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PERCEPTIONS OF RURAL SCHOOL SUPERINTENDENTS AROUND LEADING ONGOING TECHNOLOGY INITIATIVES

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Dedication

I dedicate this dissertation to my loving, dedicated, and encouraging wife, Missy, and our supportive children, Carson, Kira, and Miah. Thank you all for being part of my family and getting me where I am today. I love you all so much!

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Abstract

Technology initiatives in public schools have been an important topic of discussion as educators work on implementing various strategies to enhance student achievement/success. The improvement in technology, both hardware and software, along with wider areas of internet coverage, has allowed educators to think about implementation of technology into schools. Many school districts across the United States have already implemented technology initiatives, such as one-to-one, for students in all grades and levels. The increased pressure on school administrators to improve student achievement/success has resulted in research that comes short of ongoing technology initiatives, especially in the rural schools. This research study will focus on examining the perceptions of rural school superintendents around leading ongoing technology initiatives.

This paradigm for this qualitative study is that of phenomenology as a form of social constructivism because this study involves interpreting data after a number of in-depth face-to-face interviews. This qualitative research study had its interviewing portion in small rural west central Minnesota schools (those with 1000 or fewer students). Seven rural Minnesota school superintendents were chosen from a service cooperative in west cental Minnesota. The e-Learning Theoretical Framework was utilized in this qualitative research study because of the many ramifications of in-person, distance, and hybrid learning.

Keywords: phenomenology, rural, west central Minnesota, service cooperative, social constructivism

Chapter One: Introduction

Background of the Study

Technology implementation and the use of technology initiatives has been the "norm" for a number of years according to Skenderi and Skenderi (2018). They stated, "The last decade has witnessed loads of quick changes in the world of digitalization and technology" (p. 1). The improvement in technology, both hardware and software, along with wider areas of internet coverage, has allowed educators to think about implementation of technology into schools. In today's world, education has become a frequent topic of discussion in society. Technology initiatives are a key component in the discussions associated with education. The implementation of technology into schools might benefit student achievement as long as teachers and administrators work together to ensure potential success throughout the infrastructure process. While a great deal of attention has been paid to implementation of technology initiatives, little focus has been paid to ongoing technology infrastructure. Educators continue to learn, and this proposed study aimed to add to scholarship on examining the superintendents' perceptions around leading ongoing technology initiatives in rural schools. Therefore, the research question is, "What are the perceptions of rural school superintendents around leading ongoing technology initiatives?" Interview questions will address this overall research question.

Many school districts across the United States have implemented technology initiatives, such as one-to-one, for students in all grades and levels. A one-to-one technology initiative is a term that refers to students in certain/all grade levels whom are provided tablets and/or computers for learning in and out of school. As mentioned, ongoing technology initiatives have not been studied in great detail. Given the lack of research in this area and with ongoing technology initiatives put to significantly greater use in schools, now suggests an invaluable time

to further research how school leaders lead their ongoing technology initiatives, adapt to change, and view impacts to student learning.

Both at the federal and state level, education is often highly debated with "quick fixes" for the next best thing to boost student achievement. Technology initiatives often take center stage in these types of discussions and settings. Educational funding is a complex process that involves many different facets of where to put the money. Educational stakeholders, including administration, teachers, and parents, have their own idea of what is best for student achievement and success. These stakeholders often work together and have the best interest for the success of all students; however, the process of ongoing technology infrastructure might look different for each group. The implementation of technology initiatives has already occurred for many school districts and, as mentioned, while a great deal of attention has been paid to implementation of technology initiatives, little focus has been paid to ongoing technology infrastructure. According to Steadman and Evans (2013), "Nearly since its inception, public education's basic tenets, such as purpose, curriculum, pedagogy, access and assessment, have served as targets for reform" (p. 1). With increased pressure on school administration to improve student achievement, educational stakeholders need to look at all options for working together to ensure academic accountability for students and staff, with the overall goal of meeting the needs for all. One of the concerns, however, for ongoing technology initiatives is funding for such programs, especially in times of financial uncertainty.

Topper and Lancaster (2013) suggested, "When planning implementation of a 1:1 initiative, school and district administrators should consider what is known about costs associated with these initiatives and plan for start-up as well as ongoing costs" (p. 348). School

leaders, including administration, teachers, staff, school board members, and the community should be involved with leveraging technology into the hands of school-aged children. With the ever-changing landscape of teaching and learning, educational stakeholders have many factors to consider as they make decisions about what specific technologies to purchase for their schools. According to Grundmeyer (2014), "It is imperative that school leaders are able to navigate technology decisions to capitalize on taxpayer dollars that fund public schools to provide the best technology for their students and staff" (p. 207). Establishing buy-in from all educational stakeholders might be important because technology tends to be expensive, which can make it difficult in educational settings where budgets are often confined and dependent on external factors.

Though introducing technology initiatives may cause teachers and teaching styles to change, students must remain the focus of such initiatives. Storz and Hoffman (2015) asserted, "The primary goal is to enhance students' learning experiences and prepare them for the future with 21st century technology skills" (p. 4). Technology is constantly changing with perceived better hardware and software that is supposed to help teachers become better educators in the classroom. However, as stated by Frazier et al. (2019), "As technology becomes more ubiquitous in schools, it is essential to continually examine what we have learned in order for truly transformational change in student achievement to take place" (p. 33). This research study on examining the perceptions of rural school superintendents around leading ongoing technology initiatives might help educational stakeholders make informed decisions geared towards the overall goal of student success/achievement.

Research for educational topics can often be related to the professional aspects of working in a school setting. According to Briggs et al. (2012), "Research in educational management and leadership is often focused upon potential improvements in leadership activity which could impact positively upon learner achievement" (p. 4). There is existing research concerning principals' and teachers' implementation of technology as a form of curriculum integration in the classroom. Zehra and Bilwani (2016) found, "The majority of these articles suggest strategies to remove the barriers and challenges which teachers face when trying to integrate technology in the classrooms" (p. 4). As instructional leaders, principals may help guide and implement technology initiatives at schools across America in hopes of increasing student achievement. School leaders like superintendents and principals are key individuals for impacting ongoing technology initiatives within their schools, and they are often the ones who experience challenges to sustaining ongoing technology initiatives (Heath, 2017). Professional development for both teachers and principals can be an integral part of training to enhance educators' ability to understand and incorporate technology initiatives in classrooms. The exploration of research has paved the way for the researcher to seek approval from a couple of smaller school districts to interview superintendents regarding their perceptions on technology initiatives in rural school settings.

There is a lack of research on technology initiatives in rural schools, especially when it deals with leading ongoing technology initiatives. The schools that have approximately 500-1000 PK-12th grade students will be the target for this research study. The use of smaller schools in this research study was chosen because the researcher's experiences in education have been in small schools and the notion of limited research on the rural superintendents' perceptions around leading ongoing technology initiatives. The researcher has chosen a qualitative phenomenology

study and the review of literature has been ongoing throughout this program. Incorporating a few small west central Minnesota schools will provide the opportunity to compare data from the participating schools. Face-to-face interaction seems to be a good method of interviewing to get a sense of understanding regarding rural schools. The overall impact of this research is to examine superintendents' perceptions on technology initiatives in rural schools. This research study will attempt to add value to the lack of research on rural school superintendents leading ongoing technology initiatives.

Theoretical Frameworks

Educational leaders need to know and understand the various theories that exist about the chosen topic of technology initiatives and their potential impact on student success/achievement. The following are three notable theoretical frameworks pertaining to the current research: Learning outcome theory and implementation of technological innovation theory (Penuel, 2006), theory of change approach (Connell & Klem, 2000) and e-Learning theory (Aparicio et al., 2016). All of these theoretical frameworks deal with the ever-changing technological implementation in schools.

In the implementation of technological innovation theory, Penuel (2006) explained the likely conditions and supports necessary for proper implementation of technology in schools. Penuel (2006) also suggested, "There are challenges for teachers and schools to fully realize the potential of their technologies" (p. 333). Connel and Klem (2000) summarized the planning of educational initiatives with a focus on district level efforts that include the following traits: plausible, doable, testable, and meaningful. Aparicio et al. (2016) summarized in the e-Learning Theory that people interact with e-learning systems. E-learning technologies enable the direct or

indirect interaction of the different groups of users. Technologies provide support to integrate content, enable communication, and provide collaboration tools. E-learning services integrate all the activities corresponding to pedagogical models and to instructional strategies. Each theory brings technological perspectives to research on educational-related items. All three theoretical frameworks have merit in the process of the research study regarding technology initiatives and the perceptions of superintendents.

There are ample research articles that show the impact of technology on student performance; however, there have been mixed results. According to Zehra and Bilwani (2016), "The most disappointing finding of this study was that technology did not help bridge the divide between the skills of advantaged and disadvantaged students" (p. 5). The lack of funding and resources allocated to other programs made it tough to give students hands-on computer experiences in the classroom. With the theoretical framework of learning outcomes for students, as stated by Penuel (2006), "many argue that providing students with better access to computers can provide students with more equitable access to resources and learning opportunities" (p. 332). Funding at schools is based on a number of factors that could play a key role in which school districts receive enough money for all students to have a one-to-one device.

This current research study relies on the e-Learning Theoretical Framework because of the utilization by users, the implementation of technology, and the dimensions of services (Aparicio et al., 2016). Traditionally, before the implementation of a one-to-one technology initiative, schools preferred to set up computer labs. Teachers had to sign their classes up to use the computer lab, with no consistent schedule. Many schools and teachers, especially those

located in disadvantaged areas, have not always had the opportunity to utilize computers in their classes for student success/achievement.

The e-Learning Theoretical Framework was chosen because of the many ramifications of distance learning with technological devices and student success/achievement. According to Aparicio et al. (2016), "Today the e-learning concept, apart from technology, includes learning strategies, learning methods, and online learning can be defined as learning that takes place partially or entirely over the internet making information or knowledge available to users" (p. 295). Administrators, teachers, and staff often change their instructional strategies as a result of the uncertainty of in-person, distance, and hybrid learning. The perception of technology initiatives and its possible effect or lack thereof on student success/achievement will continue to be discussed as schools navigate the future of education.

Need for the Study

There is a particular need for this study because technology initiatives have gained national attention in the last ten years with the implementation in schools across America. Educational leaders sometimes research information pertaining to items that may have a lasting impact on student success and/or achievement. According to Creswell and Poth (2018), "We bring a topic or a substantive area of investigation, and have reviewed the literature about the topic and can confidently say that a problem or issue exists that needs to be studied" (p. 51). One of the goals of schools is that of student success and/or achievement and how that looks; however, it might be different depending on who provides the answer. This proposed research study aimed to add to scholarship on examining the perceptions of rural school superintendents around leading ongoing technology initiatives.

In the field of education, there appears to be more research studies and scholarship relating to implementing technological devices, as opposed to leading ongoing technology initiatives, in schools across America. Many of these studies have focused on the process of implementation, professional development, and/or teacher/administrator buy-in. As summarized in the research by Heath (2017), and Blackwell et al. (2013), they all examined barriers and impacts of one-to-one technology initiatives that are forced on teachers and students by administration and school boards. Successful implementation of a one-to-one technology initiative involves educational professional development for stakeholders, and this concept is significant for success at all levels. These studies suggested barriers, challenges, and the need for professional development, which are important concepts when implementing any new curricular development. However, narrowing the focus down to the perceptions of rural school superintendents around leading ongoing technology initiatives is the purpose of this research study.

Educational research on the effective use of technology initiatives on student success/achievement is a concept that has been looked at. There are some studies showing the need for this type of research. According to Weston and Bain (2010), “Evidence compiled over the last decade, shows a diminutive effect of 1:1 computing on teaching, learning, and student achievement across schools, districts, and states” (p. 6). Both Cullen et al. (2006) and Arnold (2014) summarize that rural school districts do not show technology implementation and strategies that promote student learning. They also mention that even though there is inconclusive research on the impact of technology use on teaching and student achievement, school districts continue to secure funding for technology initiatives with educational stakeholders. The discussion surrounding the implementation and continued use of technology

initiatives could potentially be especially important when considering in-person, hybrid, and distance learning.

However, no matter what position educational leaders hold, one overarching goal is student success and/or achievement. Storz and Hoffman (2013) summarized that one-to-one computing clearly affects teachers and teaching, but students are the main focus of the initiative. The implementation of technology initiatives and the impacts on student success and/or achievement are important concepts to understand as an administrator. Researching from the perspective of a superintendent could be very beneficial because the hierarchy of a school district involves this person. Positive or negative outcomes of the school district often fall on the shoulders of these leaders. Understanding the perceptions and experiences may help them to gain insight into the ever-changing educational society. A qualitative study with face-to-face interviews will be the research methodology because according to Creswell and Poth (2018), "We conduct qualitative research when we want to empower individuals to share their stories, hear their voices, and minimize the power relationships that often exist between a researcher and the participants in the study" (p. 45). Communicating with individuals in the field a researcher works in will hopefully give a more reliable and valid study, with the opportunity to ask follow-up questions for clarity.

Finding scholarship on administrative perspectives around leading ongoing technology initiatives has been limited because much has been focused on teacher and parent perspectives. Oliver et al. (2012) postulates that "background literature suggest 1:1 leaders must tend to multiple roles, including: learner, motivator/change agent, technician, instructional leader, purveyor of resources, and evaluator" (p. 14). This gap in literature regarding perceptions from

the standpoint of superintendents needs research as schools assess and discuss technology initiatives.

Another reason there is a need for this study is the incorporation of hybrid, in-person, and distance education in schools. The increase in the implementation of hybrid and distance learning will more than likely help lead the discussion regarding technology initiative in schools. The ‘new normal' in education may involve changes in the way teachers teach, students learn, administrators lead, and how schools incorporate technology for student achievement. According to Creswell and Poth (2018), “Besides dialogue and understanding, a qualitative study may lead to an in-depth understanding, fill a void in existing literature, or establish a new line of thinking” (p. 131). The ramifications for this study may pave the way for other researchers to understand the perceptions of rural school superintendents around leading ongoing technology initiatives and the effect on all educational stakeholder.

Purpose of the Study

Creswell and Poth (2018) summarized that the purpose statement provides the major objective for any research study. The purpose of this qualitative phenomenological study is to examine the perceptions of superintendents around leading ongoing technology initiatives in west central Minnesota rural schools. In order to understand this research study, the researcher selected a sample population of superintendents from west central Minnesota rural school districts. These school districts represent a population of less than 1,000 students. To fill the gaps in the literature regarding school superintendents leading ongoing technology initiatives, this research study will address the underrepresented perceptions of superintendents in an underrepresented population of rural Minnesota.

The professional purpose of this research project is to understand decisions and outcomes made in the current school district of the researcher. Some school districts implemented a K-12 technology initiative and hired integrationists, without using any sort of background information, research, or educational stakeholder input to support these decisions. Schools have spent thousands of dollars on the latest and greatest technological hardware and software; the researcher is interested to see if these investments have had any effect, positive or negative, on student success and/or achievement.

Some school districts have implemented technology initiatives for a number of years and hearing the perceptions of rural school superintendents around leading ongoing technology initiatives is the purpose of this study. The possible effects of educational stakeholder decisions could affect schools, students, and their education, whether in-person, hybrid, or virtually.

Significance of the Study

The significance of the study is to show the gap in research as it pertains to the perceptions of rural school superintendents around leading ongoing technology initiatives. As mentioned before, the researcher looked at the e-Learning Theoretical Framework of learning outcomes for students based on a technology initiative in schools. This research study may help other educators in PreK-12 rural school settings who want to understand superintendents' perceptions and the ongoing technology initiatives. Educational stakeholders, which comprise educators, students, parents, and community members, look for ways to implement technology; however, understanding leading ongoing technology initiatives in this research study is the significance of this study. School district administrators have to make many decisions and the

significance of this research study could be a valuable tool to help with leading ongoing technology initiative decisions in rural school settings.

The focus of this research study is significant because it represents an underrepresented perspective from rural school superintendents in an unprecedented time of in-person, distance, and/or hybrid learning. This research study will involve the perceptions of superintendents; however, teachers will not be part of this research study. When it comes to administrators, Ugur and Koc (2019) conveyed, "In fact, one of the most powerful factors in increasing the use of technology in teaching, learning, and student achievement is societal pressure on administrators to use technology as an implementation tool" (p. 45). Gaining perceptions from superintendents in rural schools will hopefully find this research study beneficial when working together for the success of student success/achievement.

Research Question

What are the perceptions of rural school superintendents around leading ongoing technology initiatives?

Definition of Terms

Rural: "Rural schools are in census-defined rural territory and defined as *Fringe, Distant,* or *Remote,* based on their distance from both Urbanized Areas and Urbanized Clusters" (National Center for Education Statistics, 2006).

Educational Stakeholders: "Educational stakeholders lumps together every person affected by the education system into one easy word. It encompasses governors, state boards, legislators, superintendents, school board members, principals, teachers, parents, and students–not to mention the public at large" (State Collaborative on Reforming Education, 2011).

Administrators: "District and school administrators are responsible for providing instructional leadership and developing, implementing, and evaluating district and school systems and policies. District administrators include superintendents and central administration staff responsible for finances, assessment, special education, and the like under the direction of a school board" (National Center for Safe Supportive Learning Environments).

Barriers/Challenges: "The results suggest many challenges–some financial, some technical, and some procedural. Common challenges also include leadership and vision, funding, teacher professional development, and project evaluation" (Topper & Lancaster, 2013).

One-to-one Technology Initiative: "One-to-one initiatives in education (often abbreviated as "1:1") refer to the practice in which educational institutions, issue each of their registered students a computing device, such as a laptop or tablet, in order for their students to access the Internet, digital course materials, and digital textbooks" (Vu et al., 2019).

Student success/achievement: "The result must increase student effort and motivation, complement better understanding and prepare students for the future" (Machado & Chung, 2015).

Technology: "Technology has been a new phenomenon to help motivate, differentiate, and allow students to achieve and excel in ways that they have never been able to do before" (Harris et al., 2016).

Social Constructivism: "Posits that individuals are active participants in the creation of their own knowledge" (Schreiber & Valle, 2013).

Phenomenology: "Can be defined as an approach to research that seeks to describe the essence of a phenomenon by exploring it from the perspective of those who have experienced it" (Neubauer et al., 2019).

Axiological assumptions: "Researchers bring values to a study and admit the value-laden nature of the study and actively report their values and biases gathered from the field" (Creswell & Poth, 2018).

Research Design

This research study examined the perceptions of rural school superintendents around leading ongoing technology initiatives. Maki (2002) summarized that qualitative methods will provide useful and accurate measures of student achievement–standardized tests, performances, computer simulations, licensure exams, locally designed case studies, portfolios, focus groups, interviews or surveys. A qualitative research study will be completed with face-to-face interviews of rural school superintendents. According to Fraenkel et al. (2019), "In general, qualitative researchers believe a researcher's worldview, or theoretical framework, greatly influences how research studies are designed and their results interpreted" (p. 117). A qualitative research study versus a quantitative research study is because of the ability to be engaged in the process while at the same time collaborate with the participants. Creswell and Poth (2018) summarized that the researcher situates himself within the study to reflect his or her history, culture, and personal experiences. The positionality for this research study is that of an educator who has been a teacher, coach, principal, and is now a superintendent. As an educator, it is often important to be passionate about educational-related items and staying up-to-date on issues, especially relating to student achievement and/or success.

