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Exploring Early Childhood Teachers' Beliefs and Perceptions About the Use of Technology in the Classroom

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EXPLORING EARLY CHILDHOOD TEACHERS' BELIEFS AND PERCEPTIONS ABOUT

THE USE OF TECHNOLOGY IN THE CLASSROOM

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by

Sharron Hope Hallanger

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Graduate Studies

We hereby approve the thesis of

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ABSTRACT

EXPLORING EARLY CHILDHOOD TEACHERS' BELIEFS AND PERCEPTIONS ABOUT

THE USE OF TECHNOLOGY IN THE CLASSROOM

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The purpose of this qualitative study was to explore how the professional beliefs and perceptions of teachers in early childhood education (ECE) influenced their acceptance for the use of interactive technology as a learning tool for children. Eight primary grade teachers at a rural school district in Washington State were interviewed. Of the eight ECE teachers, two had no student technology use in their classrooms. The second group of two teachers had some student technology use on a weekly basis, and the last group of four teachers utilized daily student technology use in their classrooms. The sample subjects were interviewed face-to-face and asked to respond to an online survey regarding their beliefs and perceptions about the use of technology in their classroom; including technology manipulated by students such as Ipads, tablets, laptops and desktop computers. The data were looked at through the Framework Method and helped determine similarities or differences in the results. This case study focused on beliefs and practices that teachers hold, and how it influences the implementation and use of technology in the classroom concerning student's use and experiences. This case study provides

information for teachers, administration and the educational community.

Recommendations for future research are discussed.

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CHAPTER I

INTRODUCTION

No major aspect of modern life is untouched by the way many Americans now use information technologies (Palfrey & Gasser, 2008, p. 3). Technology has become an increasingly dependent aspect of society and the careers of the twenty-first century. The United States Department of Labor states "Employment of computer and information technology occupations is projected to grow 13 percent from 2016 to 2026, faster than the average for all occupations" (USDL, 2018, para. 1). Current students will be entering a workforce where there is a constant increase in the usage of technology. The modern life of teachers and students is also affected by technology, whether inside or outside of school.

The utilization of technology in the classroom can be dependent upon the personal beliefs and perceptions of the classroom teacher. Teachers play a significant role in the technology integration process (Liu, Ritzhaupt, Dawson, Barron, 2017, p. 4). In classrooms where the teacher has autonomy and choice, technology is something that can be used daily, used sometimes, or not used at all. All teachers bring different beliefs and perceptions about the amount of time that technology that should be utilized, reasons why technology should be used, when technology should be used, and in what ways it should be utilized as a learning tool.

This case study focused on early childhood teachers' beliefs and perceptions about the use of technology in their classroom and the reasoning behind those beliefs. Students from low socio-economic backgrounds may also have teachers who

are not prepared to or do not wish to utilize technology in their classroom. "Teachers in high-poverty schools are consistently less likely than their counterparts to say they've received technology-integration training" (Herold, 2017, p. 5). School districts often have their own beliefs about the use of technology, but when not implemented from the top down, the task of utilizing technology often falls on the teacher. Teachers have their own set of beliefs and perceptions about technology and how it will be used in their classroom. This study looks at how teacher beliefs and perceptions impact the amount of time and different ways that technology is used in the classroom.

Statement of the Problem

Teachers' perceptions and beliefs about technology in the classroom can relate to the use and alignment of technology into the learning process. The teachers' opinion of technology, value of technology, and attitude about its importance or unimportance can be apparent from the usage and implementation of technology. The use of technology is becoming an even more pronounced aspect of American society and careers. Technology can be needed to support job skills, for high stakes testing on computers, and as an educational tool in American schools. The problem is that these personal perceptions and beliefs may have an impact on the amount and usage of technology in the classroom. If the personal perceptions and beliefs of the teacher have an impact on student learning is it fair that students in that class don't have that opportunity to utilize technology as a learning tool? If a teacher's personal opinions about a tool like technology are negative will that have

an impact on the student's opinion of technology, their ability to use technology, or the future of their education or career in the future? America also has a problem of graduating teachers from teaching programs who are not highly trained or capable of using technology in their classrooms.

