity to expand their worldview using technology tools. The educational technology specialists developed and delivered training for administrators and teachers involving the SAMR model. Professional development offered early exposure to T-PACK for administrators.

**Classroom use as a teacher.** All six principals had varying background knowledge of technology. While their knowledge base differs, each principal carried a familiarity about technology through their classroom experiences. Their exposure to technology started when computer labs were entering into schools as a rotation in learning and classroom technology was in the form of a teacher computer and an overhead projector. All six principals discussed this configuration, mostly using the

personal computer (PC) format with one principal reporting that Apple computers were the chosen system. Principal C was the only principal who completed the Microsoft Academy in a previous district and was given a laptop after completing the summer sessions. Classroom integration was on the verge of becoming a new way of teaching and learning for her. Principal C reported that at the time she was a classroom teacher, the Technology TEKS were taught only to the Gifted and Talented students through a scope and sequence.

“We got additional computer lab time to start introducing the students on how to type in Word and how to do presentations in PowerPoint. This additional lab time was just for the GT kids, and an introduction to technology group work. I eventually carried over the scope and sequence to my regular students because I felt it was just as important for all of my students to learn these skills.”

Principal C also noted that she was part of a committee to introduce technology lessons through teacher training. The classroom expectations changed to include these new learning tools. The committee developed lessons and shared their experiences from the Microsoft Academy. The entire process for their school gained traction with the support of the administrators, teachers, and the Parent-Teacher Association (PTA). The PTA purchased enough computers for a third computer lab to support all students. Each administrator discussed their knowledge of technology with varying skill sets while they were in the classroom. Most expressed the lack of availability for classroom use for students. All six principals determined today’s significance to use technology for a

variety of tasks and the importance of students being able to create products to enhance their learning.

**Understanding of effective technology integration.** As leaders of their campuses, understanding education technology depended upon the expertise of their educational technology specialist. Five out of the six principals rely on their educational technology specialist to provide best practices of technology integration for their teachers, including monthly professional development, which they participate, to build upon skills and learning strategies that have been introduced. Principal E does not rely on his educational technology specialist as frequently and allows his teachers to determine when they participate in training unless the district mandated it.

Principal B discussed the instructional use of the learning management system Canvas. He understood that Canvas provided enriched learning experiences with different activities to meet the needs of all learners. He believed the Canvas learning management system is a way for teachers to use purposeful technologies.

Principal B stated, “I think I think technology is huge. I mean, I think it’s where our kids are at today and when we can get into their world through any means, the more engaged they become and retain information. But I think it’s got to be done right, as well, and I think that’s the key. Technology for the sake of technology is truly not what it’s intended to be. And so how are you, how are we purposefully doing it? That is the question we must all answer as leaders.”

**Development of Skills.** All six principals noted they would like more training in both T-PACK and SAMR. They asked for a deeper dive into what those models look like at their given grade level. Principal E determined that he would not put this as high on his list of priorities, but that he would like an overall understanding when he conducted his walkthroughs and observations. All six principals attended the Administrators Academy that was held this summer.

Principal C discussed that “educational leaders want to know about educational technology and the ‘why’ to help promote the use and provide benefits to teachers and students.”

Overall, the principals interviewed expressed the appreciation of the professional development that had been offered and wants more that provides educational technology theories and models and how to recognize them in the classroom. All six principals discussed that they would like to see their ETS and the C&I specialists have closer collaboration when developing the curriculum so that technology does not stand alone. The tighter integration needs to happen for the benefit of teachers and students as well.

## **Research Question 2**

### **Based on Their Knowledge, Attitudes, and Beliefs, How Do Principals in Callery Blossom ISD Support and Promote Effective Technology Integration?**

The interviews uncovered that principals have adapted in some ways to a digital learning environment and the infusion of technology into classrooms and our student’s everyday life. Principals rely heavily on their technical support personnel and still value their educational technology specialist as a technical support person more than an

instructional specialist. Procedural processes, such as using tools for everyday tasks, emerged as more natural topics than instructional technology theories and strategies.

**Knowledge.** When interviewing the six administrators about educational technology theories, I found that not enough emphasis was placed on the importance of these theories being implemented in practice. Five of the six principals did not recall what either of the methods represented, and I had to explain their relevance in technology integration. Remarks from the five ranged from “not being trained fully or not remembering” to “I do not use these when I complete walkthroughs or observations.”

All six principals expressed an interest in being trained more deeply on SAMR and T-PACK. Principal D, however, did recognize when teachers used the SAMR model. Principal D shared that her teachers and students participated in project-based learning at the Gifted and Talented Academy. Through their Texas Performance Standards in Projects (TPSP), students created their research studies using various technology tools to gather and present their information. They made decisions on technology tools with the teacher’s guidance on how to develop and deliver their projects. She believed her students are well into modifying and redefining the way they infuse technology into their projects. According to the International Society in Technology Education (2016), allowing students to make decisions, to create and deliver their projects, is the most effective and successful technology integration (ISTE, 2016). From the perspective of educational technology in Callery Blossom ISD, this is the goal for all learners.

Since the questions asked in the interviews required contemplative thought, several principals acknowledged they still have much to learn. Promoting and setting expectations for instructional strategies to be used effectively in their classrooms was an important goal. Principals' ability to recognize educational theory in practice, such as being able to identify components of SAMR and T-PACK, was even more foundational.

**Attitudes.** Principal D had the opinion that she will embrace new technology with an open mindset. Principal D said, "I'm not a technology expert, but I am willing to try." In contrast to Principal D, Principal E determined that even though an educational technology specialist has an advanced degree focused on instruction and technology, being an expert in this field is "lofty but enough to improve his staff and provide technical support." Principal E believed that the educational technology specialist worked with more teachers than their Curriculum and Instruction counterpart but was spread thin because of the demands placed on them by teachers and administrators. The needs included being able to troubleshoot and fix computer issues, which diminished the value of the educational technology specialist as an instructional specialist. It is important to note that each campus has a technician, tech-aide, and an educational technology specialist with clearly defined roles.

**Beliefs.** Principal B believes that administrators and teachers must adequately prepare students to be good digital citizens and that as educators, we must create opportunities for them to use technology because this readies them for college and productive global citizens. Principal D believes that technology is a vehicle, and the curriculum is the driver. Principal D also believes that having an educational technology

specialist to support her teachers in instructional coaching and lesson modeling is one of the best ways to prepare students. She considers her educational technology specialist is a teacher first and an expert in technology second. Principal D reaffirmed her belief in the following statement:

“Her ideas are grounded in teaching and instruction. This intersection is where we get the best of both worlds, a teacher who understands that each classroom will have specific needs and choose the best technology tool to help enhance student learning. I think having someone who is grounded in instruction and teaching, as well as a technology expert is the best of both worlds.”

Principal F believes that technology should be embedded in the curriculum. She also believes that a collaborative relationship should exist between the educational technology specialists and the curriculum and instruction specialists.

Principal F noted, “Curriculum writing should be done that involves educational technology personnel to ensure that instructional strategies are included that promote student choice and student's voice.”

**Support the use of technology.** The six principals who were interviewed for this study all shared their support for the use of technology on their campuses. Each principal described their level of backing and what that looked like on their campus. For this study, I am defining the support of technology use as a passive action.