The paradigm for this qualitative study is that of phenomenology as a form of interpretivism, specifically, social constructivism. Social constructivism was chosen because according to Creswell and Poth (2018), "individuals seek understanding of the world in which they live and work" (p. 24). The researcher would like to seek a better understanding of the perceptions of rural school superintendents around leading ongoing technology initiatives. Researching a phenomenological study involves interpreting data after a number of in-depth interviews. Observing participants, asking open-ended and closed-ended survey questions, and meeting face-to-face can help researchers understand the overall process and outcomes of the phenomenological research study.

Assumptions

This qualitative research study is grounded in social constructivism. Creswell and Poth (2018) summarized that individuals seek understanding of the world in which they live and work. Ontological issues answers questions regarding reality and according to Creswell and Poth (2018), "Evidence of multiple realities includes the use of multiple forms of evidence in themes using the actual words of different individuals and presenting different perspectives" (p. 20). This qualitative research study had its interviewing portion in small, rural west central Minnesota schools. Superintendents may base their answers on their experiences working with students, beliefs about technology implementation, possibly their level of education, how long they have been in the field of education, their involvement with their local school, as well as perceptions based on their experiences.

One reason face-to-face interviews were picked for this research study is because "It becomes important to conduct studies in the 'field,' where the participants live and work–these

are important contexts for understanding what the participants are saying" (Creswell & Poth, 2018, p. 21). Epistemologically, social constructivism is the approach for this research study because "Researchers make interpretations of what they find, an interpretation shaped by their own experiences and background" (Creswell & Poth, 2018, p. 24). The researcher had no authority or relationship over these educators who participated in this study. Along with their answers, all of these participants will remain anonymous. No matter what school these participants are superintendents at, candid answers are encouraged. Listening skills will need to take front and center during these interviews with less talking and more observance. The results when completed will provide an opportunity for interpretation based on many years of experience in the education field.

The axiological assumptions, which are characterized by, "the aspects described as researcher's social position, personal experiences, and political and professional beliefs" (Creswell & Poth, 2018, p. 21). The researcher has been in the field of education for over 25 years and has served as teacher, coach, assistant athletic director, elementary, middle, and high school principal in small to medium-sized schools in Minnesota. The current position as school superintendent has brought more of a leadership role for all aspects of the school, from financial to final decision maker, with input from others. Communication is considered a strong asset of many administrators and hopefully individuals will feel comfortable detailing their experiences and perceptions through this qualitative research study process.

Educators who have served in many different capacities likely have their own assumptions based on experiences working with students and educators. Students have the ability to learn at their pace and teachers and administrators likely have different perspectives on what is

best for students, and technology initiatives are no exception. This qualitative research study will take place in small, rural west central Minnesota school districts that have implemented technology initiatives for students in either all grades or a handful of grades. There are no affiliations with the individuals in these school districts and it will be interesting to hear multiple realities based on information gathered from interviewing individuals face-to-face who are in the field of education. Creswell and Poth (2018) stated, "More emphasis on the views, values, beliefs, feelings, assumptions, and ideologies of individuals than on the methods of research" (p. 86). This qualitative research study will hopefully make a difference in the field of education and help other researchers regarding their studies and proposed topics.

Limitations

One limitation regarding the research study, even though it started during the 2021-2022 school year, could be the impact COVID-19 had on schools across Minnesota. Distance and hybrid learning have taken center stage in schools and there are many perspectives regarding its effectiveness on student achievement. The current funding and school districts' technology initiatives may not be as prevalent in rural schools as it is in bigger city schools. Cullen et al. (2006) stated, "The nature of rural school and teacher attitudes toward technology are factors that might be considered as schools look to provide an education for students that optimize learning opportunities and provide cost-effective instruction" (p. 11). Rural school superintendents' perceptions regarding technology initiatives will be examined as school districts navigate future educational considerations like technology initiatives. Each school district not having a standardized technology initiative process and having varying levels of complexity which may impact the experiences is also a limitation.

Another potential limitation for this research study is the validity or credibility of the data in the various school districts. This concept, examined by Topper and Lancaster (2013) suggested, “While the primary source of data-decision maker interview-represents self-report, and there are obvious limitations with this type of data collection and analysis, other forms of data gathered were used to verify evidence collected during the interviews” (p. 349). Conducting interviews for this research study will be the preferred method of data collection; however, gauging the responses and demeanor of the individuals during this process to determine its validity is very important. The researcher will communicate to these rural superintendents that ethics are an important concept for this study and confidentiality will be of utmost importance.

Another possible limitation involves the willingness to share personal information in an open and honest manner with the individuals interviewed. More than likely there will be no idea of the background knowledge and/or experiences of the individuals or their perceived biases for or against technology, or disagreements they might have with educational stakeholders. After collection of the data, it will be pertinent to seek participant feedback. Creswell & Poth (2018) recommend, “This approach, *writ large* in most qualitative studies, involves taking data, analyses, interpretations, and conclusions back to the participants so they can judge the accuracy and credibility of the account” (p. 261). Hopefully, individuals in a phenomenological study will not see a researcher as an outsider and/or administrator looking to change the decisions of their school district.

Summary

Educational-related items will more than likely be a topic amongst all educational stakeholders as discussions could center on future considerations for student

success/achievement. Chapter 1 discussed the paradigm for this qualitative study is that of phenomenology as a form of interpretivism, specifically social constructivism. The implementation of a phenomenological study as a research approach involves the collection and analysis of data, interviewing, and then development of a final product. Face-to-face interviewing, as well as open-ended questions, examined the perceptions of superintendents on technology initiatives in rural schools. This research study took place in small, rural west central Minnesota schools with a student population of 500 to 1,000.

The e-Learning Theoretical Framework will be used for this research study on learning outcomes for students based on a technology initiative in schools. The minimally published educational research shows that the topic of technology initiatives was related more to various instructional devices and professional development. There is research on one-to-one technology initiatives and their effect on student success/achievement from the perspective of teachers compared to superintendents. Therefore, there is a need for this study because of recent legislation regarding state standards, student assessment, and school accountability. State and federal funding, revenues and expenditures, and costs associated with the overall budget of the school will surely address the need for a discussion on technology initiatives.

The next chapter will involve the discussion and evaluation of literature regarding qualitative, quantitative, historical, and rural perceptions regarding technology initiatives. The literature and its effect on student success/achievement will also be detailed as well as certain components of administrative perceptions and the need for future research.

Chapter Two: Literature Review

Introduction

A paradigm shift with technology use is likely going to be discussed and the aftermath during the transitions from in-person, to hybrid, to distance learning will likely result in further discussions in schools across the United States. The ongoing funding debate about educational-related expenses and the continued implementation and assessment of technology initiatives in schools will more than likely take center stage.

The purpose of this qualitative exploratory research study was to examine the perceptions of rural school superintendents around leading ongoing technology initiatives. While some research looks at the effectiveness of implementation, few studies look at established technology initiatives in rural schools. A qualitative study was selected because according to Creswell and Poth (2018),

> It focuses on how individuals' culture, gender, history, and experiences shape all aspects of the qualitative project, form their choice of a question to address, to how they collect data, to how they make an interpretation of the situation, and to what they expect to obtain from conducting the research. The researcher situates himself or herself within the study to reflect his or her history, culture, and personal experiences (Creswell & Poth, 2018, p. 49).

The qualitative approach to this research study is that of phenomenology because Creswell & Poth (2018) suggested,

> The type of problem best suited for phenomenology research is one in which it is important to understand several individuals' common or shared experiences of a phenomenon.

> It would be important to understand these common experiences in order to develop practices or policies, or to develop a deeper understanding about the features of the phenomenon (Creswell & Poth, 2018, p. 79).

As an educator in a PreK-12 setting, this phenomenology research study helped the researcher better understand the perceptions of superintendents who work in rural Minnesota schools with technology initiatives. Superintendents will more than likely need to make informed decisions regarding technology initiatives and student learning in the long-term strategic planning process for their school district. This research study has its origins in e-Learning Theoretical Framework because "this theory's framework is based upon three principal dimensions: users, technology, and services related to e-learning" (Aparicio et al., 2016, p. 292). Chapter 2 will focus on the review of appropriate literature by identifying, synthesizing, and addressing any gaps this researcher sees in this literature as it relates to this research study.

Methods of Searching

For this research study, the researcher used Educational Resources Information Center (ERIC) through the Minnesota State University Moorhead Library, Google Scholar, and various internet searches such as SAGE and Taylor Francis for related journal articles. The researcher also searched different dissertation sites, including RED, through the MSUM site, and was able to find a few dissertations from various university institutions regarding technology initiatives and implementation. Studies on post-implementation with established one-to-one technology initiatives were not found. The search terms utilized were varied and included the following: technology initiatives, one-to-one technology, rural public school technology implementation, administrator and teacher perceptions, challenges, barriers, and benefits of one-to-one technology initiatives, implementation and effects of one-to-one technology

initiatives, student achievement/success for technology implementation in grades K-12, and leading ongoing technology initiatives. The bottom line for the search terms had the over-arching umbrella of what are the perceptions of rural school superintendents around ongoing technology initiatives.

Theoretical Orientation for the Study

Educational leaders need to know and understand the various theories that exist when it pertains to research study and eventually choose one that is appropriate for the topic. According to Creswell & Poth (2018), "Theoretical orientations are found in the literature, and they provide a general explanation as to what the researcher hopes to find in a study or lens through which to view the needs of participants and communities in a study" (p. 18). There are three theoretical frameworks pertaining to the current research: Learning outcome theory and implementation of technological innovation theory (Penuel, 2006), theory of change approach (Connell & Klem, 2000) and e-Learning theory (Aparicio et al., 2016). All of these theoretical frameworks deal with the ever-changing technological implementation in schools.

The e-Learning Theoretical Framework was chosen because it was written in 2016, while the other two were written in 2000 and 2006. Technology overall is constantly changing and the concept of technology initiatives in rural schools with superintendent perceptions at the helm is relatively new. According to Lochmiller (2021), "Compared with research focused on urban and suburban settings, research on educational leadership in rural school districts is a relatively small and somewhat dated body of research" (p. 3). One-to-one technology implementation and its effect on student achievement has been the focus of studies in recent years. Many schools found themselves relying heavily on technology to facilitate hybrid and distance learning, and one-to-one programs were put through a critical unplanned stress test. Some

districts were prepared for this shift more so than others, but rural districts often lack the resources available to urban districts to adequately support such a massive technological shift. According to Aparicio et al. (2016), "Today the e-learning concept, apart from technology, includes learning strategies, learning methods, and online learning can be defined as learning that takes place partially or entirely over the internet making information or knowledge available to users" (p. 295). The concept of technology encompasses several items and schools might be involved in discussions centered on them.

Administrators, teachers, and staff had to change their thought processes involving instructional strategies, technology equitability, and one-to-one technology capabilities. The superintendents interviewed for this research study will hopefully review their perceptions and could possibly work with all educational stakeholders to better understand their own school district. Kaden (2020) suggested, "The massive COVID-19 online learning experiment brings new insights and cautionary tales about what works in education. Teachers and educational stakeholders have to be actively involved in future research designs and discussions" (p.11-12). Administration, teachers, and parents might need to work together for a renewed transition and evaluation into this technological world of global education.

The e-Learning Theoretical Framework involves on-line learning and the vast capabilities of technology implementation and educational stakeholders involved. Student achievement is of utmost importance to educators, no matter who the student is or their background. A component of student achievement is the use of curricular strategies to ensure students learn at their pace and to the best of their ability. E-learning encompasses several factors when it comes to education. According to Aparicio et al. (2016), "E-learning dimensions include: the e-learning systems stakeholders, the pedagogical models, the instructional strategies, and the learning technologies"

(p. 302). All these dimensions are what the researcher considers the cornerstone of technological education and the people (stakeholders) involved to ensure a productive outcome with a positive experience for all involved.

Figure 1

e-Learning Theoretical Framework

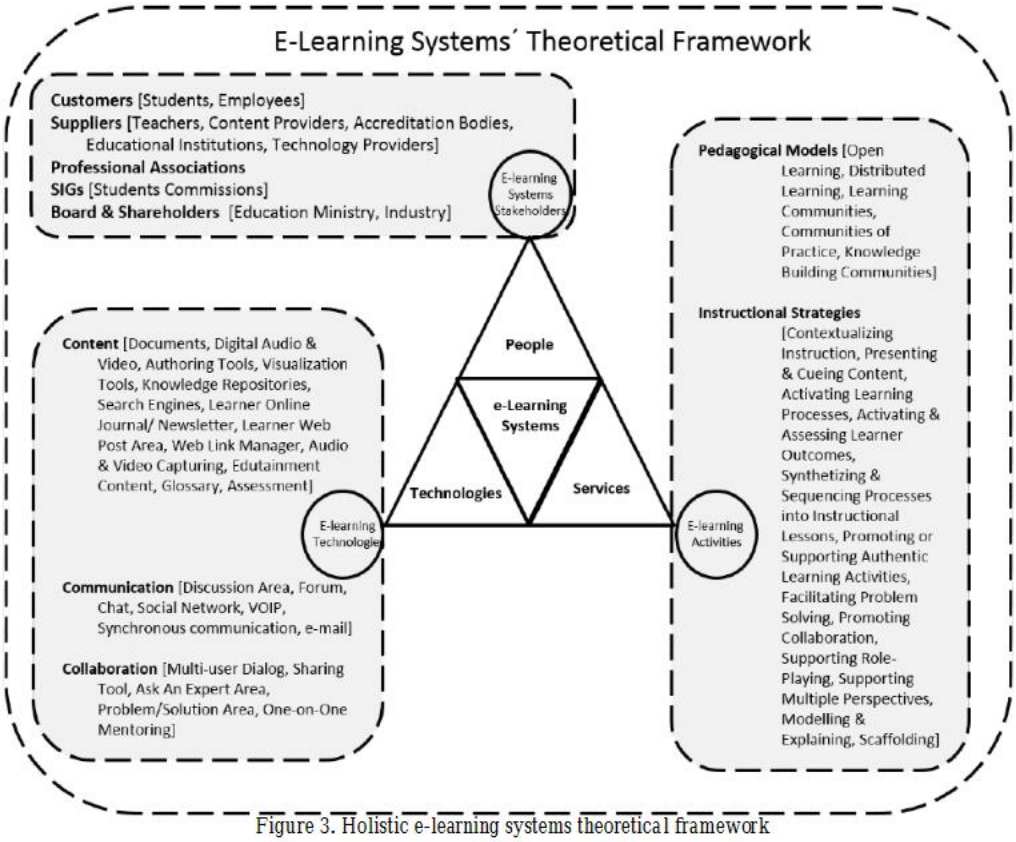


Figure 3. Holistic e-learning systems theoretical framework

Rural school settings were chosen because of the perceived lack of research in this area. Hannum et al. (2009) suggested, “The extent to which distance education is being used in rural schools is not well documented nor are the barriers in rural schools may face when using distance education” (p. 2). There are a few theoretical frameworks pertaining to education as

well as varied studies to determine the technological impacts on students, teachers, and administrators. Part of the researcher's bias is that of being passionate about education and the choice of a theoretical framework. Also, in conjunction with a qualitative research phenomenology study helps shape the researchers, "theoretical sensitivity which comes from a number of sources, including professional literature, professional experiences, and personal experiences" (Hoepfl, 1997, p. 50). Thus, the researcher has chosen the e-Learning Theoretical Framework because, "The e-learning systems theory framework was constructed upon the three main components of an information system: people, technology, and services provided by technology itself" (Aparicio et al., 2016, p. 302).

Review of Literature

Introduction

This review of literature was completed over the course of two years. According to Creswell and Poth (2018), "The literature may be fully reviewed and used to inform the questions actually asked, it may be reviewed late in the process of research, or it may be used solely to help document the importance of the research problem" (p. 50). This review of literature will help show the need for a research study examining the perceptions of superintendents in a rural school setting on ongoing technology initiatives. The review of literature starts with historical context and will eventually lead into qualitative and quantitative research studies.

Historical Context

Historical context is an important concept in the field of education to better understand the present, as well as strategic planning for the future. The review of literature on technology initiatives and its implementation is varied as the number of computer companies there are today.

Schools across America introduced computers to be used by both teachers and students in the classroom. Much research in the field of educational technology is based on the devices themselves, professional development, and access for various schools and individuals. According to Trucano (2016), "Much less focus and attention has been directed to how exactly the use of these devices is meant to impact teaching and learning processes in positive, meaningful ways" (p. 2). Teaching and student learning is the foundation for education and technology is key in that discussion.

A common historical theme the researcher noticed in researching educational technology is a question posed by many school officials: The literature revealed that there are still questions surrounding the effectiveness of technology in education. Effectiveness of educational programs for student achievement/success is of utmost importance to administrators, teachers, and parents. Finding what works in various classrooms and subjects, for a wide range of student abilities, is crucial. According to Rana Tamim et al., as seen in Education and Technology Blog (2014), "In a secondary meta-analysis of existing studies over the past 40 years comparing achievement in educational settings with and without technology, identified only a small to moderate effect of technology on achievement" (p. 2). Student achievement might likely need to be the focus of future research regarding the use of technology.

A number of technology initiatives, including BYOD, (Bring Your Own Device) Laptop, i-Pads, Chromebooks, one-to-one, hardware and software upgrades, networking capability, and Internet access at both home and schools have been implemented since the 1990's. According to Clausen et al. (2008), "The history of technology adoption in K-12 schools has demonstrated that for those who used technology it was great, but for those who didn't, it

hasn't changed much of anything about their instructional choices" (p. 19). Even though it seems like computers and technology have been around for a long time, Molnar (1997) summarized that the modern computer age will continue to expand with new interventions and discoveries. The use of computers and technology in education has been researched at PreK-12 schools and universities alike. Technology is evolving at a rapid pace and constantly changing, and "School administrators need to understand the history of education technology in order to introduce new ideas and learning opportunities to students" (THE Journal, 2004, p. 2).

Historical context research for technology in education is rather ambiguous because of the many different factors and situations affecting schools across the United States. Two such questions affecting schools, is technology effective and what are schools trying to measure. The COVID-19 pandemic and its aftermath on technology initiatives in education, especially regarding online learning from distance to hybrid, might become a topic of discussion too. Rural schools vs. urban schools, demographics of white vs. students of color, funding vs. non-funding, and technology vs. non-technology will be some of the variables educational decision makers need to consider when deciding what is best for their school. The research as stated by Valiente (2010) says, "When it comes to the question of how laptops are being used in classrooms, there is not much information on 'how' the laptops are being used in teaching and learning practices" (p. 10). There hasn't been much information regarding this question; however, there have been a few qualitative and quantitative studies regarding technology.