This research explores the early childhood teachers' perceptions and beliefs and how much those beliefs affect the experience students have with technology in the classroom. The teacher can be the main factor in the utilization of technology in the classroom and their personal beliefs and perceptions may have a correlation to the amount of time and use of technology in the classroom.

Rationale for the Study

The varied perceptions and beliefs of the teacher may show a correlation between those beliefs and the usage of technology as a learning tool in the classroom. Technology is constantly becoming a larger part of American society, culture and career market. However, teachers may not be well equipped to meet the needs of students when it comes to preparing them in technology for their future as students and as adults. In Washington State, the high-stakes testing of the Smarter Balanced Assessment takes place beginning in third grade. On this assessment, students need to be able to use a mouse, point and click and type a response.

Teachers' personal beliefs and perceptions about using technology in their classrooms often impact how technology will be utilized in their classrooms for different uses. To get a better understanding of a teacher's beliefs and perceptions teachers will be interviewed about their beliefs, thought processes, understandings,

and perceptions of technology. All people have had different experiences with technology whether in school, work, or their personal lives. These experiences help shape teachers' beliefs and understandings, and they may determine the extent to which teachers may utilize technology in their classrooms. Teachers may not be graduating from teacher training programs with enough understanding of how to utilize technology in their classrooms in the correct ways. "There's widespread agreement that teachers aren't coming out of college well-prepared to navigate this new digital environment. And for teachers already in the workforce, professional development hasn't kept up with the pace of technological change" (Herold, 2017, p. 5).

Research Questions

Teachers, administrators, district-level administrators, and teacher colleges may benefit from this research and may be able to use relevant information to help meet the needs of teachers who are teaching and guiding students in the 21st century.

The following research questions were used to guide the study:

1. How do primary teachers describe their beliefs, opinions, and perceptions about the use of technology in and outside of the classroom?

2. In what ways do primary teachers utilize technology in their classroom as a learning tool?

3. How much do teachers' beliefs and perceptions about technology impact the use of it in their classroom?

Conceptual Framework

This qualitative case study was analyzed using the Framework Method for data analysis. The use of the Framework Method helped to find similarities and differences that existed between the beliefs and perceptions that teachers hold about the use of technology. The similarities and differences were then categorized and organized to interpret the data. The data were then organized from teachers with the most computer usage to teachers with the least amount of computer usage. Once the data was organized comparisons were made while also looking for contrasts. The data averages were found to look for similarities and differences between the range of computer uses. Certain themes became prominent in the data that led to making inferences.

Case Study

This case study analyzes teacher's personal beliefs and opinions to discover how those varied beliefs can lead to different practices in different classrooms and grade levels in one primary school. This case study included teachers from kindergarten, first grade, and second grade. Eight primary school teachers from a rural, low socio-economic school took place in this study.

Data were collected through an in-person interview with each teacher individually. The interview inquired into the teacher's beliefs, thoughts, feelings, and perceptions about technology in general, the use of technology in their personal life

and their philosophy for utilizing technology in their classroom as a learning tool. Teachers were asked if they knew about any positive or negative research about the use of technology in the classroom. Teachers were then also asked to participate in an online survey where they were asked to rate if they agreed or disagreed with certain statements related to technology use.

Limitations of the Study

Due to the scope of this case study, the data were only collected from teachers at one school. Within one school data will be varied but will also show trends that can be used to make recommendations for use at other schools throughout the country. The study is limited by the number of participants, but could also take place on a much larger scale.