Principal A supports the use of technology by allowing her teachers to attend professional development offered by the district. She also ensures that the iPad and laptop carts are accessible to students for use. Principal B realized through this interview

that he was not fully supporting his teachers once they had professional development. His recommendation once professional development occurred is that his teachers need to follow up with their educational technology specialist on how to implement their new skills. He believed that there is room for improvement by being intentional with expectations following professional development. His campus improvement plan also had a technology objective but did not have any supporting strategies or activities. From this analysis, although there is support for technology, there is not a level of promotion for planned, seamless classroom integration.

Principal C, who has been an administrator for fifteen years, requires her teachers to use the tools that are presented in professional development. She described attending an Office 365 training to learn OneNote and now uses that tool to deliver information, such as tutoring lists and meeting agendas, instead of emailing or printing endless stacks of paper. She explained that her requirement is more procedural than instructional, but she reiterated that it was the nudge that was needed for some of her teachers to start using the available tools. Principal D goes beyond just supporting the use of technology. She believed for technology to be part of the educational process; she must embrace it herself. She took support to the next level by learning the tools and determining how she can model best practices for her teachers.

Principal E gave his teachers the freedom to make decisions on integrating technology in their classrooms. His level of support began by trusting the teacher's professionalism and allowing them to determine when and how technology is infused. He also believed that if the district does not mandate technology use, then he will



support teachers to make their own choices regarding use. Principal F held that once training has taken place, she introduced the tools for procedural practice first, and then set expectations for instructional application.

**Promote the use of technology.** Promoting the use of technology is a step above support by actively participating in the use of technology for instructional integration in the classroom. Promotion goes beyond just allowing teachers to participate in professional development. This type of advancement is achieved through recommending teachers for instructional coaching, setting expectations for integration in the classroom that focuses on instructional strategies, and seeking out specific professional development to infuse the best tools to enhance student learning. Two principals out of the six interviewed promoted the use of technology through those methods and are actively involved in transforming the classrooms in their school.

Principal B shared in his interview that for the first time this year, his campus had two rounds of instructional walks where veteran teachers show how they are integrating technology. Their classrooms were opened during instruction to new teachers to demonstrate how they use learning management systems, collaborative learning tools such as Office 365, and educational apps. These teachers are “techy” and were identified by the educational technology specialist.

Principal D believes it is part of her role as the campus principal to “keep new technology hot.” She participates in training and finds a way to use the tools for sound instructional practices. Blended learning has become a big part of her campus using the Canvas Learning Management System (LMS). She created an online course and had her

teachers participate as students to model how a learning management system could be used. She also has a requirement that all teachers will use the learning management system to house their course syllabus and schedule. While this is a minimum requirement, she has a large population who have embraced the tool to deliver a blended learning environment for all junior high students.

**Campus Improvement Plans.** In Callery Blossom ISD, the purpose of the Campus Improvement Plan (CIP) is to guide the campus staff in developing academic objectives to support the improvement of student performance for all student populations. Each campus had a committee of representatives from the school, educational support center, and community who provided input into the goals and strategies that comprised the plan. Since the educational technology specialists are educational support personnel, it would make sense for them to be included as members of the CIP committee. There were no technology representatives from the educational technology department on any of the six committees whose plans were analyzed. The omission was a missed opportunity to collaborate and provide integrated instructional strategies for goals.

Each plan had an inconsistent, unique format, which caused complications when analyzing the content. Campus improvement plans were analyzed using a modified T-PACK content analysis rubric (Harris, J., Grandgenett, N., & Hofer, M., 2010). The lesson plans and campus improvement plans needed a consistent, understandable, and working structure.

If the plans included any mention of technology, they fell into one of two categories. The first category was a technology goal that stood alone with objectives and strategies. The second category was to use technology as a tool to improve communication with school personnel and the community. One campus improvement plan had an objective for technology implementation, but there were no strategies and no other mention of the learning objective throughout the document other than the initial goal. The lack of accompanying instructional strategies shows little support of technology with no form of promoting the integration in classrooms. The campus goals and instructional strategies in four of the campus improvement plans did not converge with technology.

Table 5

*Campus Improvement Plan Analysis*

| Major Theme              | Sub-Themes   | Coded Extractions |
|--------------------------|--|-------------------|
| Grade Level              | Elementary<br>Middle School<br>Junior High School<br>High School | 6                 |
| Fit                      |  | 6                 |
| Technology Selection     |  | 5                 |
| Curriculum Goals         |  | 11                |
| Instructional Strategies |  | 14                |

*Note.* This table depicts the major themes and subthemes determined during the campus improvement plan analysis.

**Lesson plans.** Lesson plans were also analyzed using the modified T-PACK content analysis rubric (Harris, J., Grandgenett, N., & Hofer, M., 2010). Because the lesson plans were vague within the context of information, the T-PACK content analysis rubric was modified to determine if there were any of the components visible, instead of rating the level of use. Of the 46 lesson plans analyzed, 35 cited using technology as a tool for instruction.

Determining fit was subjective based on the limited information of the plans. Curriculum goals and instructional strategies were analyzed independently of technology because the lesson plans were written without embedding the technology component. There were two lesson plans that instructional strategies went beyond direct instruction or independent study. The two lesson plans were identified as experiential learning and provided rich details of curriculum goals and technology selection that included a virtual

field trip and Nearpod activities. Three lesson plans were categorized as interactive instruction because of simulations and the creation of a product as the curriculum goal.

Although 35 lesson plans implemented technology into their curriculum goals and instructional strategies, eighteen fell into the category of substitution using the SAMR model. Thirteen lesson plans did not include any components of technology, and their instructional strategies were all direct instruction, which the teacher is responsible for imparting knowledge to the students with little or no interaction needed. One of those thirteen lesson plans included transparencies used on an overhead projector. Overhead projectors were removed from campuses at least five years ago because they were no longer considered a technology component. For this research, the transparencies were not considered a technology use. Categorizing the use of slides as substitution would be a stretch when determining a SAMR level.

Table 6

*Lesson Plan Analysis*

| Major Theme              | Sub-Themes   | Coded Extractions |
|--------------------------|--|-------------------|
| Grade Level              | Elementary<br>Middle School<br>Junior High School<br>High School       | 44                |
| Fit                      |  | 24                |
| Technology Selection     |  | 35                |
| Curriculum Goals         | Learning Objectives/No TEKS<br>Integrated TEKS<br>No TEKS              | 42                |
| Instructional Strategies | Direct Instruction<br>Interactive Instruction<br>Experiential Learning | 43                |
| SAMR Identification      | Substitution<br>Augmentation<br>Modification<br>Redefinition           | 34                |

*Note.* This table depicts the major themes and subthemes determined during the lesson plan analysis.

Lesson plans should provide curriculum goals, instructional strategies, and embedded technology goals. From a glance by those who will be observing or walking through a classroom, the lesson plan should provide the necessary information to determine what the teacher and student will be doing. Of the 46 lesson plans analyzed, nine lesson plans had no curriculum goals or Texas Essential Knowledge and Skills (TEKS) to determine activities in the classroom. Requiring the purposes above, strategies, and technology goals should be at a minimum.