Phenomenological Research Study

As mentioned previously, the researcher has chosen a qualitative phenomenological research study because Creswell & Poth (2018) suggested,

> The type of problem best suited for this form of research is one in which it is important to understand several individuals' common or shared experiences of a phenomenon. It would be important to understand these common experiences in order to develop practices or policies, or to develop a deeper understanding about the features of the phenomenon. (p.79)

A methodology of face-to-face interviews to gain an understanding of superintendent perceptions and experience with data analysis will be important. It might be possible after this phenomenology research study to develop a practice or policy for school districts. As far as researching, there are more qualitative studies on educational technology initiatives and opportunities in schools. An argument of sorts regarding qualitative vs. quantitative research has emerged as to which one is more beneficial to the success of the research study. According to Jenkinson (2009), "Those in favor of a quantitative approach to evaluating educational technology do so on the grounds that it produces reliable and ecologically valid results that are readily generalizable" (p.274). Jenkinson (2009) continues to summarize that proponents of a qualitative approach to evaluating educational technology would suggest it is a more sensitive form of measurement because it is one that generates richer, more meaningful results. This concept of more meaningful results because of interviewing and face-to-face interaction and communication resonates with qualitative research study individuals.

Rural Assessment

One small qualitative research study was conducted in a small, rural school in Maine where researchers investigated the effects of having computers in their classroom assessment processes. Observations and interviews were the methodology utilized with a few teachers who agreed to participate. Buy-in is important when implementing new programs and initiatives, especially

when it comes to student achievement. This study concluded with only more questions to be answered in future research studies. According to Beaudry (2004), “Computers are powerful gateways to open-ended learning, but teachers themselves wonder, has the level of achievement been changed” (p. 19). Cooperation, collaboration, and communication amongst teachers and administrators may help pave the way for increased understanding the impacts on student achievement as a result of technology initiatives.

Urban Middle School Students

Another qualitative study involved the interviewing of middle school students in an urban school district. This phenomenology study involved interviewing students before and after the implementation of a one-to-one technology initiative. The goal of the district before this research study was to have an impact on student learning experiences with the implementation of a one-to-one. The following, however, was noted in this study, “An important question that we did not directly address in our interviews was whether this project has any impact on student achievement” (Storz & Hoffman, 2015, p. 9). The impact of any curricular programs in schools more than likely will involve the discussion of student achievement as a result of a one-to-one technology iniative.

Another qualitative research study was conducted regarding factors that influence K-12 teachers' use of iPads or Chromebooks. The approach taken utilized open-ended survey questions, hoping to find out if teachers prefer iPads or Chromebooks for teaching in the classroom. Four themes emerged after reviewing the survey responses and they were availability, familiarity, functionality, and targeted professional training. The results of this study corroborate with other findings of similar studies because according to Kaur (2010), “When students have access to technology and teachers are well-trained in using technology to support pedagogy,

both, learning and teaching thrive" (p. 32). This study was helpful in identifying factors; however, one limitation is that it involved only 51 participants from Title 1 schools, where socio-economic factors were in play.

Mixed Methods

One large quantitative study with a survey component of qualitative research, hence mixed methods, was completed by over 1,000 teachers. This research study involved a five-point Likert-type scale for teachers in Mississippi and New Orleans in over 250 schools to, "focus on providing teachers in high need schools with one-on-one coaching and training through an intern system to accelerate teacher proficiency in the use of education technology in the classroom to boost student engagement, success, and retention" (Mundy et al., 2012, p. 3). This study involved surveys conducted in November and May of 2010 and 2011 where teachers responded to survey questions, then compared using sample t tests, with a mean and standard deviation for each question. Graphic tables are included which helps understand the results. Results concluded that "The increase in the use of technology in the classrooms has resulted in growth in student engagement, excitement, acceleration of learning, and proficiency with computer technology over the year, as perceived by teaching professionals (p. 6).

One foreign research study involved a mixed-methods research study in Malaysia with secondary school teachers and their view on computer technology in the classroom. A self-administered questionnaire with a Likert scale continuum of one to five was given to approximately 350 teachers in urban settings. Based on this study, Kumar et al. (2008) stated, "Teachers who viewed computer technology as positive were able to demonstrate greater usage of computer while those who viewed technology as negative, did not acquire and integrate knowledge and skills on computer technology in the classroom" (p. 609). Obviously, these

findings suggest attitude plays a big part in teacher implementation of classroom materials for student achievement. A limitation of this article for the researcher is the fact that rural schools were not chosen because of their limited resources.

Teacher Implementation and Attitude Regarding Technology

Another foreign research study involved 125 elementary school teachers selected randomly in the country of Turkey who agreed to fill out a questionnaire. There were two questionnaires collected, along with the demographic information of the participants. The first questionnaire asked questions regarding teachers' knowledge of implementing technology in the classrooms and the second questionnaire measured the attitude of the teachers. There are graphs that measure correlations among five variables, descriptive, and regression analysis results. The main goal of this research study was to investigate teachers' attitudes and the relationship between teachers and technology. The limitation on this research study involved self-reporting of teachers, and often, people sometimes say what they might coin as socially desirable responses. Varol (2013) suggested that "In further investigations, the focus of research should be extended to the relationship between teachers' beliefs and the technology integration and this relationship's contribution to the power of the learning environment" (p. 88). Educational stakeholders may have different ideas about the use of technology and its possible effect on student achievement.

Student College Preparation

One qualitative study included open-ended interviewing with data collection and analysis of fifteen participants from both the Midwest and East Coast. The goal was to obtain feedback from students "about how their high school 1:1 laptop initiative prepared them for college and uncover student perceptions about their high school teachers' use of technology for instructional

purposes" (Grundmeyer, 2013, p. 207). Data analysis is an important concept, along with coding of the information collected through the research process. According to Creswell & Poth (2018), "The process of coding is central to qualitative research and involves making sense of the text collected from interviews, observations, and documents. Coding involves aggregating the data into small categories of information" (p. 190).

This qualitative research had two guided questions pertaining to first-year college students' perceptions on the relationship between high school laptop experiences and their readiness for college. The data analysis piece included three phases, which according to Grundmeyer (2013), "First, interview transcripts were reviewed several times, Second, coded interviews and field notes were looked at for relationships, and finally, the researcher integrated and refined the categories until themes solidified" (p. 212). This article involved interview questions that were given to former high school students who were now in college. Hopefully, these responses were answered honestly about their experiences with one-to-one technology while in school. Interesting to the researcher was that the qualitative data in this one-to-one technology study gave some guidance and direction for school leaders. The guidance and direction, suggested by Grundmyer (2013), included the summary of three distinct themes to minimize implementation issues: (a) technology initiatives in schools need to be well-timed and have infrastructure to sustain them, (b) technology initiatives should have clear goals and measurable outcomes. Buy-in from stakeholder groups about the desired goals and outcomes are vital to maximize the value of the initiative, and (c) technology initiatives must include effective training for teachers prior to and during the adoption. Putting new technology in the hands of the staff before the students has supreme benefits for teaching and learning. These themes appear to

be appropriate for schools that implement technology initiatives, and educational leaders can utilize them when discussing the process, goals, and outcomes.

Student Achievement

It can be suggested that pilot programs help gauge possible solutions to educational related initiatives. One such pilot program was a three-year process called the Berkshire Wireless Learning Initiative (BWLI) involving five western Massachusetts middle schools. Each teacher and every student were provided with a laptop computer for a duration of three years. These were the targeted outcomes of this quantitative research study, according to Bebell and Kay, (2010) "enhancing student achievement, improving student engagement, improving classroom management, enhancing students' capabilities to conduct independent research and collaborate with their peers, as well as creating fundamental changes in teaching strategies and curriculum delivery" (p. 7-8). Each outcome in this quantitative research study is thoroughly evaluated with graphs, tables, and figures representing appropriate data. Bebell and Kay (2010) stated, "In order to maximize the validity of the evaluation results, multiple data sources were employed to address each of the targeted learning outcomes" (p. 52). Although most participants felt this pilot program was a success because many positive educational impacts could be viewed as potentially transforming teaching and learning, Bebell & Kay (2010), suggested, "One of the great challenges facing educators and policy makers with educational technology is the rapid pace at which technology resources are constantly evolving and have a particularly short shelf life compared to traditional educational resources" (p. 53). Technology is constantly changing, and educators may need to learn and adapt as the latest and greatest comes to fruition.

Elusive Academic Achievement

Most of the technology initiative research study involves the researcher's educational experience as a school administrator which has been in rural school districts, and the researcher plans to continue working in this capacity. There are some articles pertaining to technology implementation and integration, some were even found in developing countries. One such article regarding a one-to-one laptop program in rural Argentina, according to Light and Pierson (2013), suggested, "The research on laptop programs in these countries often finds that such programs help bridge the digital divide and improve students' technical fluency, but the desired impact on academic achievement remains elusive" (p. 236). This article involved an instrumental case study to observe teachers and students and their experience around the one-to-one laptop program. There were a few important findings that could pertain to this research study including the impact on students, classroom practice, and the increased communication needed for all educational stakeholders. The underlying theme, stated by Light and Pierson (2013), was "as technology one-to-one implementation continues in education, the discussion centered on rural vs. urban integration of appropriate technology for all students, no matter where they live, will be important" (p. 32).

Rural vs. Urban School Technology

Another article examines computer use in a middle school in rural Turkey where researchers interviewed students about their computer use both at school and home. There appeared to be a divide between rural and urban schools' technology ability and according to Yilmaz and Albayrak (2008), "The shift from teacher-centered instruction to student-centered instruction makes the roles, activities, attitudes, reflections of students more important regarding the effectiveness of technology in instruction" (p. 115). This article is a little misleading because

the students in this school come from wealthier homes where parents pay for tuition and many of them have devices at home. Obstacles affecting the implementation of one-to-one technology, such as funding, administration support, connectivity, and access can be more noticeable in rural schools compared to urban schools. Yilmaz and Albayrak (2008) asserted, "It is important to remove the technological gap between urban and rural schools with policies regarding computer use and its applications put into a stable framework and implemented nationwide, particularly in economically and geographically disadvantaged areas" (p. 122).

Schools in rural areas, especially those in developing countries, experience lack of technology initiatives for their students because of the lack of necessities. According to Gulati (2008), "Yet it is hard to imagine that these technologies can have a positive influence on the education of children and adults who lack basic living resources and live with an underdeveloped educational infrastructure" (p. 1). A few different countries were examined with regards to the poverty and lack of educational resources like technology in the rural countries of China and India. There were also reviews of many distance education programs in countries of Africa and the lack of them for rural areas. There are a few appropriate and interesting concluding statements that stand out and may benefit the overall research study. According to Gulati (2008),

> The analysis of open and distance learning developments in developing countries concludes that although these developments aim for equitable and extended educational opportunities that extend to disadvantaged and poor populations, the lack of educational and technology infrastructures, lack of trained teachers, negative attitudes towards distance learning, social and cultural restrictions imposed on girls and women, and inappropriate policy and funding decisions, have all resulted in furthering the gap between the rich and poor, rural and urban, and between gender (p.12)

The conclusion in this article brings up a host of other potential research topics in the disparities, not only in education, but other realms of society too.

Rural Teachers' Technology Integration

A closer look at rural schools and technology integration involves a research study out of Ohio where 500 third grade teachers responded to 56 close-ended questions. The researchers used data from teachers and organizations like the Ohio Department of Education and National Center for Educational Statistics. Models were then created with scales that measured previous research on rural teachers' technology integration. According to Howley et al. (2011), "These scales measured teachers' perceptions of the adequacy of the technology available to them, their levels of preparation for integrating technology, the extent to which they were supported in their efforts to use technology, and their attitudes toward technology integration" (p. 5). Attitudes from teachers regarding technology initiatives as well as clear expectations from administration might play a major role in the classroom.

The Ohio research study sought approval from Ohio University's Institutional Review Board, which is interesting because the researcher has not seen this expectation in many articles. The overall process continued with approval for the mailing out of a contact letter, followed by a second and third mailing of the survey. An important component of this letter included a personal guarantee that all participants would remain anonymous. According to Creswell and Poth (2018), the letter summarized specific elements of a consent form, like rights of the participants, purpose of the research study, confidentiality, known risks, expected benefits, and signatures of those involved. All major components of research were identified, and this was beneficial in understanding rural schools' technology implementation and process from the point of view of elementary teachers. As stated by Howley et al. (2011), "Rural elementary teachers

reported that students used more sophisticated technology applications under three conditions: when attitudes toward technology were more positive, preparation for integrating technology was more extensive, and the available technology was better" (p. 7). As suggested, rural schools may need to start looking at incorporating staff development for teachers as new technology becomes available to the district.

A discussion regarding new research insights with those of existing research for improving technology use among rural schools was explained. There was also additional discussion about certain support for teachers in rural school districts to administer technology use to promote meaningful student learning. Like many research articles, the end of this article explains the need for future research. One notion, according to Howley et al. (2011), "teachers in rural schools certainly have the power to increase student use of sophisticated technologies as a way to improve their learning without requiring them to abandon care for and commitment to local places and community priorities" (p. 8). This concept of giving back to the rural school and/or community is vitally important to the researcher as an educator and community member in a rural setting.

Teacher/Student Attitudes toward Technology

A research study took place in a small, rural Illinois school district with approximately 65 teachers and 805 students. There is one elementary school, one junior high school, and one high school, but the research only takes place with fifth through eighth grade teachers and students. An important concept in this study is "Informed consent will be obtained from all participants of this research study and teachers have been assured their individual responses will not be provided to administrators and will have no impact on their evaluation process" (Pollock & Al-Bataineh, 2018, p. 18). Retaliation can be a real concern for researchers, and any type of

retaliation from administrators in school districts is unfortunate and unethical. According to Creswell and Poth (2018), “Concern for welfare involves researchers ensuring adequate protection of participants, and this means we must provide evidence that we do not place participants at risk” (p. 54).

A questionnaire was sent to teachers and students that contained yes/no, closed-ended questions, with various Likert scale items. The questions were meant to measure student and teacher attitudes toward technology availability, instruction, their knowledge, and overall technology and the learning process for students. The results, suggested by Pollock and Bataineh (2018), stated, “While there are some minor differences in the ways these participant groups view both technology in the participating district and technology for learning, the data indicates students and teachers think very similarly regarding the use of educational technology in grades five through eight” (p. 31). The results, as the data suggested, are like other research findings, especially in the middle school grades.

Although this mixed-methods research study had detailed information pertaining to a rural school district, there were limitations too. One limitation was the fact this research study involved only one school district in rural Illinois that was surrounded by bigger school districts. The information may not be transferable or pertinent to the other school districts nearby. Another limitation involves this small rural school, and the number of teacher and student participants might cause a problem for the validity of the quantitative scales used in the study. However, a final recommendation, as stated by Pollock and Al-Bataineh, (2018), “While the results of this study are only pertinent to this school district, it is necessary for all school districts and individual educators to continuously evaluate teacher and student perceptions of their educational technology use” (p. 31). Student achievement and teacher effectiveness are key

components of education, and Pollock and Al-Bataineh (2018) suggested, "Regular assessment of perceptions regarding technology use in the classroom setting has the potential to drive educational decision making in a manner that best addresses the needs of students and teachers" (p. 31). Data analysis and assessments are important concepts regarding decisions on any one-to-one technology initiatives for potential teacher buy-in and possible student achievement.

Teachers' Perceived Ease and Motivation for One-to-One Technology

Rural school districts often are under-funded when it comes to educational resources because state money is often based on student enrollment and the community tax base. "Rural districts have a unique need for quality internet access, computers, and related technologies, which affect both classroom instruction and homework assignments" (Powers et al., 2020. p. 63). This statement led to another research study in a school in rural Florida made up of a diverse population. The purpose of this study was to examine questions regarding teachers' perceived ease of one-to-one technology usage, their motivation, and what ways teachers use one-to-one as an instructional delivery tool.

The method of data collection for this research study included a self-report 22 item survey emailed to teachers. There were qualitative open-ended responses to some of the questions from the teachers followed by a volunteer participation interview. There was a quantitative part of this research study with data entered into SPSS software for analysis. There was an independent variable of teachers' reported perceived one-to-one usefulness. There was also a dependent variable of individualized instructional usage of one-to-one computing.

This article had several quantitative graph results that included demographics such as years of teaching, years using computers, and teachers' reported use of one-to-one implementation for instruction. The qualitative findings for this research study include the

research question followed by quotes from teacher interviews and open-ended responses from the survey. For this research study, it was determined that one-to-one computing devices have a positive impact on teaching practices, however, according to Powers et al. (2020), “In order for teachers to adapt to an ever-changing society with technological advances, it is important for them to adopt teaching practices that will continue to motivate and engage students” (p. 72).

Limitations for this research study include the fact there were few teachers involved and those might have been the ones interested in this research study because of their experience with one-to-one technology initiatives and computer use. Another limitation is the possibility of some bias on the survey responses based on technology experience. It was reported that before this research study took place, some teachers had the opportunity to travel to a larger urban area for professional development on one-to-one technology initiatives. For future research studies regarding one-to-one technology initiatives in a rural school setting, suggested by Powers et al. (2020), “In future research it is hoped that researchers could also observe teachers in the rural district using one-to-one computing for instruction and compare those results to the self-reported data” (p. 72). The quantitative and qualitative data in this research study worked well together for the completion of this overall project. Educational leaders in school districts might review articles pertaining to items of interest, especially pertaining to student success. According to Powers et al. (2020), “Continued research on the implementation of one-to-one computing will help shed light on more of the long-term effects and unique benefits on teaching and learning in the rural school context” (p. 73). This research study may bring about several other potential research topics of interest to educators.

Device for One-to-One Technology Implementation

One of the many discussion items taking place in schools for one-to-one technology implementation is which device to use for students and at what grade level is appropriate for Chromebooks, iPads, laptops, and other technological devices. One case study in a rural high school in southern Oregon involved students in grades 9-12. According to Kalonde (2017), "In schools today, there is a massive push to integrate technology throughout the educational process, however, there's very little consistent documented evidence of its success" (p. 27). This case study had a purpose to investigate 9-12 teachers' and students' use of iPads, the barriers, and any relationship that might exist between the types and frequency use of iPads in rural schools. A review of literature is examined regarding iPad use in schools, and according to Kalonde (2017), "iPads have become a prevalent technology in schools due to its ease of use and its potential to facilitate creative content production and learning through its suitability of hosting various applications" (p. 30). The discussion regarding which technological device is better for student achievement may likely continue as the push to incorporate technology into everyday curricular lessons is ongoing.

This research study was a mixed-methods approach with classroom observation followed by semi-structured interviews over the course of three weeks. This research design was chosen because Kalonde (2017) stated, "Qualitative methods were emphasized in order to take into account the unique context of the high school where the study took place, and the descriptive quantitative methods were used to gather an overall percentage of use versus non-use" (p. 31). One factor in this research study the researcher found interesting was that observations of teachers were unannounced by the researcher as stated by Kalonde (2017), "so that the researcher could capture an authentic snapshot of actual iPad use in natural form" (p.

32). At the completion of the research observations and interviews, data was analyzed to identify themes and patterns of iPad use in the classroom.

A few themes emerged during this research study including the comparison of iPad use between the teachers and students. A few barriers were discussed that included attitudes by both teachers and students, as well as infrastructure problems. Rural schools often lack internet accessibility for one-to-one technology initiatives. Suggested by Kalonde, (2017) for future research,

> It may be necessary to investigate how to overcome the barriers which are preventing the iPad from being used to positively impact performance and achievement and to transform instruction. It would also be useful to find a connection between iPad use and achievement, whether for certain subjects or overall. Teachers and administrators may need to examine the difficulties involved with incorporating iPads and such technologies effectively into instruction and student learning. (p. 36-37)

School districts could involve all educational stakeholders in working together to collaborate and cooperate with one another to ensure one-to-one technology initiatives are implemented with fidelity and the overall goal of student achievement.