Overview

In Chapter I of this study, the basics surrounding this qualitative study were shared. The research problems were introduced and the purpose of this study was established. In Chapter II, relative research has been reviewed, analyzed and summarized. Research related to the research questions was used to find information on previous research in this area. Chapter III allows the researcher to detail how the case study was performed. Information is shared about the participants and how they were chosen. It also details how the interviews and surveys were used to gather information. In Chapter IV the results from the study are shared. Interview and survey results are carefully transcribed, documented and described. Chapter V shares the background information of the study. The data

gathered during the interviews and surveys were coded and analyzed for common themes. This chapter shares those themes and gives recommendations for further research in this area. Suggestions include further research into technology implementation professional development, helping teachers with concerns about technology, and best practices related to technology integration.

Summary

This chapter began with information on how technology has changed the landscape of education and careers in America. The usage of technology in a classroom is also dependent on who the classroom teacher is, and how his or her personal beliefs and perceptions about the use of technology impact using it as an educational tool. When the use of technology as a learning tool is dependent on the teacher's beliefs then there may be an issue with equitable access to the use of technology.

CHAPTER II

LITERATURE REVIEW

The use of technology in American education has always been a polar issue. Even though technology use in American education has been met with positive and negative arguments, the Office of Educational Technology under the U.S. Department of Education states in the 2017 National Education Technology Plan that "Technology can be a powerful tool for transforming learning. It can help affirm and advance relationships between educators and students, reinvent our approaches to learning and collaboration, shrink long-standing equity and accessibility gaps, and adapt learning experiences to meet the needs of all learners" (U.S. Dept. of Education, 2017). Although there has been previous opposition by society or teachers, the U.S. Department of education states that technology can be used as a quality tool in learning and differentiation.

History of Technology Use in Education

Technology has been implemented in American classrooms for the last one hundred years. EdTech Magazine (2016) shared about the evolution of technology in schools. In the 1920s radio became the first type of technology used for learning. On-air classes were available for students in any location if they had access to a radio. In the 1950s television and videotapes were used for learning experiences in schools. The 1970s and 1980s brought the introduction of computers into schools. The World Wide Web became available to students in schools in the year 1990. By

2010 Ipads and tablets became popular in classrooms to improve research, to create

presentations, and reports. EdTech Magazine also mentioned their future prediction

that the future of classroom technology may be virtual reality (EdTech Magazine,

2016). Within the last one hundred years, technology has gone from an introduction

to the use of radio to its usage as a fundamental part of modern education.

Review of Related Research

Similar case studies and methods have been used to understand teachers'

beliefs and perceptions and how those beliefs impact the way they teach and how it

impacts their students. Research has been investigated with a focus on school

location, teachers who have had technology integration training, and teacher

perceptions of technology integration.

A quantitative case study about teacher perceptions and attitudes towards

technology in k-12 schools looked at differences in rural, suburban and urban

environments. There were 2,200 teachers who were surveyed and the researchers

found that teachers in urban schools were behind those of rural and suburban

schools in the amount of technology that was used in schools and their perceptions

about technology use. The schools with the highest perceptions of technology

effectiveness were suburban schools (Kormos, 2018).

A case study done in a rural school district by Howley, Wood, and Hough

(2011) showed that teachers had more positive attitudes towards technology

integration and that the teacher's attitudes toward technology influenced the

integration of technology into instruction but it also influenced the attitudes of the

students towards using technology as a tool for learning. The case study also noted that the "perspectives of teachers do not necessarily reflect those of the communities in which they teach" (Howley, Wood, & Hough, 2011, p. 7). This case study found that if teachers had positive attitudes towards technology integration then there would be more integration of technology in the learning environment and that their students would also share the same attitudes towards technology as a tool for learning.

Lynette Gorder (2008) researched teacher perceptions of technology integration. Gorder found that even if a teacher utilizes technology for professional productivity or to deliver instruction, it did not mean that the technology would be utilized for teaching and learning. Gorder's case study found that technology was implemented most in high schools and that the more a teacher used technology meant higher chances technology would be integrated into the classroom. Gorder recommended professional development for new technologies, teacher collaboration around technology integration, and continued training as new technology is integrated into schools (Gorder, 2008).