### Research Question 3

#### **Is There Alignment Between the Principals' Technology Use and the Effective Integration of Technology on Campus?**

The alignment of the principals' technology use and effective technology integration on campus was vastly different when analyzing the interview data, lesson plans, and campus improvement plans. While each principal uses technology at various levels, the data paint a different picture between the alignment of the principal's technology use and effective integration on campus. When triangulating the data, including the interviews, campus improvement plans, and lesson plans, there is no alignment between the principal's technology use and the effective integration of technology on campus. This misalignment is most evident in the compilation of goals and strategies in the campus improvement plans and the inconsistent content of the lesson plans.

**Technology use.** Five out of six principals use technology on their campuses for procedural methods. Procedural uses include communication to faculty and staff through productivity tools like email, Word, PowerPoint, and Excel, sharing documents through OneDrive or OneNote and reducing the use of paper.

At the elementary level, eight of the twenty-two lesson plans did not include technology at all. This exclusion of technology contrasts with the two elementary principals who use technology to deliver communications using a OneNote notebook and model the use of technology during faculty meetings. Principal F noted that having all the campus information in one place for teachers to access anytime, anyplace, is a

huge timesaver. She also said that it sparked some teachers to use the tool for their guided reading notes and running records. While this is not technology integration benefiting students, it is a small step to gain a comfortability using the tool. When becoming comfortable using any technology tool, the teacher may determine ways to use it with their students.

When evaluating the lesson plans at the junior high level, all plans included the use of technology, and seven out of eight were at the augmentation level of SAMR. One out of two junior high principals used technology beyond procedural use. Principal D used technology to promote technology integration and sets expectations through modeling the use of the tools she wants her teachers to implement. Principal E only used technology in faculty meetings infrequently or had his educational technology specialist showcase a tool when needed.

**Effective integration.** Of all six principals, Principal D promoted technology integration by modeling instruction in Canvas LMS. She set campus expectations to use Canvas because she sees that students need these skills once they move beyond junior high and high school. She saw this integration when conducting walkthroughs and observations, so she knows her technology use impacts her teachers using technology. Out of the six principals, the lesson plans, campus improvement plan, and the principal's beliefs and technology usage align the most closely for Principal D.

**Campus improvement plans.** The campus improvement plans of four out of the six campuses did not align with the effective integration of classroom technology. The campus improvement plan for Principal F's school did not align with the curriculum



goals. The campus goal was ‘to utilize technology to improve communications and disseminate information to school personnel and community,’ yet the rationale was ‘the use of technology should increase individual student performance in all academic areas.’ One strategy addressed incorporating tools into lessons to enhance learning experiences, while all other instructional strategies and activities were directed at teacher coaching, lesson plan training, and updating the teacher websites. There was no mention of technology integration to improve student performance throughout the document other than the disconnected rationale. Principal A had a similar goal of using technology to improve communications, but again, all strategies and activities did not directly address the rationale to improve student performance. The disconnect of the curriculum goals, rationale, and strategies was very evident.

Principal E did not address technology integration as a goal in the campus improvement plan. The technology was determined as a tool to support various methods of communication from campus faculty and staff. While this strategy aligns with the overall goal of increasing community and parent engagement, there is no mention of technology integration to enhance learning or promote digital citizenship. Interestingly, a parent night addressing cyber-bullying and cyber-safety were also in the strategy, but there was no mention of implementing the curriculum to enhance student understanding of the concept. The educational technology specialist was also omitted from being the person responsible for the transference of information regarding cyber-bullying and cyber-safety. This omission is critical to note since digital citizenship and cyber-bullying was and continues to be a priority in Callery Blossom ISD.

In stark contrast to the other campus improvement plans, Principal D incorporated strategies into her campus plan that provided for continual teacher training, the involvement of the educational technology specialist in decision-making and coaching, and enhancement of the curriculum through the implementation of the learning management system, Canvas. Her expectations involved her administrative team, educational technology specialists, Curriculum and Instruction specialists, and her teachers. The campus goal included the utilization of technology to enhance the curriculum. The strategies included each group of the learning community working together to achieve the target with a focus on student growth.

Principal C had a similar campus improvement plan that included a goal of using technology to improve classroom instruction and increase student engagement. Principal C included the use of T-TESS walkthrough documentation as well as the installation of a technology committee to ensure planning and training. The educational technology specialist had areas of responsibility in the plan, although it was not clear from the campus improvement plan if the ETS was involved in the technology committee.

**Lesson plans.** Lesson plans did not provide certain information to determine whether there is a link between effective use and technology integration in the classroom. Since there was not an expectation of requirements of the lesson plan content, there were gaps of information, leading to the inference of the meaning of technology use and overall lesson capacity. The usage of the T-PACK content analysis rubric was modified to show the components of a lesson rather than the strength in which the lesson plan was evaluated. Of the 46 lesson plans, only two lesson plans could be determined to

integrate technology through experiential learning and SAMR's redefinition while giving enough information to determine what the students would be learning about and interacting with during the lesson.

### **Results of Research**

The data yielded answers to the research questions by exposing areas where growth and training are needed to improve the principal's knowledge base and understanding of educational technology, including the T-PACK and SAMR model, through the interviews with principals. The research also uncovered, through the content analysis, the deficiencies of the lesson plans and campus improvement plans.

### RESEARCH QUESTIONS

#### **Research Question 1**

#### **What Are the Principals' Experiences and Understanding of Effective Technology Integration on Their Campuses?**

##### **a. What Technology Skills Do Principals Identify as Lacking?**

**Principals experiences.** The six principals who were interviewed for this study all shared their experiences of classroom technology use and availability. Each principal described their past technology exposure and how they learned to incorporate technology if that aspect of learning was available. It is essential to note this group of leaders were all digital immigrants with years of classroom experience before widespread technology was introduced into their schools. Three of the six principals also taught in the state of Louisiana before moving to Texas to teach and begin their administrator careers.

Principal B was a teacher on an alternative campus in Louisiana where very few technology resources were available to him or his students. He discussed using handheld calculators as his first exposure to using technology to teach. He also noted that when cell phones did start to emerge in classrooms, they were not permitted for his students because his school was regarded as a boot camp and having a cell phone was considered a privilege.

Principal C had the most exposure to technology, teaching at an affluent school. She participated in a training program through Microsoft and received a laptop which included opportunities to write an integrated curriculum for her gifted and talented students. She determined that all of her students would benefit from the strategies that she learned and incorporated the assignments into her general education classroom. She was motivated to share her experiences which spread to all of the teachers in her grade level. The teachers provided all students the opportunities to learn word processing and create projects based on publishing short stories and books. Principal C's experiences translated to how she expects her teachers to use technology with the students.

Principal E had the least experience with technology, being a music instructor. He was a junior high band director before taking on an administrative role. While he admitted that he did not have a practical use for technology in band classes, he used a projector and screen to show videos and recording equipment for ensemble practice. His research and application of technology was limited and he currently relies on Twitter to determine what might be frequently used by his teachers.

**Understanding of effective technology integration.** The six principals have varying aspects of understanding effective technology integration. Each principal elaborated on their understanding of effective technology integration. Their knowledge and exposure to the SAMR model were far higher than the use of the T-PACK model.

Principal D discussed identifying teachers who used the SAMR model in their classroom and admitted that most of the technology integration is at the substitution level. Both elementary principals, A and F, openly admitted that they did not use SAMR when conducting walkthroughs and evaluations but would be amenable to having a framework for identifying teachers at the various levels.