Vision/Strategic Planning

Vision and strategic planning are considered important components for educational leadership in today's ever-changing school society. Technology initiatives are key in both short and long-term objectives and goals for a school district looking to advance its twenty-first century skills. As stated by Topper & Lancaster (2013), "Successful adoption and implementation of 1:1 initiative in K-12 schools require a complex set of task and activities, supportive resources, as well as communication of a vision for adoption and collaboration among

all stake-holders" (p. 356). As previously mentioned, research shows that buy-in is very important with all educational stakeholders involved in the process of technology initiatives. The bottom line for educational administrators is, "Much more research is needed to relate to the benefits and/or drawbacks of handing a student a robust computing device all day, every day for academic purposes" (Sauers & Mcleod, 2012, p. 2). It can be argued, as educators it is important to continue to research and learn about technology initiatives and their effect on student achievement. In small rural schools, it is imperative administrators work together, and according to Topper & Lancaster (2013),

> All administrative staff should be involved, should understand, and should be fully committed to a 1:1 initiative, which has broad implications on all aspects of district planning, budgeting, assessment, curriculum, and teacher PD. District superintendents are responsible for setting the vision, but principals are particularly critical for implementing effective technology integration by teachers in each building. (p. 356)

The researcher would suggest that administrators need to also work with the local teacher group and community members to gain insight into what is important to these groups regarding technology initiatives in their respective schools.

Limited Administrative Perceptions Regarding One-to-One Technology Implementation

There are some sources pertaining to administrative perceptions on the implementation of one-to-one technology initiatives and their effect on both teachers and students. However, there appears to be more articles on teacher perspectives compared to that of administrators, especially when it comes to student achievement. According to Waxman et al. (2013), "Although there are some research documenting school principals' perceptions on technology, there are few studies that specifically focus on how principals view the importance of technology" (p.

190). Research shows that incorporating an administrative review of your current one-to-one technology initiative, along with its impact on student achievement, and synthesizing pertinent research studies are important to move forward in understanding the effects on student achievement.

One source involved a multi-case research study that consisted of five superintendents in one state where a one-to-one technology initiative was implemented. According to Arnold (2014), this study was, "Guided by research related to *frame theory*, the superintendent's instructional vision, distributed leadership, professional learning communities, technology infrastructure decision-making and the superintendent's use and attitudes toward technology use" (p. vi). The methodology included the same interview protocols and questions for all the superintendents. The starting goal for each of these superintendents was to integrate technology into their district. It became clear that communication was important with all stakeholders as evident with Arnold (2014), "Throughout this study, the superintendents demonstrated that effective communication to all constituencies was important in gaining acceptance for the technology initiative" (p. x). Communication and transparency are very important for educational leaders when implementing any initiatives like one-to-one technology.

A significant limitation is that there were only five school districts examined in this research study. The interviews only involved superintendents; hence, a different scenario might have emerged if students, teachers, and parents were afforded the opportunity. The overall goal for research studies involving educational-related items is student achievement, and one of the questions for this research study involves how rural schools define student achievement. However, according to Arnold (2014), "This study did not look at student achievement in these five districts nor did it quantify the use of technology in the classrooms" (p. xi). The one

recommendation that has merit that the researcher sees with this research is that superintendents should communicate a vision regarding technology initiatives, with adding on the overall goal of student achievement.

Principals' Perceptions of Technology

As mentioned, there are many research studies involving the perceptions of teachers on various aspects of technology. However, Machado and Jung Chung (2015) suggested, "Much research has been done on technology integration from the teachers' perspective, however, research is lacking from that of the school site administrator known as the principal" (p. 43). In this article three research questions are directed at principals' perceptions of technology in the classroom, the challenges of increasing integration of teachers' technology, and the role of technology mentors.

This phenomenological study took place with a mixture of quantitative survey data, qualitative short answers, and interview data, with principals from four school districts in northern California. The suburban school districts chosen had principals that were able to respond over email to give them enough time to reflect on their responses and pick a convenient time for themselves. No limitations were identified, however, a conclusion according to Machado and Jung Chung (2015) expressed, "more research is needed on the role of and the effect the principal has on technology integration since they are responsible for organizing and enforcing the school vision and plan" (p. 51). It is suggested that principals and superintendents need to work together in identifying and facilitating a one-to-one technology initiative.

STEM (Science, Technology, Engineering, and Math) initiatives were included in a qualitative research study involving six high schools with diverse backgrounds and geographical regions. Over a two-day period, principals were interviewed and involved in focus

groups about curricular and instructional strategies and practices. The school districts were not identified, and it was suggested by Bruce-Davis et al. (2014), “Faculty members believed that the small school size and low student-to-teacher ratio enabled them to address students’ individual needs and helped develop a supportive community of learners” (p. 290). Rural schools often have staff and administration who perform a few jobs besides teaching and administering the school.

It became clear during this principal’s perceptions research study that students needed high expectations and support systems from both teachers and principals. There were three findings revolving around a common vision for learning environments, instructional strategies tailored to real-world problems, and academic support for a challenging learning environment. A few limitations were identified, including the limit on the number of schools and principals chosen, and STEM is a term not easily understood by many. This article’s limitation does not address the outcomes of one-to-one technology initiatives in STEM schools. Bruce-Davis et al. (2014) suggested future research should focus on a “need to help schools develop evaluation plans to assess academic as well as effective outcomes of their programs and services and provide guidance and direction for enhancing and expanding promising practices that will prepare students for more leadership opportunities” (p. 297). Again, research shows the bottom line for educational endeavors is student achievement and preparing them for their transition into post-secondary opportunities.

Summary

The researcher chose a qualitative phenomenology research study based on the e-Learning Theoretical Framework. The examination of perceptions of superintendents on leading ongoing technology initiatives in rural Minnesota schools was the focus. The research on

technology in general is extensive, however, superintendent perceptions regarding leading ongoing technology initiatives in rural schools are limited. The recent on-going discussions surrounding technology use involve in-person, hybrid, and distance learning. The need for research regarding student achievement as a result of technology initiatives could be front and center. Future research will be important as stated by Kaden (2020), "The unexpected COVID-19 related interruptions to K-12 education created a need to research and document the major shifts in teaching practices and teachers' responsibilities" (p. 13). COVID-19 and its aftermath could potentially change education and technology initiatives, and the discussion surrounding that concept becomes more prevalent.

The chosen methodology was interviews with current Minnesota rural school superintendents. The researcher preferred this method because according to Creswell and Poth (2018), "In the end, analyzing the data for themes, using different approaches to examine the information, and considering the guides for reflection should yield an explicit structure of the meaning of the lived experience" (p. 202). The researcher utilized face-to-face communication because facial expressions and mannerisms can be examined during the responses.

COVID-19 has changed the way many people see education today and will in the future. According to Kaden (2020), "This pandemic has disrupted the education system. The severity of the COVID-19 crisis is a wakeup call to strengthen education. The sudden move to online learning may be the catalyst to create a more effective method of educating our students" (p.12). Educational leaders and stakeholders, as research suggested, should work together with cooperation and collaboration in order to ensure student achievement at all levels is front and center during the COVID-19 pandemic aftermath.

Critique of Previous Research Methods

Although there are a number of studies available, a greater focus of the research relates to more populated school districts. The literature also encompasses more technological implementation in school districts with the focus centered around various classroom devices. Teachers, principals, and student attitudes' surrounding technological research is more prevalent than that of superintendents. The urban versus rural school districts' literature involving technology appears to favor big city schools over that of rural school districts. It is difficult to assume that technological research applies to all demographic settings around ongoing technology initiatives. Therefore, my research study seeks to fill the literature gap in the perceptions of rural school superintendents around leading ongoing technology initiatives.

Chapter Three: Methodology

Introduction

Technology has changed the way educators teach, students learn, and the way schools could potentially operate for years to come in PreK-12 settings. Communication surrounding the effects of technology initiatives in schools as the unknown, and the uncertainty of PreK-12 education will be examined during this ever-changing educational backdrop. The purpose of this qualitative phenomenology exploratory research study examined the perceptions of superintendents on leading ongoing technology initiatives in rural school settings. Face-to-face interviews was the selected method of data collection because according to Fraenkel et al. (2019), "Rapport can be established, questions can be clarified, and unclear or incomplete answers can be followed up" (p. 363). Face-to-face interviews allowed the researcher to gain a perception of the non-verbal facial expressions and mannerisms of the individuals interviewed to help determine the reliability and credibility.

This chapter will further define the purpose of the qualitative phenomenological research study with an emphasis on the rationale for choosing the topic. A focus included discussion of the participants who are superintendents belonging to an organization known as the Lakes Country Service Cooperative in west central Minnesota. These individuals have served in various roles in the field of education and can bring their experiences and perceptions from their superintendent role as decision makers for their district. It was important to talk with these superintendents and examine their perceptions regarding leading ongoing technology initiatives in their respective schools. According to Briggs et al. (2012), "The emphasis is upon how people in educational settings build understandings of their world by continually trying to interpret sense data" (p. 21). The permission and IRB approval will be shown as well as a copy of the informed consent letter (See Appendix A). Ethical considerations with a focus on the protection of participants will be included as well. These ethical considerations include the notion that the researcher expects individuals to answer honestly. With this in mind, it will be very important for the researcher to go above and beyond to ensure the interviewed individuals feel comfortable in knowing their privacy will be protected. Data collection and analysis will round out the final parts of this chapter, just before the ending of the summary and thoughts on Chapter 4.

Purpose of the Study

As discussed in Chapter 1 of this study, the purpose of this study was to examine the perceptions of superintendents regarding leading ongoing technology initiatives in rural school settings. The rationale for choosing this research topic was to better understand school districts that are comparable in size to the researcher's district. According to Fraenkel et al. (2019), "The investment of oneself and others in a research enterprise should contribute some knowledge of values in the field of education" (p. 32). This research study may help school district leaders with

their own technology initiatives/journeys and how they might make changes to meet the ever-changing demand of education on students, staff, administration, parents, and communities.

The professional aspects of this research project were to understand historical decisions and outcomes in the researcher's current school district as well as to better prepare schools for the future. Some school districts implemented a K-12 technology initiative and hired experienced individuals with knowledge of technology implementation without any sort of background information, research, or educational stakeholder input to support these decisions. Schools have spent thousands of dollars on the latest and greatest technological hardware and software. This research study was geared towards administrators who work in rural Minnesota school districts regarding their experiences and perceptions. The views of the programs may have implications on student achievement, and future planning could involve making improvements.

There is a need for this study because finding scholarship on superintendents' perceptions, the final decision makers, on the implementation of technology initiatives has not been easy. The recent COVID-19 pandemic has stressed technology initiatives with many schools going in and out of distance, in-person, and hybrid learning. According to Fraenkel et al. (2019), "Any study should seek to clarify some aspect of the field of interest that is considered important, thereby contributing both to overall knowledge and to current practice" (p. 550). In the field of education there are research studies and scholarship relating to implementing technological devices in schools across America. Most of these studies have focused on the process of implementation, professional development, and/or teacher administrator buy-in. There is a significant need for this study because technology initiatives are taking place in schools

across America. Rural school districts is the area in which this research is situated because the research out there mainly pertains to school districts in larger cities.

Participant Selection

The primary participants of this qualitative phenomenological research study will be rural school superintendents in west central Minnesota. These superintendents belong to a service cooperative in west central Minnesota. This service cooperative is a public, nonprofit membership-based organization dedicated to providing services to PreK-12th grade education schools, staff, and community. The mission of this service cooperative is to provide and promote the development of quality services that are sensitive and responsive to members' needs. The service cooperative has values that represent leadership and empower employees, and together they can achieve working with school districts in west central Minnesota.

There are 35 superintendents from a nine-county region of west central Minnesota that meet and discuss educational-related items, especially during the 2021-2022 school year of COVID-19 guidance, requirements, and recommendations. These administrators represent a number of schools and populations, however, there are 24 school districts that are considered rural. Agricultural, tourism, and manufacturing are the primary jobs of individuals who live in rural Minnesota. There is approximately 10% diversity in the smaller rural schools that make up this consortium. The special education population is about 15-19%, slightly higher than the state average of 17%. The Free/Reduced Lunch percentage is around the 32-38%, below the 40% average minimum requirement for most grants to even be looked at. (Minnesota Department of Education, Minnesota Report Card.).

The philosophical assumption for this research study is epistemological because according to Creswell and Poth (2018), "researchers try to get as close as possible to the participants being studied and conduct studies in the field where the participants live and work" (p. 21). The idea of meeting face-to-face with these other superintendents in their place of employment will hopefully have a better picture of their technology set up. Face-to-face meetings will also give the researcher an opportunity to see the mannerisms and expressions of the administrator being interviewed, to check for reliability and validity of the interviewed questions.

A purposeful sampling strategy was used in this qualitative phenomenological research study because as Creswell and Poth (2018) suggested, "The inquirer selects individuals and sites for study because they can purposefully inform an understanding of the research problem and central phenomenon in the study" (p. 158). Creswell and Poth (2018), summarized that criterion sampling works well when the individuals studied represent people who have the experience of the phenomenon being researched. All of the superintendents (35) in this service cooperative group will be contacted, and responses received will provide a sample size of anywhere between 6-10 individuals for this phenomenology research study. Communicating with superintendents via in-person and/or email, depending on COVID-19 restrictions, who work in rural school districts, will be the preferred method.

Permission, IRB Approval, Informed Consent, Ethical Considerations

In order to conduct this study, the researcher sought MSUM's Institutional Review Board (IRB) approval to ensure the ethical conduct of research involving human subjects (Mills & Gay, 2019). Likewise, authorization to conduct this study was sought from the school districts where

the research project will be take place. The researcher utilized Creswell and Poth's (2018) framework for ethical considerations along each point in the research process from prior to conducting the study, beginning the study, collecting data, analyzing data, reporting data, and publishing the study (p. 55-56). Ethical considerations are very important during any research study, and sensitivity to potential issues could arise when collecting data, especially through face-to-face interviews and observations.

It is important that research is intended to mutually benefit researchers, participants, and the educational society. According to Briggs et al. (2012), researchers have to "explain the purposes, processes and part to be played by the participants and the voluntary nature of participation in the project, in language that the participants can understand before asking them to give their informed and written consent" (p. 94). Working with individuals who have certain experiences and perceptions regarding their educational endeavors may bring about confidential and sensitive information. It is pertinent that researchers keep this in mind. Fraenkel et al. (2019) state, "Ethical principles suggest three very important issues that every researcher should address: protecting participants from harm, ensuring confidentiality of research data, and the question of deception of subjects" (p. 63). Ensuring confidence for all of the individuals being interviewed that any data collected from them will remain confidential will be significant when conducting this qualitative phenomenological research study.

Informed Consent

Protection of human subjects participating in research will be assured and there will be no minors associated with this research study. Participants will be aware this research study is conducted as part of the researcher's Dissertation Program and this could potentially benefit

his/her administrative practice. Informed consent means the participants have been fully informed of the purpose and procedures of the study for which consent is sought and they understand and agree, in writing, to participating in the study (Rothstein & Johnson, 2014). Confidentiality will be protected through the use of pseudonyms (e.g., Superintendent 1) without the utilization of any identifying information. The choice to participate or withdraw at any time will be outlined both verbally and in writing (See Appendix Informed Consent).

Research Questions

Research questions are an important part of this research study and must be thought of using Creswell and Poth's (2018) summary, in which they recommend that a researcher reduce the entire study to a single, over-arching central question with interview questions to follow. Open-ended questions are preferred because the researcher wants the individuals being interviewed to feel like they can speak their perceptions and experiences without pre-conceived notions. According to Creswell and Poth (2018), "Qualitative research questions are open-ended, evolving, and non-directional. They restate the purpose of the study in more specific terms and typically start with a word such as what or how" (p. 137). The interview questions identified could be fluid, depending on the person being interviewed, the situation and timeline, as well as potential information that might need to be clarified. The research question for this study was the perceptions of rural school superintendents around leading ongoing technology initiatives.

Research Design

The design of this qualitative phenomenological research study followed that of Creswell and Poth's (2018) phases of the research process involving an eight-phase research process, summarized. The phases in this research process start with the broad assumptions and

interpretive lens that will be used. A topic is chosen that needs a substantive area of investigation after careful review and consideration of available literature. According to Creswell and Poth (2018), “The topics about which we write are emotion laden, close to people, and practical” (p. 52). The topic chosen for this qualitative phenomenological research study is important because of technology initiatives and the effects they have had and may continue to have on administrators, teachers, students, and the overall school population. The topic chosen may also have merit because of the emphasis that local, state, and federal governments have placed on student achievement and success. Schools are looking at ways to enhance student achievement/success, and the impacts of leading ongoing technology initiatives from the perspectives of rural school superintendents may help address the need for more research in this area.

Researching various educational items, as summarized by Creswell and Poth (2018), starts with open-ended questions with the goal of listening to the participants and then shaping the questions after this engagement with each individual. Refraining from playing the role of expert was important because the questions changed as the researcher gained an increased understanding of the problem. The researcher needed to refrain from portraying the expert role and let the superintendents provide their own perceptions and explanations. The next phase in the research process is to collect a variety of sources of data. Creswell and Poth (2018) suggested that, “We tend to think in terms of four basic sources of qualitative information: interviews, observations, documents, and artifacts. Unquestionably, the backbone of qualitative research is extensive collection of data, typically from multiple sources of information” (p. 52). Face-to-face interviews and observations are the preferred method of the collection of data because the interaction between researcher and the individual may help to establish cooperation and respect.

The interviewer and interviewee both have responsibilities during the research process, and Briggs et al. (2012), summarized this exchange. The interviewer sets up the interview, is involved in the negotiation of the place, purpose and agendas at the initial stages, asks questions, prompts answers and elicits responses. The respondents provide answers and give account of their lives in terms of their understanding of the settings in which they are located. As mentioned, the preferred method of this research study is face-to-face interviews because as summarized by Briggs et al. (2012), a face-to-face encounter allows the interviewer to make a judgement about how those signs are being read and thus to locate their data in the contexts in which they were collected.

As previously mentioned, interview sessions were set up with superintendents from the service cooperative. An email to the service cooperative superintendents with the pertinent information, like the informed consent and a description of the research study, was included. A sample size of between 6-10 superintendents who have met for the purpose of completing this qualitative phenomenological research study is appropriate. Depending on the situation of the COVID-19 pandemic, once the participants were selected, face-to-face interviews were conducted at the school of the selected superintendent and a tape recorder was utilized from start to finish. Some interviews needed to be conducted via ZOOM and the recording feature was utilized. These interviews were based on purposeful sampling because Creswell and Poth (2018), summarized that the researcher selects individuals and sites for study because they can inform the participants and understanding of the problem or phenomenon in the study. For a qualitative phenomenology research study, the concept of purposive sampling was chosen because the superintendents have experienced the phenomenon, which in this case, is the implementation of leading ongoing technology initiatives in a Minnesota rural school district.