A case study done at a university in Alabama found that professors had an overall positive attitude towards using technology for instruction but that there was not enough training or technology support provided to the professors (Loague, Caldwell, Balam, 2018). Although professors held mostly positive perceptions and opinions of technology, there were still issues in training, hardware, and technology support.

The results of these case studies inform the perspective of this case study because researchers have found that teacher opinions and beliefs can have an impact on technology integration. The case studies mentioned earlier give insight into perceptions of technology based on school location, technology integration based on previous learning, and positive perceptions that also showed a need for more technology professional development and support.

Research Question #1

The first research question investigates teachers' opinions and beliefs about technology inside and outside the classroom. Outside the classroom, technology has been growing, changing, and increasing in national usage. Teachers are possible participants of technology use outside of the educational realm. Teachers are also possible participants for implementing technology as a tool in their classroom.

Many Americans have their own opinions and beliefs about technology use. "Overall, 52% of U.S. adults say the effect of technology has been largely positive. Within this group, 57% cite the vast network of information and communication that is available, easily accessed and shared across the world as a benefit for society. Another 21% see improvements to health, medicine, and medical research as benefits of technology" (Pew Research Study, 2016, p. 99). More than half of American adults view technology as mostly positive. Within that group are beliefs of benefits from information, ease of communication, and health benefits. The same research study found that 8% of Americans say technology has brought negative effects to society. The main reason for this belief is that technology has decreased

human interaction and face-to-face communication. Others noted that technology

degraded morals and values and that technology promotes negativity (Pew

Research Study, 2016). The Pew Research Study found that most Americans have

positive beliefs about technology however there are also those who believe

technology has brought negative effects to society and it decreases moral values.

   According to the Common Sense Media Census (CSMC, 2017), which surveys

technology use by children from birth to eight years old, 98% of children eights

years old and younger live in a home with some type of mobile device and 98% of

children have a television in their home (Rideout, 2017). The CSMC also found that

children eight and under spend an average of two hours and nineteen minutes with

screen media (Rideout, 2017, p. 3).

   The CSMC noted top parent concerns of technology use having to do with

violent content, sexual content, too much time on technology, and exposure to

materialism and advertising. However, the CSMC also noted that 67% of parents say

that screen media helps with learning and 57% say it helps foster creativity

(Rideout, 2017). Technology has rapidly changed and grown inside the average

American household with children.

   A survey completed by the University of Phoenix College of Education found

that classroom tech use has increased to 63% of k-12 teachers using technology in

their classroom daily. The survey also found that 47% of teachers are using social

media as a way to collaborate with other teachers. However, the survey found that

25% of teachers say they are intimidated by the knowledge that their students have

about technology (Bogardus, 2017). Technology is increasing in classrooms across America, increasing inside American homes, and teachers are utilizing it for professional collaboration and connection.

Peggy Ertmer (2005) researched teacher pedagogical beliefs behind the integration of technology. She noted that even as teachers learn about technology it must be filtered through the beliefs that they previously held. "Even new information about technology, if attended to at all, will be filtered through these existing belief systems. Thus, teachers are likely to think about technology in the same way they think about other teaching methods, tools, or reform initiatives, depending on if or how they classify technology into one of these categories. Whereas some teachers may think of technology as just another tool they can use to facilitate student learning, others may think of it as one more thing to do (i.e., an innovation). These early perceptions and classifications, then, result in vastly different beliefs regarding if, when, and how to use the tool" (Ertmer, 2005, p. 30). As teacher beliefs are formed they will perceive and classify technology as something they can integrate as a learning tool or just one more thing to put on the list of things they should to do.

Technology use has been constantly growing for the last one hundred years in the educational field. Beliefs and perceptions about technology use are mostly positive and almost all American children have access to handheld devices at home. More than half of all teachers are utilizing technology in their classrooms.