Principal B stated he had not been “thoroughly trained enough to truly understand SAMR or T-PACK to give critical feedback to his teachers.” He noted that he focused on getting his experienced staff on board who are reluctant to use technology but was not sure how to approach setting expectations. He discussed identifying teacher leaders who could work with his educational technology specialist to mentor his veteran staff to find that one tool that would add value to their lessons and promote student engagement. Additionally, Principal C said she wanted to “understand the benefits of SAMR and T-PACK to promote the implementation of educational technology” in her classrooms. Each principal acknowledged their limited understanding, but all were willing to be further trained on the educational technology theories to understand how to identify appropriate use at various grade levels and teacher experience.

**Skills.** Skills that can be developed included recognizing T-PACK and SAMR in use. All six principals asked for a quick review of the educational technology models to

determine if they are being used on their campus when those topics were brought up in the interview questions. Only one principal discovered that she remembered the training and could identify where her teachers were using the models. Principals were trained on identifying SAMR in the classroom through a series of training sessions in cooperation with the Curriculum and Instruction department. Principals received quick looks to aid in determining the various levels of SAMR. Principals were also invited to attend all technology tool-related training to experience what is being furnished in the classrooms.

The outcome most expected focused on lesson plans. Out of 46 lesson plans analyzed, thirteen did not address technology instructionally. The lesson plans did not provide enough in-depth evidence of technology integration or instructional strategies beyond direct instruction, independent study, and a few interactive and experiential learning activities. Most lesson plans analyzed did not follow any format, such as 5E or Madeline Hunter, and did not even contain learning objectives.

The most significant unexpected result was the lack of integrated instructional strategies in campus improvement plans. Principals did not discuss instructional strategies for integrating educational technology. Instructional strategies were not addressed because the focus is still on teaching how to use the available technology. The principals are supporting the use of technology, but it is at a basic user level. There was not a focus on instructional strategies from the perspective of educational technology theory. The strategies focus on learning how to use the technology, whether it was the teacher tablet, the learning management system, or an educational application. There were no strategies in the campus improvement plans that involve instructional coaching

or best practices for effective technology integration. It appeared from the document analysis that from the SAMR model, most principals are at the substitution level in their technology use. Extensive professional development in SAMR and T-PACK are needed, and quick looks need to be developed for T-PACK once this training has taken place.

## **Research Question 2**

### **Based on Their Knowledge, Attitudes, and Beliefs, How Do Principals in Callery Blossom ISD Support and Promote Effective Technology Integration?**

Administrators can support and promote effective technology integration by creating realistic goals for teachers to use the technology that has been provided to them through training, planning, and sound instructional frameworks. Principals can also promote effective integration by setting expectations for classroom integration through their campus improvement plans and integrated lesson plans. All six principals expect lesson plans to be submitted, but they do not have an expectation for integrated, embedded lessons to be used. Producing an integrated lesson plan framework also seemed to be a missing component and would be a beneficial resource for teachers when planning. All 46 lesson plans were in varying formats with no standard information. Two lesson plans did not include the grade level.

Creating a campus improvement plan that considers embedded instructional strategies that integrate technology, instead of stand-alone goals or objectives with no strategies, not only promotes technology integration but shows an understanding of the importance of student skill development.

### Research Question 3

#### **Is There Alignment Between the Principals' Technology Use and the Effective Integration of Technology on Campus?**

For two of the six principals interviewed, there is some alignment between technology use and practical integration. The evidence triangulated through the lesson plans and campus improvement plans. The remaining four principals did not have alignment between their technology use and campus improvement and lesson plans analyzed. The analysis provided a lack of evidence of technology integration on their campuses.

**Technology use.** All six principals used technology in some capacity. Principal C used her tablet to walk around during her faculty meeting, and she noticed her teachers were also taking notes on their devices. She noted that although she had a younger staff, her teachers used technology for the social aspect and not necessarily to enhance instruction. By promoting technology use in her faculty meeting, she enabled her teachers to see easy use in the classroom. Principal E used technology at his faculty meeting by providing a backchannel for his teachers to ask questions regarding the new teacher evaluation system. His assistant principal used Today's Meet to answer questions instead of stopping the meeting to address off-topic inquiries.

**Effective integration.** According to the campus improvement plans and the lesson plans, effective technology infusion remained overwhelmingly absent. While the principals did use technology for procedural purposes, such as meeting notes and sharing information, based on the evidence provided in the campus improvement plans and



lesson plans, there does not appear to be an orientation of effective integration. The one exception to the effective integration alignment was presented by Principal D, who promoted technology through the use of Canvas and required all of her teachers to use it with their students.

**Campus improvement plans.** The campus plans did not show the alignment of the principal's technology use with effective integration on campus. The campus improvement plans promoted the utilization of technology to improve communication at three out of the six schools. While improving communication is important to remain transparent with all stakeholders, it is not an instructional goal to enhance student learning. Principal C included a learning objective of using technology to enhance instruction and improve student performance with instructional strategies, including training, coaching, modeling lessons, and co-teaching with the educational technology specialist. One campus had an instructional objective similar to Principal C but failed to have any strategies or rationale to promote the goal.

**Lesson plans.** The overwhelming evidence provided in the lesson plans showed that teachers did not have any oversight or expectations of the components to be included within the plans. I analyzed the lesson plans by looking for curriculum goals and technologies, instructional strategies, technology selection, and fit. The lesson plans were incomplete when searching for the pre-determined categories, therefore the content analysis rubric (Harris, Grandgenett, & Hofer, 2010) was adapted. I looked for evidence of each category and whether or not they existed within the lesson plan, instead of the scope to which the category was implemented.

Nine out of forty-six lesson plans did not have curriculum goals. Thirteen out of forty-six lessons did not include or mention any technology integration at all. Minimally, the components that needed to be provided included subject matter TEKS, technology TEKS, 'I Will' statements, and anchor lessons. Including the minimum required information will give a clearer picture of what learning and technology integration will occur in the classroom.

### **Interaction between the Research and the Context**

In Callery Blossom ISD, high student achievement and excellence are key components in the overall success of the district. The district continues to evaluate how best to promote technology integration, given the current plans and goals are garnering the expected results in student growth. The purpose of this study was to examine varying viewpoints and gain an understanding of the principal's perspective of educational technology, thus determining the best fit for technology integration. This objective was achieved through the principal interviews and content analysis of campus improvement plans and lesson plans.

Content analysis revealed gaping holes between classroom integration through the study of campus improvement plans and lesson plans. The campus plans and lesson plans do not align, exposing that policy is not reaching the classroom. The campus improvement plans showed consideration to include technology integration but offered no evidence of guidance to achieve the listed goals. The campus improvement plans were rendered ineffective since policy did not reach the classroom, as evidenced through

the lesson plans. The lesson plans also revealed that technology integration is not at the expected level desired by district leadership.

Before this research, educational technology in Callery Blossom district was something that teachers and students did without much thought given to expectations from their campus leadership. As a result of this timely research, changes are coming that provide a framework for campus leaders to set expectations for all teachers and students. Conversations with curriculum and instruction leaders, the deputy superintendent, and educational technology created the bridge to develop a set of non-negotiable objectives that must be implemented throughout the district. These changes include training for all principals, continued support for teachers in the form of instructional coaching and mentoring, and improved, consistent campus improvement plans and lesson plans.