Data Collection/Data Analysis

Data collection and analysis are important concepts in the phases of research. The method for data collection and analysis for this research study follows that of Creswell and Poth's (2018) data collection activities (summarized in Figure 1). Creswell and Poth (2018) summarized that the analyzing of qualitative data working inductively from particular to more general perspectives and then continue working deductively to gather evidence to support the themes and the interpretations. As a beginning researcher in the phenomenological study, recognizing the interrelated set of activities of data collection, analysis, and report writing will enable the phases of data to conclude with a final product. Fraenkel et al. (2019) suggested, "When analyzing and interpreting data gathered, it is important the participants try to reflect the perceptions of all the stakeholders involved in the study. This permits all of the stakeholders to give their input continuously as the study progresses" (p. 534-535). The ability to involve stakeholders throughout the phases of the research process may help with any possible sensitive ethical considerations and/or assumptions that may arise during the process.

Figure 2

Data Collection Activities

Another significant concept of data analysis for the qualitative researcher follows that of Briggs et al. (2012) in which it is stated, "The researcher is likely to be searching for understanding rather than facts; for interpretations rather than measurements; for values rather than information (p. 386). Briggs et al. (2012) summarized six elements of qualitative data analysis that "will enable a researcher to make reflective, systematic, and critical judgements which will give insight into their data and enable the process of analysis" (p. 385). Brigg et al. (2012), listed the following six elements of qualitative data analysis: defining and identifying data, collecting and storing data, data reduction and sampling, structuring and coding data,

theory building and testing, and reporting and writing up research. Data collection and analysis are important concepts when working on a research study. As educational leaders, it is suggested that school leaders work with their educational community (i.e. teachers, staff, student leaders, parents, community members, etc.) to acquire data and analyze it for the betterment of student achievement/success. The process of analyzing the data involved preparing and organizing the data, "then reduced the data into themes through a process of coding and condensing the codes; and represented the data in figures, tables, and a discussion" (Creswell & Poth, 2018, p. 183). The process of "lean coding" and a "codebook" was utilized because they suggested, "five or six categories with shorthand labels or codes" and "the codebook articulates the distinctive boundaries for each code and plays an important role in assessing reliability" (p. 190). The researcher utilized a simple method of reviewing notes after the establishment of themes and coding the information into appropriate categories.

As mentioned, face-to-face interviews, either in-person or via ZOOM, depending on protocols, were utilized because of the interaction between the researcher and the person experiencing the phenomenon. Setting up a time and place with the respondent at a place of their choosing instilled a sense of respect and admiration for the process. The researcher will meet with those individuals face-to-face or via ZOOM, depending on the most recent COVID-19 pandemic situation. Informal interviews was the process for this research study. Fraenkel et al. (2019) summarized that informal interviews allow the researcher to begin with nonthreatening questions to help put the respondent at ease before more personal and/or potentially threatening questions may appear. The summary continues with the understanding of the researcher establishing an atmosphere of trust, cooperation, and mutual respect so that accurate information

can come about. The planning and asking of good questions, ensuring mutual trust, and establishing respect are key components for this qualitative phenomenology research study.

While conducting interviews during this research study, taking notes, recording the entire conversation, and transcribing took place. Again, an informed consent letter and explanation of the respondent to withdraw from the research study will be explained again before the interview process begins. Creswell and Poth (2018), summarized that data will be analyzed through taking notes, verbatim transcription, identifying codes, summarizing field notes, introducing themes, counting frequencies of codes, relating categories, creating a point of view, and ultimately displaying and reporting the data in the form of a dissertation. According to Briggs et al. (2012), "Coding involves putting tags or labels against large or small pieces of data, in order to attach meaning to them and to index them for further use" (p. 391). They summarized that the processes of analyzing data begin once it is safely collected and stored. Researchers can revisit notes, documents, transcripts, listen to recordings, and structure and code data to shape it for use throughout the research process. Fraenkel et al. (2019) summarized that utilizing some sort of recording device will benefit a research study because the use of audio and video recordings offer a good way to collect, store, and analyze data.

Limitations

When thinking about limitations with this qualitative phenomenological research study, honesty by interviewed individuals comes to mind, especially in the same field and position of education as the researcher. There could potentially be some superintendents who don't feel comfortable with a "less veteran" superintendent interviewing them and/or them not having "buy-in" with the proposed research study. According to Fraenkel et al. (2019), "Where the

procedures of a study result in undesirable consequences for any participant, the researcher has the responsibility to detect and remove or correct these consequences, including long-term effects" (p. 62). The researcher doesn't want other superintendents who work in the same region and capacity to feel any sort of threat to what they are doing as an educational leader in their particular school districts. Working in the field of education can be a complex experience involving many different aspects of decision making, depending on one's position in the school. One limitation regarding this research study, even though it takes place during the 2021-2022 school year, could be the impact COVID-19 had on schools across Minnesota. The uncertainty of COVID-19 and its effect on schools as to whether they are in-person, distance, and/or hybrid learning may hinder the process of completing face-to-face interviews. Rural school superintendent perceptions regarding technology initiatives will be interesting as schools navigate this COVID-19 pandemic, its aftermath, and the possible future educational considerations.

Another possible limitation involves the validity or credibility of the individuals interviewed. More than likely, the researcher will have no idea of the background knowledge and/or experiences of the individuals or their perceived biases for or against technology, or disagreements they might have with educational stakeholders. After collection of the data, it will be pertinent for the researcher to seek participant feedback. Creswell and Poth (2018) recommended, "This approach, *writ large* in most qualitative studies, involves taking data, analyses, interpretations, and conclusions back to the participants so they can judge the accuracy and credibility of the account" (p. 261). Integrity and transparency will help foster open and honest communication with these individuals. These superintendents will see the researcher not as an outsider and/or administrator looking to change the decisions of their school district, but

rather, as a researcher who is trying to make decisions on what is best for student achievement/success.

Summary

This qualitative phenomenological research study involves Chapter 3 with potential discussion in schools regarding the use of technology initiatives and its potential effect on student achievement/success. An over-arching research question is described, as well as the purpose of this study, which was to examine the perceptions of rural school superintendent on leading ongoing technology initiatives. The researcher's rationale for choosing this qualitative phenomenological research topic is to better understand rural school districts that are located in west central Minnesota.

The need for this study is described because most research in this field of study pertains to teachers' and parents' perspectives and focuses more on bigger city schools, as opposed to rural school districts. The selection of participants from the Lakes Country Service Cooperative (LCSC) superintendent group, as well as the idea of purposeful sampling, are both described in detail. A group of 6 to 10 individuals were interviewed face-to-face with ethical considerations explained, as well as the permission, IRB approval, Informed Consent, and the continued discussion about the protection and confidentiality of their identity and data given.

The research question is embedded into the research design with a description of the phases in the qualitative research process and data collection activities. Data collection and analysis is explained in more detail, especially regarding the taking of notes and utilization of a recording device. The explanation of potential limitations in this world of COVID-19, and the

uncertainty of the researcher's ability to meet these administrators and conduct face-to-face interviews, is cautioned as we move through this 2021-2022 school year.

In chapter 4, the results of the findings of this qualitative phenomenological research study will be presented in conjunction with the dissertation committee and advisor.

Chapter Four: Results

Introduction

Chapter four starts with the introduction and the researcher's role as a Minnesota school superintendent who has the motivation to understand the overall goal of enhancing student achievement. A description of the researcher's role as the interviewer who was transparent about the life experiences that could have impacted this phenomenological research study are mentioned. The researcher's potential biases were also examined during the researcher's role portion of the introduction. The description of the sample that included superintendents who were members of a cooperative of schools and they were identified by a number to keep ethical and confidential considerations a priority. The research methodology and data analysis included information broken down into significant concepts and quotes as stated by the superintendents. The findings were categorized by the list of interview questions, followed by superintendent comments as dictated during the interview process. Themes had emerged and are listed with the final synthesis and summary of Chapter 4, along with the conclusion for Chapter 5 information.

Researcher's Role

The researcher has played the role of a Minnesota rural school superintendent who is passionate about educational items that can enhance student achievement. During this study, the researcher worked at a public school as the superintendent. The school was located in west

central Minnesota with a student population under one thousand. Discussions regarding technology initiative in school districts across Minnesota have taken center stage. The researcher had the role of interviewer for the superintendents who belonged to this service cooperative. The researcher was transparent with the notion and understanding that any of the superintendents could agree to discontinue their part.

The researcher became interested in other superintendent perceptions around leading ongoing technology initiatives because the current school district the researcher works in has an ongoing technology initiative. This current technology initiative which includes many facets such as one-to-one Chromebook and/or iPad for each student in grades kindergarten through twelfth grade is set to expire. The current ongoing technology initiatives includes other components like hardware and software.

The researcher's motivation for the completion of this dissertation had its beginnings during the early years of the researcher's teaching career. The researcher embraced the notion of life-long learning as a way to enhance student achievement. The motivation for this chosen topic, however, is a relatively new concept for this researcher. Leading ongoing technology initiatives is one the researcher became interested in during the tenure as school superintendent with the primary goal of overall school instructional leader. Technology initiatives have seen an increase in the last couple of years with discussions by educational stakeholders, and the researcher has been part of these processes in many different capacities.

The researcher's background as a rural school superintendent who has served in many different educational roles may strengthen the vision of this doctoral research study. The researcher has experienced various educational roles including teacher, principal, and superintendent in primarily rural school districts of Minnesota. As an educational leader who has

vast experience, there is, however, a real possibility that interferes with the objectivity of the research study. An example of this is the potential bias of an educational leader who has a weakness of personal and professional use of technology. The lack of the researcher's understanding with various technology implementation, one-to-one technology initiatives, and the ever-changing dynamics of hardware and software has the potential to interfere with the objectivity of this research study. Another potential bias on the part of the researcher is the idea that technology initiatives haven't been a key to success in schools.

The training and experience of this researcher, as mentioned, has been that of an educational leader who has vast experiences in the educational world of public school. The researcher has been involved with Cohort Three of the Minnesota State University Moorhead doctoral program in educational leadership. The courses have been an on-going process through the past three years and this doctoral program has enabled understanding of the phenomenological approach to a research study. The researcher has extensive information and understanding, through this doctoral program at Minnesota State University Moorhead, pertinent information related to data collection protocols, procedures, and data analysis.

The personal aspects the researcher brings to this study involve the overall goal of learning and understanding an educational related item to better enhance student achievement. As an instructional leader, the researcher wants to continue the process of being a life-long learner and show other educators they can continue to learn and grow in whatever position they hold. Technology implementation, usage, and the continuation of data analysis associated with leading ongoing technology initiatives may have an influence on the researcher as a superintendent in a rural Minnesota public school district.

Description of the Sample

The following list (Figure 3) is made up of full-time superintendents who were members of an organization from a cooperative of schools. This cooperative of schools pools their resources to help each other address educational items. The participants (Figure 3) were identified only as superintendent with a number by their side. The schools these superintendents represented were identified with the number of PreK-12 students enrolled in their district. (Figure 3). The age, gender, and ethnicity of these superintendents were identified also. (Figure 3). The number of years in education and the number of years as superintendent were also identified. Ethical considerations were a key component of this research study. According to Creswell and Poth (2018), "Researchers may also create composite profiles to avoid situations where participants might be identifiable in the reporting documents" (p. 182). Each one of the following categories had been created with confidentiality in mind, so as not to have any identifying information pertaining to either the superintendent and/or school district that was represented. The researcher worked with each individual superintendent to "engage participants in the data analysis which may help foster collaboration" (Creswell & Poth p. 182). The table of information for the participants in this research study were documented with no identifying information for the superintendent or the school district.

Figure 3

Superintendent, School Size, Age, Gender, Ethnicity, Years in Education, and Years in the Superintendent Role.

Participant	School Size	Age	Gender	Ethnicity	Years/Educ.	Years/Super.
Superintendent 1	350-375	62	Male	White	37	23

Superintendent 2	250-275	54	Male	White	30	5
Superintendent 3	550-600	52	Male	White	28	12
Superintendent 4	950-1000	56	Male	White	32	16
Superintendent 5	175-225	36	Male	White	11	2
Superintendent 6	775-825	64	Male	White	41	18
Superintendent 7	400-425	55	Male	White	33	14
Superintendent 8	NA	NA	NA	NA	NA	NA

Note: Respondents with categories in this research study.

The table above shows 8 superintendents out of 35 in this service cooperative who initially had expressed interest. There is very little diversity in this group of superintendents with a majority older white males. None of the superintendents in this group were eliminated, however, as evident in the table above, has listed Superintendent 8, with NA in all categories. Superintendent 8 had reached out to the researcher via email after the initial email was sent out by the director of the organization from the cooperative of schools. Superintendent 8 had mentioned they were willing to be of assistance with the dissertation, however, after this initial communication, there was no further interaction. The researcher had given Superintendent 8 an opportunity to meet in-person, via email, phone call, or a zoom call to answer the interview questions. There was no further communication and thus the result is NA for all categories for Superintendent 8.

Research Methodology Applied to the Data Analysis

Creswell and Poth (2018), described a phenomenological study as “the common meaning for several individuals of their lived experiences of a concept or a phenomenon” (p. 75). The philosophical assumptions for this research study rest on the model of Moustakass (1994) who

stated, “Transcendental or psychological is focused less on the interpretations of the researcher and more on a description of the experiences of the participants” (p. 78). The qualitative phenomenology research study has been completed with the notion of Moustakas’s (1994) idea of epoche or bracketing, which was based on Edmund Husserl’s concept. This concept of transcendental phenomenology consisted of the identification of a phenomenon to study, bracketing out one’s own experiences, and then collection of the data (Creswell & Poth, 2018). The identification of the phenomenon was that of Minnesota rural superintendent perceptions on leading ongoing technology initiatives. The researcher had to place in a category the experiences of the researcher’s current Minnesota rural superintendents’ position and the notion of leading ongoing technology initiatives in said school district. The researcher then completed the collection of data from a pool of superintendents from the school cooperative.

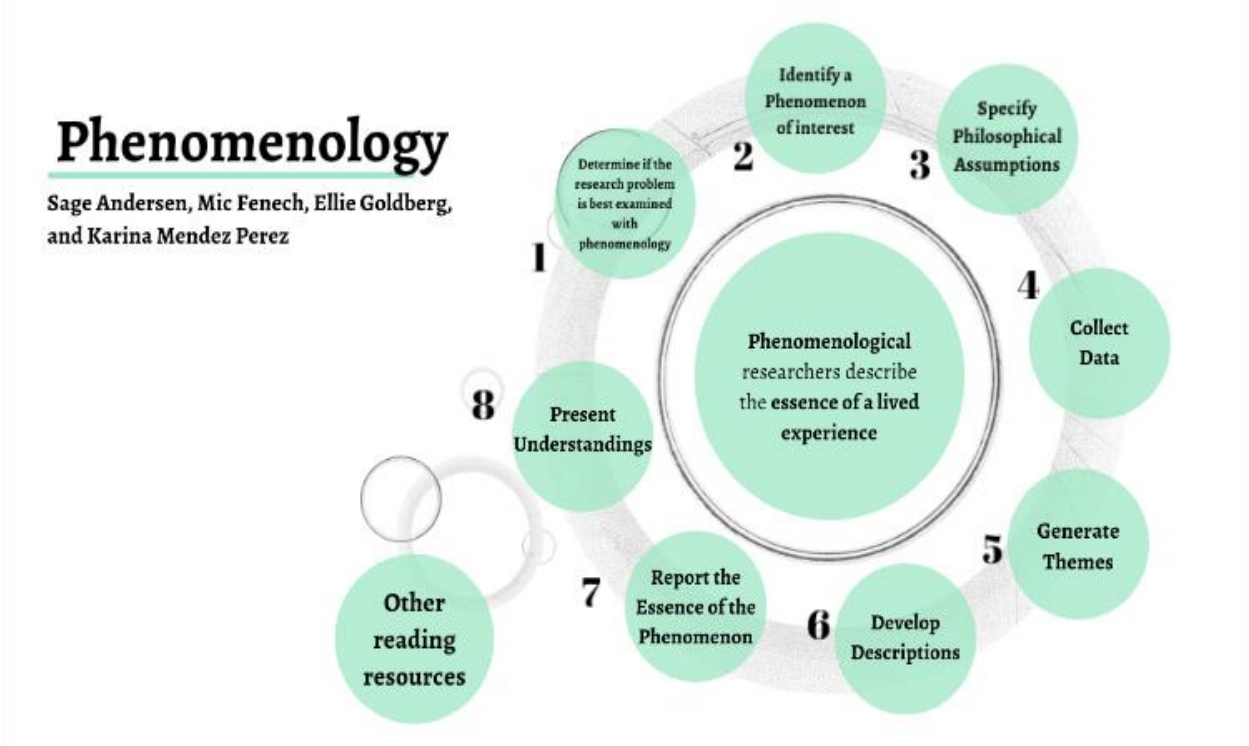
This research study involved the analyzing of data after reducing the amount of information into significant concepts and quotes as stated by the superintendents. As mentioned by Creswell and Poth (2018), this research study followed that of textural description, structural description, and a combination of both to explain what and how participants experienced, and finally to convey an overall concept of the experience. The procedures for conducting phenomenological research follows Moustakas’s (1994) approach “because it has systematic steps in the data analysis procedure and guidelines for assembling the textual and structural descriptions” (Creswell & Poth, 2018, p. 78). A determination of a structured phenomenological approach with identified steps was the first step in this research process. The next step was to identify a phenomenon of interest to study and describe it. The researcher chose the perceptions of rural Minnesota superintendents around leading ongoing technology initiatives because of the interest of this concept from the point of this researcher. The researcher then distinguished and specified the broad philosophical

assumptions of the phenomenology and set aside the researcher's experiences so as not to have biases or pre-conceived notions. The collection of data from the individuals who have experienced the phenomenon by using in-depth and multiple interviews was the next step in this process. In this research study, eight superintendents offered to participate, however, only seven of them eventually did interview with the researcher. The eighth superintendent did not respond to further calls and email communication after the initial stages of the interview process.

After the interview process was completed the researcher generated clusters of meaning into themes from the statements and quotes by the superintendents. The researcher then took these themes and wrote a textural description of what the superintendents experienced for this study. The researcher then reported the essence of the phenomenon by using a composite description and wrote what is called the essential, invariant structure, or essence (Creswell & Poth, 2018) which focused on the common experiences of the superintendents in this research study. The researcher then presented the understanding of the essence of the experience in written form and utilized Moustakas (1994), which involved a general reporting structure: This reporting structure included an introduction, a personal statement of experiences from the researcher's standpoint, research procedures, data collection and analysis, a report of how the phenomenon was experienced by the superintendent with significant statements, and a conclusion with a description of the essence of the phenomenon.

Figure 4

Procedures for Conducting Phenomenological Research:



Note: This is a visual of report of the essence of the phenomenon using a composite description found on https://prezi.com.

Findings

The subsequent findings reflect the investigation into the perceptions of rural school superintendents around leading ongoing technology initiatives. To allow for a reflection of the experiences and perceptions of the superintendents, the following interview questions were identified to guide the collection of data for this study.

IQ 1. What challenges have you faced when leading ongoing technology initiatives?

IQ 2. How do you define success of technology initiatives?

IQ 3. How do you prioritize investments in technology initiatives?

IQ 4. With all the demands of the superintendent position and the rapid changes in technology, who do you rely on to make informed decisions on technology?

What is the decision making process?

IQ 5. If you were earmarked a large sum of funds for technology use, what do you feel this money should be spent on?