Research Question #2

The second research question investigates how teachers are currently utilizing technologies in their classrooms. In classrooms where teachers have autonomy, there can be large differences and inequalities that exist in relation to technology that is implemented and the access to technology. Not all American public schools have equal access to technology as a learning tool. Even classrooms within the same school can have similarities and differences in regards to the use of technology as a learning tool.

The researcher looked at trends in American schools related to technology as a tool for learning. "Since 1994, the National Center for Education Statistics (NCES) has documented the large increase in access to computers and the Internet in the nation's public elementary and secondary schools" (U. S. Department of Education 2000, p. 1). NCES utilized a national survey and found that ninety-seven percent of teachers had one or more computers located in the classroom every day and that 40% of teachers or students often used computers in the classroom during instructional time (NCES, 2010). So although most classrooms had access to at least one or more computers, teachers or students used less than half of those computers during instructional time. The National Center for Education Statistics also found that the students to computer ratio in classrooms every day were 5.3 to 1 (NCES, 2010). For every five students in a classroom, only one computer was available to them, and less than 40% of those computers are used for instructional experiences. The NCES also found that Internet access was available for 93% of computers

located in the classroom (NCES, 2010). Technology is present in almost all public schools. But the amount that technology is utilized varies widely.

Although technology use has increased in American schools, it does not always mean it will be implemented and used correctly. "As schools continue to acquire more and better hardware and software, the benefit to students increasingly will depend on the skill with which some three million teachers are able to use these new tools" (President's Panel on Educational Technology, 1997, p. 47). As new technology comes into schools, teachers will be an important factor in the implementation process.

There have been introductions of new technologies into classrooms and the field of education but they are not always implemented across the entire field. "Educators have found that new technologies are more difficult to master than anticipated and that such tools can distract students from mastering the academic curriculum. While there have been some exceptions, the net result has been inconsistency and incoherence across the profession" (Malone, 2013, p. 21). New technology implementation faces hurdles in the implementation process. Within one school there may be differences between implementation. Some teachers may implement the use of PowerPoint, interactive games, Twitter, curriculum resources, or Khan Academy. "Another teacher could avoid new technologies altogether. There is little consistency within schools or even within departments in the same school" (Malone, 2013, p. 21). The differences that take place in American schools in relation to technology integration are noticeable and inconsistent.

Research Question #3

The third research question investigates how much the personal beliefs and opinions of a classroom teacher can impact what goes on in the classroom. Teacher's personal beliefs and opinions in American classrooms can have a direct relation to the learning experiences that take place in the classroom. There have been previous researchers who have found evidence of how a teacher's beliefs and perceptions will influence what a teacher may value, how their beliefs will impact how they teach certain content matter, and also how a teacher with constructivist views can impact student learning experiences.

Many researchers have found evidence about how teachers' beliefs can influence their perceptions and judgments. "Few would argue that the beliefs teachers hold influence their perceptions and judgments, which, in turn, affect their behavior in the classroom" (Pajares, 1992, p. 307). Personal beliefs and opinions of teachers can impact many aspects of the classroom, including the use of technology. "Researchers who investigated teacher characteristics and teacher-level factors associated with IT use reported teacher characteristics such as philosophy of education, beliefs, background characteristics as well as access to, experience and confidence with technology as contributors to IT use" (Miranda & Russell, 2011, p. 654). Miranda and Russell also noted that a teacher with constructivist views is more likely to use technology than a teacher with less constructivist views (Miranda & Russell, 2011). If a teacher holds certain views of learning or teaching strategies, they may be more or less likely to utilize technology in their classroom than a

teacher who does not hold those views. Opinions and beliefs are different between each teacher no matter their background or upbringing. Ertmer explains, "It is imperative that educators increase their understanding of and ability to address teacher beliefs, as part of their efforts to increase teachers' technology skills and uses" (Ertmer, 2005, p. 37). For technology to be implemented into classrooms, teacher beliefs should be addressed and understood by policymakers, building and district level administration, and educators themselves. Teacher beliefs are important to consider when making decisions, planning for professional development, and working with teachers. Teachers come into the classroom with different beliefs, opinions, and perceptions that shape the classroom environment, the learning that takes place and the inclusion of technology as an educational tool.