### **How did the Context Impact the Results?**

Callery Blossom ISD is located geographically between two areas of innovation, NASA and the Texas Medical Center. Because of the location, it is often implied that Callery Blossom ISD is a techy district. The district receives very little federal funding for technology since the demographic breakdown is less than 27% economically disadvantaged (Texas Education Agency, 2018). However, the district believed that infusing technology into the classroom was a vital, world-class goal, enough to earmark 20 million dollars as part of a \$124 million-dollar bond package. The implementation of the bond funds is entering the final phases. All classrooms are outfitted with an interactive short-throw projector and a mirroring device. All teachers received a new

teacher tablet and desktop computers. All student computers and labs were refreshed with new desktop devices as well. Finally, the technology department is in the process of implementing a state-of-the-art wi-fi system to support the district's BYOD initiative. With all of the technology available to students and teachers, it would make sense that technology integration would be an expectation well known throughout the district. The evidence shows otherwise.

Based on the results of the interviews and content analysis of the campus improvement plans and lesson plans, educational technology is needed but not necessarily a priority for some campus administrators. With a focus on student growth and academic achievement, finding the right place for technology integration became a dichotomy to most principals interviewed, as they discussed their teachers were not having enough time in the over-scheduled day to include one more thing. An easy solution to the overscheduled day would be setting expectations of technology integration while developing campus improvement plans and expecting to see integrated instructional strategies in individual lesson plans, including the use of technology TEKS. This requirement means that all upper administration will need to support and promote the importance of a truly integrated curriculum with all stakeholders participating in making curriculum decisions.

The only operational issue that arose was an interview was conducted over the phone instead of face to face. The reason for the phone interview was to avoid delaying the appointment past the summer break. The phone interview was as if we were face to face because the rapport is solid. The conversation was very natural, and the time spent

was as lengthy as the other in-person interviews. The principals and I met to develop a mutual understanding of their approach to how educational technology fits on their campus. The principals actively participated in the interviews by being open and admitting to the areas in which they feel they need improvement. Stakeholder reaction was positive. Cabinet-level administrators, including the superintendent, felt a study of this type was overdue. Because of the financial investment, as well as developing the best possible students, understanding the perspectives of campus leadership led to the determination of future initiatives and programs. Continued evaluation of training needed for administrators is being developed and evaluated as the district moves forward.

The number of principals who participated was expected. The principals who were interviewed provided vast insights into their perspectives of leadership and technology. Although the study was voluntary and all principals were asked to participate in the interviews, two additional principals responded initially, but did not participate. The superintendent and upper administrators welcomed this study as well as the principals who participated.

### **How did the Research Impact the Context?**

The district continues to promote the integration of technology in all classrooms throughout the community. Throughout this study, bond money was spent to add new teacher and student computers in all classes and labs, install interactive short-throw projectors in every classroom, supply teachers with new tablet devices for mobility, and provide all low socio-economic students with a mobile hotspot and tablet for use at home. Technology in this district is a priority. For technology to be infused appropriately into classrooms, there must be not only support but promotion from the campus principals. Expectations of integration must be developed and set for all teachers. This study sought to investigate the principals' perspective and understanding of educational technology. This research focused on the beliefs, attitudes, and understanding of educational technology to best support integration on all twenty-three campuses in Callery Blossom ISD. The goal of this study was to converge on continuous improvement processes by supporting successful campus technology integrations.

Results were shared within the context of this study by discussing initial findings with the assistant superintendent of support services and the chief technology officer. Both administrators had been part of discussions when determining the areas to research in Callery Blossom ISD. New leaders in curriculum and instruction have been brought into the conversation related to lesson plans and the lack of comprehensive information provided to get a snapshot of instructional strategies and curriculum goals. Because of the lack of good data points, the curriculum and instruction department is reviewing and

revamping the expectations and support needed to have included in the lesson plans. This lesson plan review will be an ongoing process throughout the coming school year.

Several reactions ensued once this research study began. The deputy superintendent began expressing an interest in the research and started a dialogue regarding educational technology and technology implementation needed on all campuses. Collaborating with the assistant superintendent of curriculum and instruction and the executive director of special programs, we began to create a set of learning objectives for technology integration for all grade levels within Callery Blossom ISD, known as the Non-negotiables.

The Non-negotiables are a first step toward a comprehensive plan for technology integration that must be promoted on all campuses within Callery Blossom. Principals received the non-negotiables document from their assistant superintendents with the expectation that each teacher is responsible for implementing the designated technology in their classroom throughout this school year. From kindergarten through high school, all students will learn about digital citizenship. Elementary students will be exposed to typing through a district purchased software and the principal will receive monthly reports that show growth. Middle school through high school students will use a learning management system and productivity tools to experience blended learning opportunities. Personnel responsible for ensuring these objectives were met were defined along with the necessary resources and evaluation timeline.

Teachers at all grade levels have been trained using all of the tools mentioned and are using them with fidelity, knowing their principals are expecting to see

integration in their classrooms. Principals received training to identify the non-negotiable skills in action. Although the non-negotiables are a top-down approach to technology implementation, it is a good first step to continuous improvement in Callery Blossom.

In addition to these non-negotiable learning objectives, a one-day Administrator's Academy was conducted in July of 2019. This full day of professional development focused on classroom integration and what to look for when completing walk-throughs and formal observations. Out of 76 administrators, 52 attended this six-hour technology integration immersion. The trainings provided administrators an opportunity to see what teachers are using and the time and effort it takes to develop the skills necessary for effective implementation. The trainings focused on technology tools available in the classrooms. The intended emphasis of the day provided a big picture view of technology integration for principals while showcasing innovative strategies.

Administrators perceived the research as useful because it has opened a positive dialogue about ways in which technology integration needs to be supported. The investigation exposed that not enough was being done to promote technology integration, as reported by many of the principals interviewed. While the district offers support at various levels, actionable promotion of technology integration in the classroom through principals setting expectations needs attention and the development of a plan which is outlined in this research. Additionally, computer software was purchased to aid in the creation of campus improvement plans. All campus improvement plans will contain a consistent template of information. Campus leaders were told to



include educational technology in the development of their campus improvement plans. Though conversations with principals, the educational technology specialists were involved with the determination of strategies included in the campus plans. As the director of educational technology, I am involved in writing strategies for the district improvement plan.

Suggestions for future studies extend this research into the classroom through coaching, walkthroughs, and observations to determine what instructional strategies teachers are using with the available technology. Other avenues of research could look at the impact of instructional coaching once a teacher has completed a semester with an educational technology specialist. Finally, once the district and campus expectations for educational technology are in place, analyzing lesson plans coupled with classroom observations and walkthroughs should provide a more comprehensive profile of educational technology in Callery Blossom ISD.

The interaction impacted the interview participants by allowing for thoughtful reflection. Through reflection and the ability to talk through the technology implemented on each campus, the principals were able to shed light into what is and is not being done to integrate technology and support students through 21st-century learning. This research also allowed me to recognize the areas of improvement needed within educational technology in our schools, so we are providing the best learning opportunities for our students.