IQ 6. What do you know now that you wish you would have known when you started the technology initiatives process?

IQ 7. Is there anything I haven't asked that you feel is important regarding leading ongoing technology initiatives?

Interview Question One: What Challenges Have You Faced When Leading Ongoing Technology Initiatives?

Theme 1: Infrastructure.

Infrastructure (4 out of 7 superintendents) was a common theme amongst the superintendents as it became clear that the last two years of COVID-19 have brought the use or necessity of both hybrid and distance learning into the limelight. The situation of many families who had no internet connectivity at their home became a focus of these superintendents. This unfortunate situation resulted in many frustrated parents, teachers, and students who were expected to turn in homework and/or attend online classes. When families didn't have technology capabilities at home and school, districts were engaged in synchronous learning, this is when most frustrations occurred. Superintendent 4 said, "Technology accessibility at homes was brought to light since COVID-19, and families had to prioritize technology or put food to eat on their table." Infrastructure became a focal point for students in many different realms.

Superintendent 7 stated that a challenge regarding infrastructure is "predicting and knowing what the future of technology holds because you have to understand infrastructure, devices, platforms, and software." There seems to be so many changes and new concepts being developed with the addition of technological advancement.

Theme 2: Sustainability

Sustainability, another common theme, (4 out of 7 superintendents) of the technological devices in school districts, whether each student had an iPad, Chromebook, or other device, became a topic of discussion in these school districts. The superintendents also included in the discussion the surrounding software programs that are used in classrooms to better enhance student achievement. Superintendent 6 stated, "The sustainability of the software and the replacement of lost or stolen equipment, as well as the sheer volume of opportunity out there is mind boggling." Superintendents were asked similar questions regarding sustainability in their school districts, including, how do you pick which device to use, what types of technology applications are needed, and what do replacement cycles look like?

Theme 3: Staff Development

An interesting challenge brought up by the superintendents is the need for staff development (3 out of 7 superintendents) for teachers regarding technology initiatives. The idea of staff development for other educational personnel, like para-professionals, especially those who worked with students in clusters, was an expected outcome of these superintendents. Staff development for educators should be an important plan to be implemented in technology initiatives, especially as it relates to one-to-one and/or curriculum-based software applications. Superintendent 1 related, "Time for staff development is important but staff development days are usually filled with other work, training, and follow-up." This superintendent felt that it was too

much to expect that teachers would have used non-paid time to practice with their devices for their school's technology initiatives. According to Superintendent 1, "It works so much better if it (technology initiatives) can be worked in staff development contract time." Staff development is a crucial component for educational initiatives like technology implementation.

Superintendent 2 also mentioned, "Finding the time to implement initiatives and just the time to research best practices has been difficult to navigate." Educators need to be ready to go on the first day of school with students. There are so many different things needed and teachers, students, parents, and administration are feeling the pinch to get the school year started on a good note. The amount of time and energy spent on preparing the classroom, contacting parents, getting curriculum materials allocated for each student, and preparation for open houses can be daunting during the month of August.

Superintendent 4 asserted, "Just get the devices in the hands of staff and students and they would just know how to use them." This superintendent realized this was not the case as he stated, "If teachers and staff don't know how to use the technology, it is a moot point." Changes in technology are constant and fast, and staff need to have professional development to keep up with the many technological changes. Superintendent 3 suggested, "We need to utilize the current technology upgrades and stay ahead of the kids." Professional development for teachers and staff will help accomplish this because Superintendent 5 put forth, "Staff resources and on-going training are needed to keep the technology relevant for instructional purposes."

Theme 4: Cost/Funding

Cost/Funding (5 out of 7 superintendents) can be a close companion to sustainability with the idea of technology initiatives being a great idea for school districts, but as Superintendent 6 stated, "Consistent funding is important but if you can't afford to implement technology initiatives,

you might have to look at a phased-in process." Some school districts use a "phased-in process" whereby certain grade levels might receive one-to-one technology initiatives to start the process. For example, third, sixth, and ninth graders might be the first in a series of phased-in approaches to start year one, then the next three grades for year two, and so on.

Associated with cost/funding are questions that were apparent for some of the superintendents, which were, "How is technology going to be used? Do you equip all classrooms the same?" Superintendent 5 expressed, "Often times, districts purchase various forms of technology, whether it be physical devices or programming, without determining what the benefits of the technology will be, outside of the idea that our economy and society depend on it." Superintendent 2 was very explicit stating, "Monetary commitments regarding purchases has been something that has held our district back, especially with declining enrollment." Superintendent 7 was concerned, "During the early days of the pandemic, supply was an issue" and thought there might be some funding concerns as COVID-19 continued on. Leading ongoing technology initiatives requires ongoing evaluations to ensure that technology continues to be used the way it was intended. This was an overall theme confirmed by these superintendents.

Table 1

Themes and Results

THEMES	RESULTS
Infrastructure	**4 out of 7**
Sustainability	**4 out of 7**
Staff/Development	**3 out of 7**
Cost/Funding	**5 out of 7**

Note. Interview Question 1 Themes and Results from Superintendents

Interview Question Two: How Do You Define Success of Technology Initiatives?

Theme 1: Teacher Implementation

Teacher implementation (3 out of 7 superintendents) of technology initiatives seems to be an important concept when defining success. Tied with teacher implementation is the idea of providing and utilizing staff development for teachers to effectively use technology in the classroom. According to Superintendent 2, "Providing staff development for teachers and time for them to get to know and understand the platforms at their hands is vital to the success of the initiative." Staff development was discussed in detail regarding Question 1 and the challenges superintendents face when leading ongoing technology initiatives. Superintendent 4 confirmed that success is measured by "our staff using the devices with the kids."

Educational opportunities for both teachers and students is crucial in achieving success. Superintendent 1 advised that success is measured by "Initiatives that are implemented and utilized efficiently, will in turn save staff time and make them more efficient." "The use of technology by teachers must not involve any downtime because technology works well when it needs to," according to Superintendent 7, who also stated, "Success of technology can lead to increased efficiency and contributes to student achievement and success."

Data analysis, as seen by Superintendent 6, is vital in measuring the success of technology initiatives. The cost of technology "stuff" is going up and data must be looked at. Superintendent 6 asked, "Are we actually using technology appropriately because time costs a lot and this is often overlooked." Technology "stuff" needs to be used and "not sit on the shelf."

Theme 2: Goals/Objectives

Student success/achievement is the ultimate goal for educators, and the superintendents in this research study confirm this regarding research Question 2. Goals and objectives (3 out of 7 superintendents) established by teachers, administration, and the school board were mentioned as important tools in working on implementing technology initiatives in their respective schools. Superintendent 5 proposed, "Determining the success of the technology would depend on what you have identified as the goal of the initiative to begin with." Superintendent 4 suggested, "Whenever you get a win, go until midnight, meet the goal, and then continue on. In a nutshell, continually moving the bar up."

Theme 3: Student Utilization

Student utilization (4 out of 7 superintendents) of technology initiatives, which could include one-to-one devices for students, different curriculum applications, typing skills, various software applications, and any other technological idea, is important to define success of technology initiatives. The superintendents in this research study seemed to be on the same playing field with the idea that student utilization is just as important as teacher implementation. Both teacher implementation and student utilization go together, with both equal. As Superintendent 1 suggested, "If teachers can provide purposeful technology applications, lessons, and initiatives, this in turn will give students the opportunity to implement these technology initiatives in the classroom."

The relationship between teacher implementation and student utilization coincide with defining and measuring the success of technology initiatives. Superintendent 2 identified success in two stages and this is achieved after "Students need to utilize the technology productively and efficiently." Superintendent 4 said, "Get the devices in the hands of the students and that should

be success." Regarding a certain component of the school's technology initiative, one-to-one devices for all students, success is measured, according to Superintendent 5 as, "accessibility to online resources and information, pending all students have access to reliable internet." Internet accessibility for all students was a common theme for these superintendents regarding challenges as identified in research Question 1. Superintendent 6 best summarizes success by stating that technology initiatives are "more vital now to give students the opportunity to use, especially in this ever-changing world of technology."

Table 2

Themes and Results

THEMES	RESULTS
Teacher Implem.	**3 out of 7**
Goals/Objectives	**3 out of 7**
Student Utilization	**4 out of 7**

Note. Interview Question 2 Themes and Results from Superintendents

Interview Question Three: How Do You Prioritize Investments in Technology Initiatives?

Theme 1: Needs Assessment

A well-established needs assessment (6 out of 7 superintendents) was a common topic for these superintendents who have varied educational backgrounds, as shown in Table 3. Superintendent 5 put forth that "A needs assessment would need to be done in order to identify which technology investment would take priority over another." In the school district and community of Superintendent 5, the needs assessment came back that one-to-one devices was a

priority and so the school needed to ensure to budget annually. Since cost was also a factor for this school district regarding one-to-one devices, a budget was put in place to replace two classroom sets each year. Superintendent 5 goes on to mention that Wi-Fi access was also an important component of the needs assessment. They invested funds for the school to host students online all day at the same time.

Superintendent 7 also mentioned conducting a needs assessment in conjunction with developing technology goals for their school district. The needs assessment, which in turn led to developing technology goals, would in turn "answer the questions of how is the technology going to be used?" Superintendent 6 says educators should always go by data when making educational decisions. "A data-based decision making process is important because that can impact teaching and learning." Identifying a needs assessment for each school district takes cooperation and collaboration from other educational stakeholder groups. Data from a needs assessment can help identify "needs vs. wants and then prioritization can begin," said Superintendent 6.

Theme 2: Buy-in

Educational stakeholders, which may include teachers, administration, parents, school board and community members, and students all serve in different capacities for a school to be successful. Buy-in (2 out of 7 superintendents) from these educational stakeholders is important in prioritizing investments in technology initiatives. Superintendent 1 suggested, "Initiatives that are requested or initiated by the teachers or office staff are more likely to succeed, which hopefully, will lead to initial buy-in from all staff." When considering buy-in from staff, Superintendent 3 asked the questions, "What is the best bang for our buck? How many students and staff will benefit from the technology initiative? Will it be streamlined, make the district better, and make the district

safer?" If answers to these questions are considered and answered, Superintendent 3 will take a look at what is wanted and prioritize the investment.

When talking about buy-in from staff, Superintendent 6 suggested that "Staff time is often taken for granted," and buy-in might be difficult if staff feel overwhelmed with new initiatives. To account for this Superintendent 2 recommended, "We look at the lasting impact technology initiatives will have on staff and students." Showcasing the long-term possibilities for teachers and staff might help buy-in if the end goal, according to Superintendent 7, is to identify that "We are in a good place now, I will support the ones (teachers) that show strong indication that outcomes are attainable."

Table 3

Themes and Results

THEMES	RESULTS
Needs Assessment	**6 out of 7**
Buy-In	**2 out of 7**

Note. Interview Question 3 Themes and Results from Superintendents

Interview Question 4: With All of the Demands of the Superintendent Position and the Rapid Changes in Technology, Who Do You Rely on to Make Informed Decisions on Technology? What is the Decision-making Process?

Theme 1: Technology Committee

A well-established technology committee (5 out of 7 superintendents) is a high priority on the list of themes. Small rural school districts consider funding options for technology initiatives and this often comes with a committee-type structure as evident when Superintendent 5 stated,

"Our school has a technology committee that meets throughout the year to look at current initiatives, their effectiveness, and possible changes or updates that need to be made." A committee-type structure is the preferred method for these superintendents when making decisions regarding technology initiatives. Superintendent 6 suggested that "Committee work is important because you can bring folks together as part of the process when decision making is needed."

Committee work is common with these superintendents as they have mentioned, but each one has a different structure. For example, Superintendent 7 proceeded with, "In our district we have a technology committee made up of the superintendent, principals, teachers, support staff, board members, and our technology person." The function of the technology committees look different in each school, depending on what has been established and what is the goal. Superintendent 2 proposed, "All technology requests are reviewed by the technology committee before they are approved by me for purchase." Even though a committee structure for technology initiatives is the norm for these superintendents, Superintendent 4 shared, "When the initial discussion involving technology initiatives was in place, a technology committee structure was important, however, the more time I was at the school as superintendent and technology initiatives had been in place, it (technology committee) was not as big a deal anymore."

Theme 2: Technology Integrationist

As technology initiatives have recently gained attention, the concept of a technology integrationist (6 out of 7 superintendents) working in conjunction with others was identified with these superintendents. Each technology integrationist seems to have different roles and/or duties assigned to them. For example, Superintendent 2 said, "I have a technology integrationist who is in charge of the technical support on the devices for students and staff." Another technology integrationist, according to Superintendent 5, advised that "Our technology integrationist is in

charge of researching new technology and bringing it back to the team and administration to determine what will fit the needs of the students and teachers best." Even though the role and responsibilities of the technology integrationists were different in each one of these school districts, it was obvious the superintendents relied on their experience and expertise.

There was no formal job description shared with the researcher regarding the position of technology integrationist, however, as suggested by Superintendent 6, "Technology integrationists have to know education and classrooms. They have to understand the struggles parents might have with technology and be able to troubleshoot any potential issues." Superintendent 3 put the question of technology integrationist back on his shoulders by suggesting, "It is our responsibility to surround ourselves with quality, well-informed individuals capable of advising us in areas of possible weakness." For some of these superintendents, technology in general was not a strong suit and Superintendent 7 informed that "I rely heavily on staff who keep up on technology and its uses. I rely on our technology integrationist to advise on specific equipment, keep an accurate inventory of the district's technology and establish a rotation for devices." Like previous correspondence regarding support for superintendents, committee work, and surrounding oneself with individuals who have knowledge, Superintendent 3 put forth, "We need to trust these individuals (technology integrationists) opinions and experience," so as Superintendent 7 had suggested, "We can continue to keep looking forward to what is next in technology and decide when and how to transition."

Table 4

Themes and Results

THEMES	RESULTS
Tech Committee	**5 out of 7**
Tech Integrationist	**6 out of 7**

Note. Interview Question 4 Themes and Results from Superintendents

Interview Question 5: If You Were Earmarked a Large Sum of Funds for Technology Use, What Do You Feel This Money Should Be Spent on?

Theme 1: Internet Accessibility

Research Question 5 had mixed answers regarding internet accessibility from the superintendents in this research study. Internet accessibility was a common theme especially for those students coming from low-socioeconomic families. It became clear that internet accessibility needs to be the prime focus when leading ongoing technology initiatives. According to Superintendent 7, "I look at infrastructure first-switches, access points, and the hardware to see if the devices are not going to run well, it will not be efficient and cause frustration." Superintendent 5 said before anything else is, "Internet accessibility for all students and staff at home." According to the rural superintendents, many students came from families that had very limited internet accessibility. When COVID-19 hit and schools went into distance learning, internet accessibility was a major concern for many students.

Theme 2: Professional Development

Professional development emerged as a close second theme to internet accessibility because the superintendents felt that teachers and other staff members need to "embrace

technology because kids know more than us and if we don't know the technological devices and how to teach with them, students will go elsewhere," according to Superintendent 4. The Minnesota Department of Education requires that 2% of general fund revenue is supposed to be set aside for professional development for schools, this amount has to be spread throughout each district for all teachers and staff. Professional development money is needed to cover the costs of subs, workshops, time, and other curricular items. Additional professional development money and time can be used to advance the knowledge of e-learning-based curriculum materials and technology to help with distance learning implementation," stated Superintendent 3. Many of the superintendents reiterated that e-learning has become more prevalent since COVID-19 made its impact on education and society in general.

The use of professional development should be closely tied to the goals and strategic plan of each school district. According to Superintendent 6, "Our school district bought shiny new devices that will wear out its usefulness if not tied to the core beliefs/values of our goals to accomplish our strategic plan." The range regarding years of experience are varied with teachers and other staff who work in the school districts. There are some teachers and staff members who are first year educational personnel, all the way up to thirty-plus years of experience in their respected field. Participants provided a number of insights on how they perceived professional development to be important. Superintendent 2 suggested, "We need to get staff members out of their comfort zone and adapt to the ever-changing world of technology, and that doesn't happen overnight." Many of the superintendents felt that professional development is a key component in ongoing technology initiatives because of the constant changes in technology hardware, software, and infrastructure.

Table 5

Themes and Results

THEMES	RESULTS
Internet Access.	**5 out of 7**
Staff Development	**2 out of 7**

Note. Interview Question 5 Themes and Results from Superintendents

Interview Question 6: What Do You Know That You Wish You Would Have Known When You Started the Technology Initiative Process?

Theme 1: Time

Time (5 out of 7 superintendents) was the overall theme of these superintendents who realized after starting the technology initiative that more time was needed throughout the entire process. Suggested by Superintendent 6, "The time it took to initially launch the technology initiative, the time to train the people, and especially the time to train this superintendent was something what was underestimated." Time was measured differently with Superintendent 1 who proposed, "Teachers need to have time to express their vision by allocating time for the exploration and planning process." This process would have involved more professional development for administration, teachers, and staff members, especially when the initial technology initiative process began. Too many other opportunities and/or requirements involve time, energy, and money that might take away from the implementation of technology initiatives.

Theme 2: Buy-In

When implementing any type of technology initiatives, the superintendents would have wanted more communication around buy-in (4 out of 7 superintendents) from educational

stakeholders. Committees were formed but not all educational stakeholders were involved, such as parents and students. Superintendent 7 confirmed, “I wish I would have not put so much trust in one person. We spent too much time being reactive rather than proactive.” The forming of committees did happen for some superintendents but often involved only a handful of administrators and/or a technology integrationist in conjunction with the superintendent. Educational stakeholders need to be involved in the educational process of implementing technology initiatives from start to finish. Superintendent 6 stated, “Making a decision that is based on what the committee has put forth together as a plan and accept that some people will have biases against certain technological devices.” It became clear that parents and students should have been utilized in the committee approach when technological decisions were made. After all, Superintendent 5 stated, “Make sure your technology purchases are enhancing the learning experience and ensure all students understand how and when to use it.” Student achievement should be the core focus of any educational implementation, and technology initiatives are no exception.

Theme 3: Needs Assessment

A needs assessment (5 out of 7 superintendents) can help examine performance on different educational initiatives by looking at various components and setting forth a plan with goals and outlining possible outcomes. A needs assessment could have played an important role in identifying what would work for each school district. This was evident as Superintendent 7 would have asked, “What do we have and where do we want to be” and continued with, “We should have done a needs assessment.” This needs assessment goes well with professional development and time themes, as reported by Superintendent 2, “Just getting a better

understanding of the needs and finding more time for teachers for staff development and trainings may have facilitated a smoother and more comprehensive process."

A needs assessment, with continued monitoring and evaluating, should be an important component of the implementation of technology initiatives. As maintained by Superintendent 3, "Technology initiatives never end, they can always change, there is always more, and there is always something better." Starting a needs assessment with a comprehensive committee made up of educational stakeholders, with a set of goals and objectives aligned to the strategic plan of the school district, and with an evaluation process can be important when implementing ongoing technology initiatives. Superintendent 5 summarized this question by stating, "Technology is a tool and if not used effectively, it isn't worth having." Technology is constantly changing and all of the superintendents mentioned that ongoing technology initiatives need to change with the times. Fiscal responsibility is one of the key job responsibilities of superintendents of schools and if educational related items, like technology, are not utilized effectively, they will go by the wayside.