Miranda and Russell (2011) completed a study that analyzed data from 1,040 teachers and found that teaching experience with technology was the strongest predictor of technology integration in the classroom (Miranda & Russell, 2011). For teachers to implement technology in the classroom they must have previous experience teaching with technology. Once the teacher has utilized technology in the classroom, they are more apt to utilize it again.

Levin and Wadmany (2008) performed a three-year research study about teacher views on factors that affect the integration of technology in the classroom. They investigated teachers' educational views and practices once teachers were exposed to teaching and learning with the implementation of technology. The study found that teacher beliefs are shaped by classroom experiences and people that

teachers interact with. Colleagues, administrators, and students impact teacher views and beliefs as well. The study also found that teacher beliefs and the use of technology in the classroom continued to change and evolve over time (Levin and Wadmany, 2008).

Summary

This chapter reviewed the research that has been done pertaining to the use of technology in American society and education. The history of technology use in American education was described. Reviews of related research explored the usage of technology inside the classroom and outside of school. Similar research pertaining to teacher's opinions and beliefs was explored and described. The research questions were shared with reviews of related research. Even though technology use in American education has been met with positive and negative arguments, technology is becoming a present, growing part of society and education. A teacher's prior use of technology, a teacher with constructivist views of learning, teacher interactions with others in the educational process, and teacher support in technology implementation all have an impact on the use of technology as a learning tool in American classrooms.

CHAPTER III

RESEARCH METHODOLOGY

Subjects of Case Study

This case study looked at the perceptions and opinions of teachers in one primary school. The primary school is located in Washington State, in a small, rural school district where more than half of the students received free or reduced lunch. One on one interviews and an online anonymous survey were used to gather results from eight teachers of kindergarten through second grade. Each of these teachers brings their own beliefs and perceptions about teaching, best practices, and technology use into the school setting. The researcher studied the opinions and perceptions of the classroom teachers to look for a connection between their beliefs about technology and the impact those beliefs may have on the implementation of technology in the classroom.

Theoretical Construct

This qualitative research project looks at the theoretical perspective of what one person believes and how their beliefs can impact that of another. When teachers have the opportunity to choose whether or not to implement something in their classroom, researchers want to know why teachers make certain decisions and for what reasons.

Factor 1

The first factor in the theoretical construct of this case study is the personal beliefs and perceptions that teachers hold about technology use in the classroom.

Factor 2

The second factor in this case study is analyzing how much the personal beliefs and perceptions that teachers have about technology use in the classroom have an effect on how much technology they implement.

Research Methodology

This case study utilizes a teacher's personal beliefs and perceptions to conduct research through the use of in-person interviews (Appendix B) and online surveys (Appendix C). Through the use of these procedures, researchers hope to receive information about how personal feelings and opinions about technology can impact the use of it in the classroom and what that means for the student. The in-person interviews were done in honest, replicable ways, and asked questions that provided information on the teachers' personal beliefs and what their feelings may be and the information they believe shapes their feelings. The Human Subjects Review Council at Central Washington University approved the research methodology for this case study (Appendix A).

Research Question #1

How do primary teachers describe their beliefs, opinions, and perceptions about the use of technology in and outside of the classroom?

To research how teachers will describe their personal beliefs, opinions and perceptions about the use of technology in and outside of school the researchers decided to do one on one interviews. These private interviews allowed the teachers to anonymously share their personal feelings and beliefs about technology being

used inside the classroom and outside of school. The interview asked questions to teachers about how they were feeling when they use technology outside of school. Teachers were also asked how the use of technology in the classroom made them feel. The online survey was also used to illicit anonymous information from the teachers about whether they agreed or disagreed with different aspects of technology use and beliefs about technology

Research Question #2

In what ways do primary teachers utilize technology in their classroom as a learning tool?