## Summary

While no noteworthy divergence was present within the qualitative data, the principals involved in the research study felt the interviews had value, allowed for reflection, and provided an opportunity to share their thoughts and experiences related to the delicate balance of technology integration, classroom expectations, and leadership. All six principals realize there is always room for improvement supporting and promoting technology to enhance learning and improve student outcomes. The question remains as to what the best approach is to achieve this goal and all of the other state and local mandates.

The conclusions in this study were consistent with expected outcomes. The qualitative data showed gaps in the six principals' knowledge of educational technology and significant holes in lesson plans and campus improvement plans where the integration of technology should be present. Overall, the data exposed that principals need more training and experiences using technology, so they are more readily able to identify educational technology theories in practice to support effective instructional strategies to reach all learners. Also, technology does not need to be separated from the content in instructional strategies in campus improvement plans nor lesson plans.

The inclusion of technology should be as seamless in the classroom as it should be in supporting documentation. Technology integration should also be seamlessly supported by campus principals to meet the needs of all students. This study exposed real issues concerning technology integration occurring in Callery Blossom ISD, which

need to be addressed. When policies do not reach the classroom, the students do not receive the best that a school has to offer.

## CHAPTER V

### DISCUSSIONS AND CONCLUSIONS

#### **Summary of Findings from Chapter 4**

Technology has a place in schools around the globe. The difference between technology being a novelty in the classroom and an actual vehicle for learning remains the responsibility of the campus principal through their ability to set expectations and continuously promote technology. The principals interviewed determined that technology integration has value, but the degree to which they would fight for technology is less clear.

The principals discussed their experiences, beliefs, knowledge, and attitudes regarding educational technology. All six principals identify as digital immigrants and their experiences as classroom teachers occurred before the disruptive innovation of all students accessing technology. As principals, their beliefs in educational technology varied immensely. While all six principals support the use of technology in the classroom by teachers and students, only two principals actively promoted innovation by modeling and setting expectations. The principals all agreed that continued professional development was necessary to understand and recognize educational technology methodologies.

I analyzed lesson plans and campus improvement plans to complete the picture of technology utilization throughout Callery Blossom ISD. The analyzed lesson plans showed little consideration for technology integration. Many lesson plans did not include learning objectives. The campus improvement plans were inconsistent in their

framework and only utilized technology for non-instructional methods. The lesson plans and campus improvement plans did not provide enough depth to determine the deep integration of technology in the classroom.

### **Discussion of Results in Relation to the Extant Literature or Theories**

Technology integration in all classrooms depends upon the principal as an educational technology leader. Principals must ensure that teachers receive the most impactful training to meet the needs of all students (Abrego & Pankake, 2010). Districts must provide thoughtful planning of educational technology training to support both teachers and students (McLeod, 2015). Once training has occurred, the principal must ensure that teachers put new strategies into practice. This practice requires a shared understanding and expectation of the commitment to integrate (McLeod, 2015). As the principals discussed supporting and promoting technology, they noted their desire for teachers to attend professional development to improve their integration skills. Educational leaders must understand the teacher's technology aptitude and skills demonstrated in the classroom to act in the best interest of students (Miller & Miller, 2001).

The role of the educational technology leader must be one that motivates and creates change, diminishing the idea of status quo in teaching and learning (Havice, 2003). Principals must model and set expectations for technology integration (Dikkers, Hughes, & McLeod, 2005). Principals must communicate specific expectations and requirements for use in the classroom to be effective instructional leaders (Bozeman & Spuck, 1991). Administrators who use various web tools and district productivity

software will more easily inspire and lead others to use technology to enhance student learning (Berrett, Murphy, & Sullivan, 2012). With the principal as a promoter and motivator of technology integration, new ways of thinking and learning emerge, which can influence teachers and learners (Havice, 2003).

Campus administrators must understand and recognize educational technology theory, SAMR, and T-PACK in practice in the classroom (Sincar, 2013). The principals interviewed for this project discussed the need for more in-depth training to identify SAMR and T-PACK in their classes. Though the principals received training on the SAMR model, they requested to review the concepts with concrete examples during their interviews. Principals must also have the knowledge and background to effectively understand how certain technologies can be implemented in the classroom, along with educational technology models (Sincar, 2013).

If a principal cannot successfully and proficiently use technology to expand their work implicitly, then they will fail to model and set expectations for classroom use beyond basic tasks (Dickers et al., 2005). Principals must continually sharpen their technology skills through professional development. I examined the roles of the principal and the skills expected of educational leaders in detail to discover that the use of technology in schools had become an educational issue for administrators, teachers, and students (Yee, 2000). While all principals interviewed support the use of technology in the classroom, they all determined that they could do more to promote and expect integration.

This research uncovered that the principals' understanding, and ideas of educational technology vary based on their classroom and leadership experiences with technology. Districts must provide more professional development to prepare principals to use educational technology more effectively. District leaders must work together to determine what type of professional development would serve all principals in Callery Blossom ISD.

### **Discussion of Personal Lessons Learned**

Working in a school district with a superintendent and a chief technology officer whom both believe in the benefits of educational technology made this study easier to receive buy-in. Considering the challenges that I have encountered in my position; I knew the focus needed to begin with educational leaders and how they supported technology and implemented it across Callery Blossom ISD. Through conversations with various district personnel, including educational technology specialists and principals, I discovered a disparity in technology integration throughout the district based on campus leadership expectations, support, and promotion. This discovery led to the development of this research study, which questions the genesis of this disparity. I wanted to understand the beliefs, attitudes, and knowledge of educational technology, along with the principal's own experiences to uncover this phenomenon.

Educational technology specialists must support teachers through instructional coaching and modeling of technology integration. Educational technology specialists cited that campus administrators created a barrier to the success of students when they failed to buy-in to the technology provided or failed to promote and set expectations of

technology integration. Principals told the specialists that technology would not be a priority until after the testing season. Principals also treated the technology specialists as glorified technicians, only able to troubleshoot problems in the classroom.

Since revising the role of the educational technology specialist and training the principals district-wide on the use of the SAMR model in classrooms, principals are slowly beginning to show buy-in. The principals now require professional development on their campuses at least once a month with the educational technology specialist. The principals also suggest that specialists should coach teachers. As noted within the findings of this research, one principal now requires all teachers to use the learning management system to deliver content and activities to their students. These small steps have great rewards for the students of Callery Blossom. The necessary training that was provided gave the principals a way to develop their skills and allowed an open dialogue with the educational technology specialists.

### **Implications for Practice**

The literature reinforces the idea that principals should be supporting, promoting, and expecting technology integration in the classroom. Minimally, campus principals must show supports to help realize successful transformative teaching and learning for both teachers and students (Kincaid & Feldner, 2002). Principals must take the lead to model the kind of technology integration they expect.

This research validates a need for a structured framework for lesson plans and campus improvement plans. Moving forward, Callery Blossom ISD is working to develop a framework for the campus improvement plans that will tie into the district



strategic plan. All campus improvement plans will have a consistent layout, and the review and writing portion will include the appropriate educational technology personnel.

### **Connect to Context**

This study had a significant impact on the principals who participated. Principals described the opportunity to reflect and collaborate as constructive and impactful. Throughout the research, senior administrators sought to understand the study being conducted. The deputy superintendent expressed an interest in how working with the principals would promote technology integration on campus. This study increased the awareness of the importance of technology integration in the classroom.