Table 6

Themes and Results

THEMES	RESULTS
Time	**5 out of 7**
Buy-In	**4 out of 7**
Needs Assessment	**5 out of 7**

Note. Interview Question 6 Themes and Results from Superintendents

Interview Question 7: Is There Anything I Haven't Asked That You Feel Is Important Regarding Leading Ongoing Technology Initiatives?

Theme 1: Results

A question posed by Superintendent 3 stated, "Are the patrons, student, and staff better off because of the implementation?" This question posed seems to sum up what the results of the ongoing technology initiative in their respective schools would look like. As mentioned, a needs assessment is important in determining what is needed for the implementation to begin. However, the effectiveness of such technology initiatives, especially on student achievement, needs to be the ultimate objective of any such process. As instructional leaders, superintendents need to work in conjunction with administration and other educational stakeholders to look at all of the information regarding student achievement. However, as stated by Superintendent 2, "It's hard in our jobs to get all in on certain areas such as technology because we are getting pulled in so many directions with other issues and requests."

Data analysis from start to finish is crucial in looking at the overall picture of school district programs and initiatives. Superintendent 6 put forward this question to consider: "How is this affecting teaching and learning and is there data to support it?" Follow through on the implementation of ongoing technology initiatives may involve some communication about the workings and investment of such programs. Superintendent 7 concluded, "We have fires burning over and we will hear about everything that doesn't work." There might times when agreement is not feasible, but communication and collaboration with educational stakeholders seem to be an effective way for these superintendents to accomplish things. Superintendent 3 finalized this theme of results for research question 7 with, "In a nutshell, leading ongoing technology initiatives is a

huge thing and we aren't going backwards." No matter what happens in education, these superintendents concluded that their job as educators is to make the best decision for all students.

Synthesis/Summary

This qualitative phenomenological research study involved "Perceptions of rural school superintendents around leading ongoing technology initiatives." Eight superintendents from a consortium called the Lakes Country Service Cooperative located in Fergus Falls, Minnesota, initially expressed interested in helping with this dissertation proposal. There were seven research questions that guided this process and eventually seven superintendents chose to participate. The following interview questions were identified to guide the collection of data for this study.

IQ 1. What challenges have you faced when leading ongoing technology initiatives?

IQ 2. How do you define success of technology initiatives?

IQ 3. How do you prioritize investments in technology initiatives?

IQ 4. With all the demands of the superintendent position and the rapid changes in technology, who do you rely on to make informed decisions on technology?
What is the decision making process?

IQ 5. If you were earmarked a large sum of funds for technology use, what do you feel this money should be spent on?

IQ 6. What do you know now that you wish you would have known when you started the technology initiatives process?

IQ 7. Is there anything I haven't asked that you feel is important regarding leading ongoing technology initiatives?

There were a number of themes that emerged from each interview question as communicated by the superintendents in this research study. Interview Question 1 involved infrastructure, sustainability, staff development, and cost/funding. Interview Question 2 involved teacher implementation, goals/objectives, and student utilization. Interview Question 3 involved a needs assessment and buy-in from educational stakeholders. Interview Question 4 involved the technology committee and technology integrationist. Interview Question 5 involved internet accessibility and staff development. Interview Question 6 involved time, buy-in, and needs assessment. Interview Question 7 involved the overall results of an implemented technology initiative.

Table 7

Themes and Results

Interview Question	Emerged Themes
1	Infrastructure, Sustainability, Staff Development, Cost/Funding
2	Teacher Implementation, Goals/Objectives, Student Utilization
3	Needs Assessment, Buy-In
4	Technology Committee, Technology Integrationist
5	Internet Assessability, Staff Development
6	Time, Buy-In, Needs Assessment
7	Overall Results

Note: The Results of Emerged Themes from Superintendent Interviews.

Conclusion

Chapter 5 will involve the results of the interview questions based on themes and quotes as communicated by the seven superintendents from the consortium of service cooperative. These results will be discussed and interpreted in conjunction with other research from various sources regarding leading ongoing technology initiatives.

Chapter 5 Discussion, Implications, and Conclusion

Summary of Results

The purpose of this qualitative exploratory research study was to examine the perceptions of rural school superintendents around leading ongoing technology initiatives. A qualitative research study was selected because "it focused on individuals' culture, gender, history, and experiences of the study, from the choice of a question, to collection of data, to making an interpretation of the situation, and what is expected to obtain from conducting the research" (Creswell & Poth, 2018, p. 49). The paradigm for this qualitative research study was that of phenomenology as a form of social constructivism because this study involved interpreting data after a number of in-depth face-to-face interviews. The professional purpose of this research study was to understand decisions and outcomes made in rural Minnesota school districts that are similar to the current school district of the researcher. Some school districts implemented K-12 technology initiatives without using any background information, research, or educational stakeholder input to support these decisions. Some schools have spent money on the latest and greatest technological hardware and software; the researcher was interested to see if these costly investments have had any effect, positive or negative, on student success and/or achievement.

There was a need for this study because legislation in the past ten years regarding state standards, student assessment, and school accountability. State and federal funding, revenue and expenditures, and costs associated with the overall budget of the school will surely address the need for a discussion surrounding the need for the implementation of ongoing technology initiatives. The bottom line for some educators was to answer what works best for student success/achievement.

The significance of this study was to show the gap in research as it pertains to the perceptions of rural school superintendents around leading ongoing technology initiatives. This research study may help other educators in PreK-12 rural school settings who might consider looking at the e-Learning Theoretical Framework of learning outcomes for students based on technology initiatives in schools. Educational stakeholders, which is comprised of educators, students, parents, and community members, looked for ways to implement technology for student success/achievement. However, understanding leading ongoing technology initiatives may help school district administrators make decisions as schools assess and discuss technology initiatives.

Another reason there was significance to this study was the incorporation of hybrid, in-person, and distance education learning in schools. The increase in the implementation of hybrid and distance learning may likely help lead the discussion regarding technology initiatives in schools. The 'new normal' in education, as a result of the COVID-19 pandemic may involve changes in the way teachers teach, students learn, administrators lead, and how schools incorporate technology for student success and achievement. The ramifications for this research study may help pave the way for other researchers to understand the perceptions of rural school superintendents around leading ongoing technology initiatives and the effect it may have on all educational stakeholders.

The methodology utilized in this research study involved fact-to-face interviews with seven school superintendents who belonged to a service cooperative in west central Minnesota. Face-to-face interviews allowed the researcher to gain a perception of the non-verbal facial expressions and mannerisms of the individuals interviewed to help determine the reliability and credibility of each superintendent. These individuals have served in different capacities in the

field of education and brought their experiences and perceptions from their superintendent role as decision makers for their school districts.

A purposeful sampling strategy was utilized in this qualitative phenomenological research study. All of the thirty five superintendents in this service cooperative were contacted via email and initially, eight of them responded in favor of participating. The researcher implemented ethical considerations, and sensitivity to potential issues was discussed with each interviewee. The researcher also communicated the assurance of confidence for all individuals being interviewed that any data collected will remain confidential. Individuals were given an informed consent letter and were also given the choice to participate or withdraw at any time.

The researcher set up the interview with a purpose/agenda and asked questions which then elicited answers and responses from the interviewee. Face-to-face interviews, both in-person and via Zoom, were utilized for each individual. The researcher took notes, reviewed verbatim transcriptions, identified codes, summarized field notes and themes, and ultimately completed a qualitative analysis to track themes amongst participants.

The seven interview questions and summary of themes are included:

1. What challenges have you faced when leading ongoing technology initiatives?
    a. Theme 1: Infrastructure
    b. Theme 2: Sustainability
    c. Theme 3: Staff Development
    d. Theme 4: Cost/Funding
2. How do you define success of technology initiatives?
    a. Theme 1: Teacher Implementation
    b. Theme 2: Goals/Objectives

c. Theme 3: Student Utilization

3. How do you prioritize investments in technology initiatives?

a. Theme 1: Needs Assessment

b. Theme 2: Buy-In

4. With all the demands of the superintendent position and the rapid changes in technology, who do you rely on to make informed decisions on technology? What is the decision making process?

a. Theme 1: Technology Committee

b. Theme 2: Technology Integrationist

5. If you were earmarked a large sum of funds for technology use, what do you feel this money should be spent on?

a. Theme 1: Internet Accessibility

b. Theme 2: Staff Development

6. What do you know now that you wish you would have known when you started the technology initiative process?

a. Theme 1: Time

b. Theme 2: Buy-In

c. Theme 3: Needs Assessment

7. Is there anything I haven't asked that you feel is important regarding leading ongoing technology initiatives?

a. Theme 1: Results

Conclusions Based on the Results

Comparison and Interpretation of the Findings

The review of literature involved themes that emerged through the course of this research study. Starting with historical context, most of the research in the field of educational technology was based on the devices themselves, professional development, and access for various schools and individuals. The literature also stated that there are still questions surrounding the effectiveness of technology in education. Rana Tamim et al. suggested, "In studies over the past 40 years comparing achievement in educational settings with and without technology, only a small to moderate effect of technology on achievement was identified" (p. 2). It was clear with historical context literature, two questions affecting schools: is technology effective, and what are schools trying to measure? Therefore, historical context research for technology in education was rather ambiguous and "school administrators need to understand the history of education technology in order to introduce new ideas and learning opportunities to students" (The Journal, 2004, p. 2).

The next theme in the review of literature that emerged were those that discussed qualitative and mixed-methods research studies. A rural qualitative assessment involved a small school with teachers who agreed to participate with observations and interviews as the methodology. Another qualitative study was that of phenomenology, and it involved interviewing students before and after the implementation of a one-to-one technology initiative. A qualitative research study was conducted regarding factors that influence K-12 teachers' use of iPads or Chromebooks for teaching in the classroom. Four themes emerged in this study after reviewing the survey responses, which were availability, familiarity, functionality, and targeted professional learning. One qualitative research study involved school superintendents where a one-to-one technology initiative was implemented. This research was related to *frame theory*, which involved the superintendent's instructional vision, distributed leadership, professional

learning communities, technology infrastructure decision-making and the attitude towards the use of technology.

Technology overall is constantly changing and the concept of technological initiatives in rural schools is relatively new. According to Lochmiller (2011), “Research on educational leadership in rural school districts is a relatively small and somewhat dated body of research” (p. 3). The perceived lack of research in the area of rural school settings is well suggested by Hannum et al. (2009), “The extent to which distance education is being used in rural schools is not well documented nor are the barriers in rural schools may face when using distance education” (p. 2). The superintendents in this research study had mentioned technology infrastructure as a concern, especially for those students who come from diverse backgrounds and low-socio economic status. These findings coincide with that of Yilmaz and Albayrak (2008) who asserted, “It is important to remove the technological gap between urban and rural school with policies regarding computer use and its applications put into a stable framework and implemented nationwide” (p. 122).

A mixed-methods research study involved a five point Likert-type scale as well as surveys conducted in over 250 schools with participation of 1,000 teachers. Graphic tables were part of the quantitative component that included sample t tests, along with a mean and standard deviation for each question. In this study, teachers felt the increase in technology in the classroom resulted in growth in overall student experiences. Again, this was the perspective of teachers, not administrators. This finding was similar to this superintendent research study in that both teacher and student utilization in the classroom were two themes that emerged. The superintendents in this research study felt that getting the technology into the hands of both the teachers and students would benefit the overall classroom experience.

A quantitative research study involved a laptop for each teacher and student over a three year period. This study was trying to find the overall effect on student achievement, student engagement, improving classroom management, and independent research and collaboration. Each of these outcomes was evaluated with graphs, tables, and figures representing the data. The results showed that educational technology is constantly changing, and educators may need to learn and adapt as the latest and greatest comes to light.

The findings for this research study into the perceptions of rural school superintendents around leading ongoing technology initiatives were based on seven interview questions. Interview question one asked what challenges have you faced when leading ongoing technology initiatives. The four themes of infrastructure, sustainability, staff development, and cost/funding emerged as important related to question one. Infrastructure was a concern for four out of the seven superintendents because of the recent necessity of both hybrid and distance learning experienced by staff and students. According to Gulati (2008), “Yet it is hard to imagine that these technologies can have a positive influence on the education of children who lack basic living resources and live with an underdeveloped educational infrastructure” (p. 1). The question of food for the family on infrastructure was a concern.

Sustainability was brought forth from four out of seven superintendents because questions were asked about which device to use, what types of technology applications are needed, and what do replacement cycles look like. The notion of constantly changing technology applications, hardware, and software, make it hard to sustain ongoing technology initiatives. Bebell & Kay (2010) suggested, “One of the great challenges facing educators and policy makers with educational technology is the rapid pace at which technology resources are constantly evolving and have a short shelf life compared to traditional educational resources” (p. 53). These

superintendents were concerned about sustainability because of the constant changes in technological advancements. In conjunction with the ever-changing technology, these superintendents mentioned the cost/funding of continued implementation.

Staff development involved three out of seven superintendents who felt that time was needed to implement pertinent staff development opportunities for all teachers and staff. It was determined that it was too much to expect teachers to have used no paid-time to practice with their devices. According to Kaur (2010), "When students have access to technology and teachers are well-trained in using technology to support pedagogy, both learning and teaching thrive" (p. 32). This research study by these superintendents reflected a low number on the need for staff development. Staff development is crucial for teacher understanding of what is expected for technology initiatives, especially in schools where students struggle academically. "Focusing on providing teachers in high need schools with one-to-one coaching and training to accelerate teacher proficiency in the use of education technology in the classroom to boost student engagement, success, and retention" (Mundy et al. 2012, p. 3), is suggested as an important concept. Staff development opportunities are a great experience for teachers, however, there are more initiatives in these superintendents' schools then just technology. These superintendents had to answer to their respective school boards on different initiatives and what staff development opportunities would there be.

Cost/Funding was a main focus for five out of seven superintendents. A main job of school superintendents was to promote and adhere to fiscal responsibility. However, school funding at the local, state, and federal level can be very inconsistent from one year to the next. "Rural districts have a unique need for quality internet access, computers, and related technologies, which affect both classroom instruction and homework assignments" (Powers et al.

2020, p. 63). Rural school districts are often under-funded when it comes to educational resources because state money is often based on student enrollment and the community tax base.

Interview question two asked how do you define success of technology initiatives. Theme one, teacher implementation, was identified by three out of seven superintendents because of the need to get technology in the hands of all involved. Teachers were the driving force for using technology effectively and efficiently, which in turn, may save staff time for other pertinent items related to overall classroom and student achievements. “The increase in the use of technology in the classrooms has resulted in growth in student engagement, excitement, acceleration of learning, and proficiency with technology” (Mundy et al. 2012, p. 6). Attitude and support of administrators plays a key component in teacher implementation of technology. According to Howley et al. (2011), “Teachers’ perceptions of the adequacy of the technology available to them, their levels of preparation for integrating technology, the extent to which they were supported in their efforts to use technology, and their attitudes toward technology integration” (p. 5), all play major roles in teacher implementation. Attitudes from teachers, clear expectations from administration, and staff development regarding technology initiatives could play a significant role in the classroom to support student success and achievement.

Theme two of goals/objectives was driven by three out of seven superintendents because student success and achievement was the ultimate goal of schools. Determining a goal of any technology initiative is vital to success.

Theme three of student utilization, mentioned by four out of seven superintendents, was related to teacher implementation. These superintendents felt that student utilization was just as important as teacher implementation because the future of technology was constantly changing and students often know more than adults.

Interview question three asked how do you prioritize investments in technology initiatives. A needs assessment earned the highest mark with six out of seven superintendents favoring getting data to support technology initiatives. A needs assessment was identified as requiring cooperation and collaboration for buy-in from all educational stakeholders. As stated by Topper & Lancaster (2013), "Successful adoption and implementation of 1:1 initiative in K-12 schools requires a complex set of tasks and activities and supportive resources" (p. 356). A needs assessment was identified high by these superintendents, however, theme two, buy-in, involved only two out of seven superintendents. Topper & Lancaster (2013), suggested with "Communication of a vision for adoption and collaboration among all stake-holders" was important in prioritizing investments and goals of any technology initiative.

Interview question four asked considering all the demands of the superintendent position and the rapid changes in technology, upon whom do you rely to make informed decisions on technology. Theme one of the technology committee with five out of seven superintendents suggested a committee-type structure was important; however, the function of each technology committee may look different in each school. A technology integrationist, theme 2, was identified with a high mark by six out of seven superintendents. These superintendents made it clear that a technology integrationist should play an integral part of the technology committee because this person is knowledgeable in their field. According to Topper & Lancaster (2013), "All staff should be involved, should understand, and should be fully committed to a 1:1 initiative, which has broad implications on all aspects of district planning, budgeting, assessment, and curriculum" (p. 356). These superintendents had expressed that technology was not a strong suit and in fact, a technology integrationist was really an important player in making technology-based decisions.

Interview question five asked if you were earmarked a large sum of funds for technology use, what do you feel this money should be spent on. The theme one of internet accessibility was identified by five out of seven superintendents. The notion of students who came from diverse backgrounds, such as low-socioeconomic families, were highlighted as potential roadblocks for internet accessibility. There were many students who were not able to complete homework because of the lack of internet accessibility, not to mention technological devices. Professional development, often synonymous with staff development, was identified in only two out of seven superintendents. The use of professional development should be closely tied to the goals and the strategic plan of the school district. Teachers needed to have professional development to practice with their respective school's technology initiative, or students may find other educational opportunities. The bottom line for these superintendents was student success/achievement, however, previous research findings didn't specifically address this. According to Arnold (2014), "One study did not look at student achievement in these five districts nor did it quantify the use of technology in the classrooms" (p. xi). Another article, as suggested by Kalonde (2017), "In schools today, there is a massive push to integrate technology throughout the educational process, however, there's very little consistent documented evidence of its success" (p. 27). Student success/achievement as the final goal was paramount when implementing technology initiatives.

Interview question six asked "what do you know now that you wish you would have known when you started the technology initiative process?" Theme one of time was mentioned by five out of seven superintendents because they didn't expect the whole process of the technology initiative to be so long. From start to finish, time was of the essence, especially since theme two emerged of buy-in from four out of seven superintendents. These superintendents

would have wanted more communication throughout the process, which in turn, might have helped with those individuals who were not in favor of such technology initiatives. Previous research had expressed communication as key with all educational stakeholders. Arnold (2014) proclaimed, “Throughout this study, the superintendents demonstrated that effective communication to all constituencies was important in gaining acceptance for the technology initiative” (p. x). Communication and transparency were very important for these educational leaders when implementing any initiatives like technology.

A needs assessment emerged as a recommendation by five out of seven superintendents. A needs assessment should be well thought out and align with goals and objectives of the school district. A needs assessment also should have continuing monitoring and evaluating throughout the whole process, from start to finish. Along with a needs assessment, previous research had dictated the need for continuous evaluation throughout any initiative. As recommended by Pollock and Al-Bataineh (2018), “While the results of this study are only pertinent to this school district, it is necessary for all school districts and individual educators to continuously evaluate teacher and student perceptions of their educational technology use” (p. 31). Data analysis, assessments, and continuous monitoring were components of a needs assessment.