Researchers were able to research the second question through the interview questions that gave detail into how technology is utilized in each teacher's classroom. Teachers were asked what types of technology they utilize and what different programs, apps, websites, or services were used when utilizing technology. The survey also asked questions about technology use in the classroom and questions pertaining to learning standards for technology.

Research Question #3

How much do teachers' beliefs and perceptions about technology impact the use of it in their classroom?

To be able to look at how much a teacher's beliefs and perceptions about technology use impact the use of it in the classroom, researchers used the interview data and correlated it to how much technology use each teacher has. Teachers were rated from most technology use to least technology use. After teachers were placed

on the technology use scale, researchers looked for trends in the coded information. The survey information was also used to discover trends related to how teacher beliefs and perceptions may impact how technology is actually utilized in the classroom.

Setting

Participants for this case study are teachers in a rural school district in Washington State. This school provides education for students from kindergarten to second grade. This school is a Title 1 school, which has over 50% of students from low-income families. This is an appropriate setting for recruiting teachers to discuss their perceptions and beliefs about using technology in the classroom because it is not provided to the teachers in this school. This district does not provide classroom technology, technology specialists or specific technology instruction and support.

Population

The researcher was able to seek out a voluntary group of public school teachers. Participants were asked in person to participate in an in-person interview of 31 questions and an online survey of 28 questions. This study does include age but does not include variables such as education or race. Questions will seek to find beliefs and perceptions the teacher may have related to technology and will allow teachers to speak freely. The sample size of the population is eight teachers. Having a small sample size is the norm for qualitative research. This will allow for deep introspection into teacher responses and the connection and differences between all teachers' answers.

Ethical Considerations

Ethical considerations were made regarding teacher anonymity. Participants were notified that they have rights and were able to exit being a part of this study at any time. The IRB Committee and Central Washington University Human Research Committee approved this study. Researchers take on responsibility when doing a case study to make their participants feel safe, anonymous, and that the researcher is following protocol.

Research Design

The process of this research study began with the creation of questions for the interview and survey. The interview instrument questions range from personal experiences with technology, technology use in the classroom, and questions that look into opinions and beliefs related to utilizing technology as a learning tool. Once the questions for the interview and survey were approved, participants were asked if they would like to volunteer for the case study. Interviews were planned for a one on one private meeting with each teacher. Interviews took about 20 to 30 minutes. Once all teachers had finished their in-person interview, all teachers were emailed a link to participate in the online survey. Teachers were asked to finish the survey within one week.

Interview results were then coded based on themes. Some themes that were coded were for negative and positive feelings, teacher feelings of confusion, helplessness, or a teacher's self-concept being formed. Interviews were also coded for home and school connections, assessment being mentioned, teachers making

assumptions, or teachers who want a change to take place. Interviews were also

coded for student growth taking place, thoughts on the future and students' future,

thoughts on supervision and also concerns that the teachers had. After interviews

were coded for these different themes, the data were organized based on teachers

who used technology the most to teachers who used technology the least. The

average for each category was then found and assumptions were made based on the

organized data findings. The data from the interviews were also used to see how

teachers have similar comparisons for their opinions and beliefs about technology

in the classrooms, which were compared to how much technology they chose to

utilize in their classrooms.

Data from the online anonymous survey were used to find similarities,

differences, and correlations with the data from the interviews. The use of the online

survey helped to show in which direction the teachers were leaning towards based

on certain questions regarding technology and technology integration in the

classroom. The survey results were used to find correlations between the interview

and survey and make connections to the results of the interviews.