This record of study contributes to research for educational leadership and educational technology that can empower district leaders to provide continuous improvement in educational programs. This action research familiarized district leadership and principals with a framework for investigating a phenomenon occurring with the district. This specific research did not look at classroom observations, specifically. However, it did try to develop an additional method to determine if teachers were integrating technology in their classrooms by investigating campus improvement plans and lesson plans.

### **Lessons Learned**

Providing a study of this caliber in Callery Blossom ISD identified the need for more open dialogue with the principals and upper administration regarding technology integration throughout the district. Through the process of research and analysis, I

determined that other components of technology integration need to be studied, such as teacher self-efficacy, classroom usage, and the effects of professional development related to technology integration. Exploring these areas will provide a complete picture of the principal as an educational technology leader.

This project also contributed to the literature on action research. During each interview, the principals asked about the type of study being conducted. Being able to solve a problem or phenomenon that existed within their district was appealing to them because of the continuous improvement component. This constant improvement component promoted the educator as a researcher, which seemed unusual but refreshing to them.

Within this research study, a plan for technology integration grew from conversations with the deputy superintendent. The non-negotiables, developed with input from the assistant superintendent of curriculum and instruction and the executive director of special programs, focused on skills for all students in all grade levels. Principals are required to support this first step to a comprehensive plan for technology integration across the entire district.

### **Recommendations**

Based on the interviews and content analysis of the campus plans and lesson plans, district leaders must take a more in-depth look at what is occurring in the classrooms in Callery Blossom ISD regarding educational technology. Continued dialogue with district and campus leaders to provide a framework of technology integration is in progress through work with the deputy superintendent and all campus

principals. Principals are implementing the non-negotiables initiative this fall with an emphasis on digital citizenship, keyboarding, learning management systems, and productivity tools to reinforce blended learning strategies. Each grade will have specific skills that must be accomplished and reported to the assistant superintendents and superintendent. These requirements will take time to be implemented since there has been such a disconnect

Deeper collaboration between educational technology and curriculum and instruction should be cultivated to provide a unified framework for lesson plans. Embedding the technology TEKS within the curriculum necessitates beginning with the new content area TEKS for this current round of curriculum writing. Providing this unified framework will empower teachers and show that the two teams are on the same page.

District leaders must make continued training for teachers and principals a non-negotiable. For the first time since the educational technology department has existed, district leadership has scheduled educational technology professional development (slated for January of 2020). Teachers throughout the district have submitted proposals for the two-day event that will reach every teacher and administrator within Callery Blossom ISD.

Finally, educational technology specialists must review and report district expectations for technology integration and promotion to encourage continuous improvement to all stakeholders. Looking at benchmarks, through the examination of

lesson plans, usage reports, and continual collaboration with campus principals throughout the year will determine the progress of technology implementation.

### **Closing Thoughts**

Principals must commit to supporting and championing technology integration (Demski, 2012). Principals can support this effort by modeling the expected behavior using technology. Principals must have a sense of comfort when using technology in their daily lives and when in front of teachers and students. Understanding how researchers and practitioners study future educational technology leadership places importance on this topic (McLeod & Richardson, 2016). Technology is the vehicle that drives innovative learning. Principals must promote and support technology integration to meet the diverse needs of all students.

As a district administrator who is expected to promote, train, and emphasize the importance of technology integration in our classrooms, I wanted to understand what other leaders believed and understood about educational technology theory. Because of this research, I trust that districts can improve collaboration through a comprehensive plan of action for continual improvement of technology integration in the classroom with total support across the district.

Finally, through this research, I found that principals want to see their teachers innovating with technology and their students fully engaged. Principals who model technology for various tasks set the expectation for classroom innovation. Allowing teachers to immerse themselves fully in professional development and the exploration of new methods promotes the use of technology. With constant open dialog and support,

districts can discover new ways of learning for all types of students using variations of new technologies through the principals' continued leadership, support, and motivation.

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APPENDIX A

**Non-Negotiables Elementary**

**Objective:** All students will become proficient (75% accuracy) in typing by the end of fourth grade.

**Strategic Goal Alignment:** Callery Blossom ISD will continue to make student academic performance its top priority, through the use of data, technology, and differentiated instruction.

| Action Plan or Strategy:   | Responsible Stakeholders:  | Progress/Evaluation:  | Resources:  |
|--|--|---|---|
| <p>The students will complete at least one lesson which includes a reinforcement game, and the final challenge each week during lab time.<br/>End of the year accuracy:</p> <ul style="list-style-type: none"> <li>• K – 25% (begins 2<sup>nd</sup> semester)</li> <li>• 1<sup>st</sup> - 35%</li> <li>• 2<sup>nd</sup> - 55%</li> <li>• 3<sup>rd</sup> - 65%</li> <li>• 4<sup>th</sup> - 75%</li> </ul> | <p>Classroom<br/>Teachers<br/>Students<br/>Campus<br/>Administrators<br/><br/>Elementary<br/>ETS</p> | <p>Monthly Reports on proficiency and participation<br/><br/>End of the school year data showing growth</p> | <p>Program is internet-based.<br/>Available at home, computer lab, laptops, and on classroom computers.</p> |

**Objective:** All students will participate responsibly, respectfully, and appropriately online.

**Strategic Goal Alignment:** Callery Blossom ISD will continue to make student academic performance its top priority, through the use of data, technology, and differentiated instruction.

| Action Plan or Strategy:   | Responsible Stakeholders:  | Progress/Evaluation:   | Resources:  |
|--|--|--|---|
| <p>Students will promote Digital Citizenship by a school-wide commitment by:</p> <p>1. Increasing relevant vocabulary and focus words through:</p> <p style="padding-left: 20px;">a. Topic of the Month</p> <p style="padding-left: 20px;">b. Schoolwide Announcements – the topics and announcements will be consistent on all 11 campuses.</p> <p>The ETS will create resources for campus</p> <p>The Digital Citizenship concept is visible throughout the school</p> | <p>Classroom Teachers</p> <p>Students</p> <p>Campus Administrators</p> <p>Elementary ETS/C&amp;I Specialists</p> <p>Librarians</p> <p>Counselors</p> | <p>Observation</p> <p>Demonstrate</p> <p>Check for understanding</p> <p>Feedback from campuses</p> | <p>Monthly ETS Elementary Newsletter</p> <p>5 Digital Citizenship Newsletters for November and Lab Lessons (available all year)</p> <p>Webpage and Intranet (Penguin Page)</p> <p>Be Internet Awesome Game</p> <p>Posters<br/>Vocabulary and Monthly Topics</p> |

## Non-Negotiables Middle School

**Objective:** All teachers and students in grades 5-6 must have a working knowledge of an Online Learning Management System.