Interview question seven asked is there anything I haven’t asked that you feel is important regarding leading ongoing technology initiatives. This theme can be summed up by results and were the teachers, students, and administration better off as a result of their school’s technology initiative. These superintendents, as instructional leaders, needed to look not only at a needs assessment, but also at the results of such initiatives on student success/achievement. As stated in previous research Powers et al. (2020), “Continued research on the implementation of one-to-one computing will shed light on more of the long-term effects and unique benefits on

teaching and learning in the rural school context" (p. 73). The results of this research study may help pave the way for future research on the implementation of technology initiatives because superintendents may have a better understanding of what to expect during this process.

The implications for this research study on "Perceptions of rural school superintendents around leading ongoing technology initiatives" can be discussed with the idea of practicality and theoretical implications for the reader. The results answered the research question utilizing the e-Learning Theoretical Framework which involved on-line learning and the vast capabilities of technology implementation and educational stakeholder involvement. The e-Learning Theoretical Framework included the three holistic systems of technologies, activities, and system stakeholders.

The results of this research study involved the three holistic systems of technology based on the findings. The system of technologies was represented by internet accessibility, technology committee and integrationist. The system of activities was represented by a needs assessment and time for staff development opportunities. The system of stakeholders was represented by cost/funding. Each one of these systems played an integral part in helping to understand the practical implications for understanding these superintendents' perceptions. The results answered the research question reasonably because of the vast experience of these superintendents in their respective school districts. These perceptions are of individuals who have been, and continue to be, in the field of education which has revolved into a paradigm shift to embody more technological advances for use in schools and classrooms to enhance student achievement. Because of the methodology chosen and utilized by this researcher, the results then turned out the way they did.

Both personally and professionally, the results for this researcher show some areas of need for the current school district of employment. For example, a needs assessment scored very high as a perception of these superintendents. In the field of education, a needs assessment can be utilized not only for implementing a technology initiative, but also other areas as well. Buy-in was not as high as the researcher expected; however, buy-in from educational stakeholders is crucial in starting the needs assessment for the implementation of technology initiatives.

The results and findings in this research study can be interpreted based on a small sample size of superintendents in rural school districts. Future researchers' roles in education may dictate a similar research study on technology initiatives, however, rural school superintendents were chosen for this research study. The research question and interview questions can be tailored to other areas of education. Urban schools, low-socio economic schools, English Learner schools, and other school districts that want to implement technology initiatives may use this research study to guide their process. The findings of similar research studies on the ongoing implementation of technology initiatives may have different results depending on the researcher and their current position in education.

Limitations

One limitation during this research study was the impact COVID-19 had on schools across Minnesota. The recent on-going discussions surrounding technology use involved in-person, hybrid, and distance learning which had been brought forth during the COVID-19 pandemic. According to Kaden (2020), "This pandemic has disrupted the educational system. The severity of the COVID-19 crisis is a wakeup call to strengthen education. The sudden move to online learning may be the catalyst to create a more effective method of educating our students" (p. 12). Educational leaders and stakeholders, as research suggested, should work

together with cooperation and collaboration in order to ensure student achievement at all levels in front and center during the aftermath of the COVID-19 pandemic.

Another limitation in this research study could have been the fact that seven superintendents were interviewed; however, they all had similar backgrounds. They were all male, white, and worked in rural school districts with very little diversity background and were mostly in the tail end of their career. A possible strengthening of this research study could have been to incorporate superintendents who were female, person of color, or who were relatively younger in both age and years of experience in education. Since there were only seven superintendents in this research study, a determination of the findings might be hard to generalize for all superintendents and their respective school districts.

Another limitation could have been the societal pressure that superintendents have felt regarding the implementation or there lack of, technological advancements and school utilizations of such programs. Ugu and Koc (2019) conveyed, “In fact, one of the most powerful factors in increasing the use of technology in teaching, learning, and student achievement is societal pressure on administrators to use technology as an implementation tool” (p. 45). This societal pressure on school superintendents could bring about concerns regarding the validity or credibility of the data provided. As examined by Topper and Lancaster (2013), “While the primary source of data-decision maker interview-represents self-report, there are obvious limitations with this type of data collection and analysis” (p. 349). Hopefully, the superintendents in this research study believed the researcher was not an outsider or someone trying to change the decisions of their school district, but rather someone who was passionate about education.

A reasonable improvement for future research on similar studies could be the implementation of a quantitative portion in conjunction with the qualitative portion. A mixed-

methods approach could be utilized to help with the possible limitation identified. The use of SPSS and other data mining tools could help strengthen the research study with facts and figures embedded into graphs and charts.

Implications

The implications for this research study can be examined by looking at the e-Learning Theoretical Framework (Aparicio et al., 2016), the Learning Outcome Theory and Implementation of Technological Innovation Theory (Penuel, 2006), and Theory of Change Approach (Connell & Klem, 2000), and make comparisons of each one to the implementation of ongoing technology initiatives. All of these theoretical frameworks deal with the ever-changing technological implementation in schools; however, the e-Learning Theoretical Framework was chosen for this research study because Aparicio et al. (2016) summarized, in the e-Learning Theory people interact with the e-learning system and technologies provide support to integrate content, enable communication, and provide collaboration tools. The bottom line is the utilization by users, the implementation of technology, and the dimensions of services are involved with the e-Learning Theoretical Framework. Superintendents will more than likely need to make informed decisions regarding technology initiatives and student learning in the long-term strategic planning process. The implications for this research study may have helped with the concept of e-Learning Theoretical Framework because “this theory’s framework was based upon three principal dimensions: users, technology, and services related to e-learning” (Aparicio et al. 2016, p. 292). Each one of these dimensions of the e-Learning Theoretical Framework were identified as components of the themes in the findings of this research study.

Another possible implication for this research study was the information regarding the themes of these superintendents may provide insight into future technological considerations for

researchers in the field of education. The themes identified in this research study are similar to those suggested by Grundmyer (2013), which included the guidance and direction for three distinct themes to minimize implementation issues for technology initiatives: (a) timing and infrastructure, (b) clear goals and measurable outcomes with buy-in from educational stakeholders, and (c) effective training for teachers. Future superintendents may want to look at the identified themes in this research study and utilize the results to establish a baseline for their respective school districts.

This research study may have deepened the understanding of superintendents who have thought about implementing and leading ongoing technology initiatives, especially in rural school districts. Cullen et al. (2006) stated, "The nature of rural schools toward technology are factors that might be considered as schools look to provide an education for students that optimize learning opportunities and provide cost-effective instruction" (p. 11). The concept of technology encompasses several items and schools might be involved in discussions centered around them.

Another possible implication for this research study may help educational stakeholders understand potential technological considerations for student success/achievement. Many schools found themselves relying heavily on technology to facilitate hybrid and distance learning, and one-to-one programs were put through a critical unplanned stress test of COVID-19. According to Kaden (2020), "This pandemic has disrupted the education system. The severity of the COVID-19 crisis is a wakeup call to strengthen education. The sudden move to online learning may be the catalyst to create a more effective method of educating our students" (p. 12). Some school districts were prepared for this shift to the implementation of technology, but rural school districts often lacked the resources available to adequately support such a

massive technological shift. Administrators, teachers, and staff had to change their thought processes involving instructional strategies, technology equitability, and one-to-one technology capabilities. Administration, teachers, parents, and other educational stakeholders may need to work together for a renewed transition and evaluation into this technological world of global education.

Recommendations for Future Research

The extraordinarily challenging environment of superintendents leading ongoing technology initiatives, especially during the aftermath of the COVID-19 pandemic, will surely call for more research. Kaden (2020) suggested, "The massive COVID-19 online learning experiment brings new insights and cautionary tales about what works in education. Educational stakeholders have to be actively involved in future research designs and discussions" (p. 11-12). The notion of in-person, hybrid, and distance education discussions may revolve around the final objective, student success/achievement. This current research study involved school superintendents; however, teachers and principals perceptions on technology may be implemented in future studies, especially for academic achievement. According to Sauers and Mcleod (2012), "Much more research is needed to relate to the benefits and/or drawbacks of handing a student a robust computing device all day, every day for academic purposes" (p. 2).

Future research may involve teachers and principals; however, it may be crucial to involve technology implementation and initiatives from the standpoint of student success/achievement. As previously mentioned, much of the research in the field of educational technology is based on the devices themselves. According to Trucano (2016), "Much less focus and attention has been directed to how exactly these devices is meant to impact teaching and learning processes in positive, meaningful ways" (p. 2). Teaching and student learning is the

foundation for education and the overall goal or objective for future research based on technology initiatives, should consider student success/achievement.

Conclusion

This qualitative phenomenological research study involved "Perceptions of rural school superintendents around leading ongoing technology initiatives." The researcher used Educational Resources Information Center (ERIC) through the Minnesota State University Moorhead Library, Google Scholar, and various internet searches such as SAGE and Taylor Francis for related journal articles. The researcher also searched different dissertation sites, including RED, through the MSUM site, and was able to find a few dissertations from various university institutions regarding technology initiatives and implementation. Studies on post-implementation with established one-to-one technology initiatives were not found. The search terms utilized were varied and included the following: technology initiatives, one-to-one technology, rural public school technology implementation, administrator and teacher perceptions, challenges, barriers, and benefits of one-to-one technology initiatives, implementation and effects of one-to-one technology initiatives, student achievement/success for technology implementation in grades K-12, and leading ongoing technology initiatives. The bottom line for the search terms had the over-arching research question of what are the perceptions of rural school superintendents around leading ongoing technology initiatives.

This qualitative phenomenological research question involved a group of seven school superintendents who belonged to a service cooperative in west central Minnesota. The research question was embedded into the research design with a description of the phases in the qualitative research process and data collection activities. The design of this qualitative phenomenological research study followed that of Creswell and Poth's (2018) eight-phase

research process. The e-Learning Theoretical Framework (Aparicio et al. 2016) was chosen to guide this research study because this theory includes technology, learning strategies, learning methods, and users. The methodology of face-to-face interviews was chosen. The following seven interview questions were identified to guide the collection of data for this research study.

IQ 1. What challenges have you faced when leading ongoing technology initiatives?

IQ 2. How do you define success of technology initiatives?

IQ 3. How do you prioritize investments in technology initiatives?

IQ 4. With all the demands of the superintendent position and the rapid changes in technology, who do you rely on to make informed decisions on technology? What is the decision making process?

IQ 5. If you were earmarked a large sum of funds for technology use, what do you feel this money should be spent on?

IQ 6. What do you know now that you wish you would have known when you started the technology initiatives process?

IQ 7. Is there anything I haven't asked that you feel is important regarding leading ongoing technology initiatives?

There were a number of themes that emerged from each interview question as communicated by the superintendents in this research study. Interview Question 1 involved infrastructure, sustainability, staff development, and cost/funding. Interview Question 2 involved teacher implementation, goals/objectives, and student utilization. Interview Question 3 involved a needs assessment and buy-in from educational stakeholders. Interview Question 4 involved the technology committee and technology integrationist. Interview Question 5 involved internet accessibility and staff development. Interview Question 6 involved time, buy-in, and needs

assessment. Interview Question 7 involved the overall results of an implemented technology initiative.

The findings of the superintendents in this research study discovered that education has changed as a result of the combination of in-person, hybrid, and distance learning. The implementation of technology initiatives have increased in schools across America. Superintendents in rural school districts in west central Minnesota have shown, through this research study, a need for continued support of leading ongoing technology initiatives. The themes in these findings of this research study should aid other superintendents and administrators who are looking for information that might help their school district achieve optimal results for the overall goal of student success/achievement.

The COVID-19 pandemic and its aftermath on technology initiatives in education, especially regarding online learning, from distance to hybrid, will surely become a topic of discussion and the possible effect it had and will have on student success/achievement. Future research will be important as stated by Kaden (2020), “The unexpected COVID-19 related interruptions to K-12 education created a need to research and document the major shifts in teaching practices and teachers’ responsibilities” (p. 13). COVID-19 could potentially change education and technology initiatives, and the discussion surrounding that concept becomes more prevalent. For future research studies regarding one-to-one technology initiatives in a rural school setting, suggested by Powers et al. (2020), “In future research it is hoped that researchers could also observe teachers in the rural district using one-to-one computing for instruction and compare those results to the self-reported data” (p. 72). Cooperation and collaboration will be front and center as schools work together to ensure students are prepared for the next stage of their life.

This researcher experienced both some personal and professional complications during this dissertation process; however, the lessons learned helped this researcher gain a new and refreshing attitude toward education. This researcher went into education to help students, no matter who they are, or where they are from. The findings of this research study will help with future technology initiatives in this researcher's place of employment and continue the goal of student success/achievement. The impact of this dissertation on the researcher's professional growth can be summed up with the need to support all educational stakeholders in a time where education is changing. Also, professionally, this researcher now has more of a growth mindset after the completion of this dissertation. According to the National Superintendents Roundtable, (2021), "In the extraordinarily challenging environment in which superintendents found themselves, it is hardly cause for wonder that many would contemplate moving on, with some reaffirming their commitment to their districts and others choosing to leave." (p. 17). As educators we all need to persevere in challenging times and show students we are life-long learners who only want the best for each and every student. This researcher will continue in the field of education because this researcher cares about students.

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APPENDIX A

Implied Consent

Perceptions of Rural School Superintendents around Leading Ongoing Technology Initiatives

You are invited to participate in this research study to examine the perceptions of rural school superintendents around leading ongoing technology initiatives. Lakes Country Service Cooperative (LCSC) superintendents will be offered an opportunity to participate in this research study. This research project is being conducted by Randal Bergquist for a doctoral dissertation at Minnesota State University Moorhead, Department of Educational Leadership.

Background Information and Purpose

The purpose of the study is to gather perceptions of rural school superintendent around leading ongoing technology initiatives in order to understand the possible effects of educational stakeholder decisions that could affect schools, students, and their education, whether in-person, hybrid, or virtually. It is the hope of this research study to help understand ongoing technology initiatives and utilize the data to make informed decisions for the staff, students, and families in the community we serve.

Procedures

If you decide to participate, you will be asked to set up an interview time, either in-person or via electronic format and will be recorded. Completion of this interview will take approximately twenty five to thirty minutes.

Risks

There are no foreseeable risks associated with participation in this study.

Benefits

The questions on this survey were developed by reviewing the research on literature pertaining to technology initiatives implemented in school districts. Technology initiatives can take many forms, such as one-to-one technological devices, amongst others. The perceptions of rural superintendents could be beneficial to educational stakeholders who might be thinking about technology initiatives implementation.

Confidentiality

Your information will be confidential and no answers that could identify a specific individual will be used. Results will only be viewed by the researcher and all associated materials will be kept in a secured location accessible only to the researcher. The purging of all personally identifiable information from transcripts and research reports will take place. This project may involve making an audio recording of your interview conversation. The digital audio recording, accompanying notes, and transcriptions will be kept on a password-protected computer.

Information from this study will be kept until December of 2022, when all information will be destroyed.

Research Results

If you are interested in learning the results of the survey, feel free to contact me directly at rbergquist121416@gmail.com or 320-859-2191.

Contact Information

If you have any additional questions please contact me, Randal Bergquist, or the advisor Dr. Andrew Burklund at Minnesota State University Moorhead at andrew.burklund@mnstate.edu

APPENDIX B

Informed Consent

"Perceptions of rural school superintendents around leading ongoing technology initiatives"

Dear Participant,

The following information is provided for you to decide whether you wish to participate in the present research study. You should be aware that you are free to decide not to participate or withdraw at any time without affecting your relationship with me, the school district, or with Minnesota State University Moorhead.

The purpose of this phenomenological qualitative research study is to examine the perceptions of rural school superintendents around leading ongoing technology initiatives. Do not hesitate to ask questions about the study either before participating or during the time that you are participating. I am happy to share findings with you after the research is complete. This study is part of a doctoral dissertation research study and your name will not be associated with the research findings in any way but simply identified as superintendent 1, 2, 3, etc.

Any information obtained in connection with this study and that can be identified with you will remain confidential and will not be disclosed. We will do our best to keep your personal information confidential. You may use a pseudonym if desired. To help protect your confidentiality: (1) storage of data and notes will be kept in a secured location accessible only to the researcher, (2) purging of all personally identifiable information from transcripts and research reports. This project may involve making an audio recording of your interview conversation. The digital audio recording, accompanying notes, and transcriptions will be kept

on a password-protected computer. Information from this study will be kept until December of 2022, when all information will be destroyed.

If you decide to participate, you are free to discontinue or refuse a follow-up interview at any time. There are no known risks and/or discomforts associated with this study. The expected benefits associated with your participation are the information about your perceptions around leading ongoing technology initiatives in your current job as superintendent in a PreK-12 rural setting.

Please get in touch at any time with questions about this study. You may contact Randal Bergquist at rbergquist121416@gmail.com.

Acceptance to Participate: *Your signature indicates that you have read the information provided above, and you have given consent to participate. You may withdraw from the study at any time without penalty after signing this form.*

_____ _____

Signature of Participant **Date**

_____ _____

Signature of Researcher **Date**

Thank you for your time and consideration.

APPENDIX C

Inteview Protocol

Greeting:

Background and Purpose: *Perceptions of rural schools superintendent around leading ongoing technology initiatives.* A service cooperative of superintendents in west central Minnesota will have the opportunity to answer interview questions regarding this research study. The purpose of this study is to understand decisions and outcomes of rural school districts who have implemented ongoing technology initiatives.

Time of Interview:

Date:

Place:

Interviewer: Randal Bergquist

Interviewee: Superintendent _____

Interview Questions: See below

Description of Project: This phenomenological qualitative research study will examine the perceptions of rural school superintendents around leading ongoing technology initiatives.

Statement of Thanks: Thank you for participating in this interview. Your responses and identify will remain confidential. Given the nature of this project, the findings will not be published or publically presented.

APPENDIX D

Interview Questions

Question:

"What are the perceptions of rural school superintendents around leading ongoing technology initiatives?"

Interview Questions:

1. What challenges have you faced when leading technology initiatives?

2. How do you define success of technology initiatives?

3. How do you prioritize investments in technology initiatives?

4. With all of the demands of the superintendent position and the rapid changes in technology, who do you rely on to make informed decisions on technology? What is the decision making process?

5. If you were earmarked a large sum of funds for technology use, what do you feel this money should be spent on?

6. What do you know that you wish you would have known when you started the technology initiatives process?

7. Is there anything I haven't asked that you feel is important regarding leading ongoing technology initiatives?

APPENDIX E

Superintendents Email to Participate

Hello Service Cooperative Superintendents:

This is Randal Bergquist, Osakis Public School Superintendent, inviting you to participate in my doctoral research study that I am conducting. The purpose of this phenomenological qualitative research study is to examine the perceptions of rural school superintendents around leading ongoing technology initiatives.

This research study is being conducted as part of my doctoral dissertation at Minnesota State University Moorhead, Department of Educational Leadership. I am looking for superintendents who have experienced ongoing technology initiatives in their school districts.

If you decide to participate, you will be asked to set up an interview time, either in-person or via electronic format, and it will be recorded. Completion of the interview will take approximately 25-30 minutes.

There are no foreseeable risks associated with participation in this research study. You information will be confidential and no answers that could identify a specific individual will be used.

If you are interested in participating in this research study please reach out to me at rbergquist121416@gmail.com or my cell phone at 320-287-1755. If you have any questions please reach out to me, or the advisor, Dr. Andrew Burklund at Minnesota State University Moorhead at andrew.burklund@mnstate.edu

Thank you!