**Strategic Goal Alignment:** Callery Blossom ISD will continue to make student academic performance its top priority, through the use of data, technology, and differentiated instruction.

| Action Plan or Strategy:   | Responsible Stakeholders:   | Progress/Evaluation:             | Resources:  |
|--|---|----------------------------------|---|
| <p>The students will use these tools within the LMS:</p> <ul style="list-style-type: none"> <li>Assignments</li> <li>Formative Assessments</li> <li>Teacher – Student Collaboration</li> <li>Student – Student Collaboration</li> <li>Office 365 Integration</li> <li>Training / Orientation</li> </ul> <p>All teachers will be trained using Canvas LMS</p> | <p>MS ETS</p> <p>Administration</p> <p>Teachers</p> <p>Students</p> | <p>Yearly Semesterly Reports</p> | <p>Monthly Edmodo and Canvas Reports</p> <p>Training Documentation in Eduphoria</p> |



**Objective:** All students in grades 5-6 must participate responsibly, respectfully, and appropriately online to promote digital citizenship.

**Strategic Goal Alignment:** Callery Blossom ISD will continue to make student academic performance its top priority, through the use of data, technology, and differentiated instruction.

| Action Plan or Strategy:   | Responsible Stakeholders:  | Progress/Evaluation:  | Resources:   |
|--|--|---|--|
| <p>The students will connect to District Wi-Fi through their BYOD devices.</p> <p>The teachers will discuss proper behavior when using technology on campus anytime a BYOD activity or lab time occurs.</p> <p>The campus administration, librarian, and ETS will present Digital Citizenship at their student beginning of school camps– Must be consistent across all four campuses</p> <p>The counselors and librarians will provide lessons / individual counseling/group counseling related to digital citizenship during library time and counseling sessions.</p> | <p>Students</p> <p>Classroom Teacher</p> <p>Administrators<br/>ETS/ Librarians</p> <p>Counselors</p> | <p>Observations</p> <p>Acceptable Use and Netiquette</p> <p>Presentation Agendas</p> <p>Check for understanding</p> | <p>Common Sense Media</p> <p>Presentations and Lessons include the following topics: Digital Footprint, Cyberbullying, Stranger Danger Online, Appropriate/Inappropriate Online Behavior, and Anonymity on Screen.</p> |

## Non-Negotiables Jr. High

**Objective:** All students in grades 7-8 will demonstrate skill-based competencies of the Canvas Learning Management System.

**Strategic Goal Alignment:** Callery Blossom ISD will continue to make student academic performance its top priority, through the use of data, technology, and differentiated instruction.

| Action Plan or Strategy:   | Responsible Stakeholders:  | Progress/Evaluation:   | Resources:  |
|--|--|--|---|
| 1. Canvas Student Orientation Course to include the following training modules: <ul style="list-style-type: none"> <li>a. Getting Started               <ul style="list-style-type: none"> <li>i. Supported Browsers</li> <li>ii. Logging into Canvas</li> <li>iii. Canvas Layout</li> <li>iv. Mobile App</li> <li>v. Notification Preferences</li> </ul> </li> <li>b. Participating in Canvas               <ul style="list-style-type: none"> <li>i. Replying to a Discussion</li> <li>ii. Submitting Online Assignments</li> <li>iii. Taking a Quiz</li> </ul> </li> <li>c. Communicating in Canvas               <ul style="list-style-type: none"> <li>i. Viewing Grades</li> <li>ii. Using the Calendar</li> </ul> </li> <li>d. FAQ's and Canvas Student Guide</li> <li>e. Digital Citizenship</li> <li>f. Skills Check</li> </ul> | JH School ETS<br>JH School<br>Principals/APs<br>Homeroom/Advisory Teachers<br>Students<br>Canvas LMS<br>Administrator<br>Director of Ed Tech | Courses ready to go for the beginning of 2019-2020 school year | Canvas<br>Student Orientation Course<br>Skills<br>Check |

**Objective:** All students in grades 7-8 are required to effectively use Microsoft Office 365, including but not limited to Word, Excel, PowerPoint, Outlook, and One Drive as their primary creation and collaboration tools.

**Strategic Goal Alignment:** Callery Blossom ISD will continue to make student academic performance its top priority, through the use of data, technology, and differentiated instruction.

| Action Plan or Strategy:   | Responsible Stakeholders:  | Progress/Evaluation:    | Resources:   |
|--|--|-------------------------|--|
| <ol style="list-style-type: none"> <li>1. Provide access to Office 365.</li> <li>2. Create quick links to Office 365 on PISD webpages.</li> <li>3. Provide training for students via hands-on, webinars, videos, etc.</li> </ol> | <p>Network Admin</p> <p>Office 365</p> <p>Administrator</p> <p>JH School ETS</p> | <p>Yearly - ongoing</p> | <p>Office 365</p> <p>Videos</p> <p>Posters</p> <p>Handouts</p> <p>ETS Webpages</p> |

## Non-Negotiables High School

**Objective:** All students in grades 9-12 will have a competent knowledge base of the Canvas Learning Management System.

**Strategic Goal Alignment:** Callery Blossom ISD will continue to make student academic performance its top priority, through the use of data, technology, and differentiated instruction.

| Action Plan or Strategy:   | Responsible Stakeholders:  | Progress/Evaluation:  | Resources:   |
|--|--|---|--|
| <ol style="list-style-type: none"> <li>1. Canvas Student Orientation Course to include the following training modules:</li> <li>2. Getting Started               <ol style="list-style-type: none"> <li>a. Supported Browsers</li> <li>b. Logging into Canvas</li> <li>c. Canvas Layout</li> <li>d. Mobile App</li> </ol> </li> <li>3. Customizing Canvas               <ol style="list-style-type: none"> <li>a. Adding a Profile Picture</li> <li>b. Notification Preferences</li> <li>c. File Structure</li> </ol> </li> <li>4. Participating in Canvas               <ol style="list-style-type: none"> <li>a. Replying to a Discussion</li> <li>b. Submitting Online Assignments</li> <li>c. Taking a Quiz</li> <li>d. Participating in a Group</li> <li>e. Peer Reviews</li> <li>f. Viewing Grades</li> <li>g. Using the Calendar</li> <li>h. Digital Citizenship</li> </ol> </li> <li>5. Canvas Orientation Challenges Course to support Student Orientation Course.</li> </ol> | <p>High School ETS</p> <p>High School Principals/APs<br/>Homeroom/Advisory Teachers<br/>Students<br/>Canvas LMS Administrator</p> <p>Director of Ed Tech</p> | <p>Courses ready to go for the beginning of 2019-2020 school year</p> | <p>Canvas Student Orientation Course</p> <p>Canvas Challenges Course</p> |

**Objective:** All students in grades 9-12 are required to effectively use Microsoft Office 365, including but not limited to Word, Excel, PowerPoint, Outlook, and One Drive as their primary creation and collaboration tools.

**Strategic Goal Alignment:** Callery Blossom ISD will continue to make student academic performance its top priority, through the use of data, technology, and differentiated instruction.

| Action Plan or Strategy:   | Responsible Stakeholders:  | Progress/Evaluation:    | Resources:  |
|--|--|-------------------------|---|
| <ol style="list-style-type: none"> <li>1. Provide access to Office 365.</li> <li>2. Create quick links to Office 365 on PISD webpages.</li> <li>3. Provide training for students via hands-on, webinars, videos, etc.</li> </ol> | <p>Network</p> <p>Admin</p> <p>Office 365</p> <p>Administrator</p> <p>High School</p> <p>ETS</p> | <p>Yearly - ongoing</p> | <p>Office</p> <p>365</p> <p>Videos</p> <p>Posters</p> <p>Handouts</p> |