Data Analysis Strategy

Qualitative data analysis looks at relationships and themes that are present

in the data. Utilizing the Framework Method for data analysis allows for deep

introspection into the interviews to find connections between the interview results.

The Framework Method allows the researcher to code the interviews to look for

repeating themes and phrases. The themes that became apparent during the

interview coding process are then organized and analyzed. Similarities and differences become apparent during the coding and the analyzing process. The researcher is then able to deduce information from the results of the coded interviews. Using the Framework Method for qualitative data analysis allows for deep introspection into a case study that utilizes interviews.

Summary

This chapter gave information related to the research methodology, the setting, the research participants, the research design and the data analysis. This case study began with the creation of questions to probe into the beliefs and perceptions teachers may have about using technology in their classroom. The setting and population were shown to be an appropriate participant group for this case study. The research design and data analysis are also appropriate to this case study through the use of the Framework Method for qualitative data analysis.

CHAPTER IV

RESULTS

In this chapter, the researcher will report and analyze the data that were collected from the teacher interviews and surveys. This chapter will begin with a look at the participants involved in this case study and then the data analysis strategy. The use of the Framework Method for qualitative data analysis is a preferred choice for this case study. "The Framework Method is an excellent tool for supporting thematic (qualitative content) analysis because it provides a systematic model for managing and mapping the data" (Gale, Heath, Cameron, Rashid, & Redwood, 2013, p. 7). The summary of findings from the coding and analysis is also described. This case study was utilized to find teachers' beliefs and perceptions about the use of technology in the classroom with the use of the Framework Method to organize and analyze the data.

Participants

The teachers who participated in this case study teach kindergarten, first grade, and second grade. All of the teachers teach at the same school. These teachers range in age from age groupings of 20-29, 30-39, 40-49, and 50 and above. Two teachers were from the 20-29 range, one teacher from the 30-39 range, two teachers in the 40-49 range and four teachers in the 50 and over range. Participants were chosen because they volunteered to participate in the interview and survey process. All of the participants were female. Participants were not asked to specify race or length of their teaching career. Each interview took about 20-30 minutes to

complete. Of the teachers who took place in the case study, two did not use technology at all, three teachers used technology but not on a regular basis, and three used technology in their classroom every day.

Data Analysis Strategy

Once the interviews were finished the results were used for coding using the Framework Method for qualitative data analysis. The Framework Method allows for coding to help organize the data. "Coding aims to classify all of the data so that it can be compared systematically with other parts of the data set" (Gale, Heath, Cameron, Rashid, & Redwood, 2013, p. 4). Coding helps to organize the data so researchers can investigate themes, similarities, differences, and correlations that may appear in the data.

Data Analysis and Coding

Qualitative data analysis includes three levels of coding for deeper analysis and insight. The first layer of coding was looking for keywords and themes that were common between the interviews. Themes and phrases appeared. Memos about common themes were listed and tallied to decide which themes were recurring throughout the interviews.

For the second layer of coding, each interview was coded and highlighted following the common themes. Fourteen common themes were highlighted and coded throughout the interviews. The following themes were coded in the interviews: positive feelings, negative feelings, confusion, helplessness, self-concept being formed, inequalities, student home life connection, assessment, teacher

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assumptions, want for change, student growth, thoughts on the future, supervision, and concerns. Every time positive and negative feelings from the teacher came up in the interviews they were coded. If the teacher shared feelings of confusion, helplessness, and if the teacher's self-concept was being formed it was coded. If teachers shared about inequalities around technology whether at school or in a student's home life, those were highlighted as well. When a mention of student home life and school connection came up it was coded. If a teacher brought up technology use for assessment or when an assumption was made relative to technology it was highlighted. If a teacher brought up a desire for change in their classroom, student growth, or thoughts on the future those themes were coded. Thoughts on supervision while students are using technology and concerns about the use of technology were marked and coded as well. These were the fourteen common themes that were found through the Framework Method of data analysis.

The third level of the interview coding was to organize the themes and chart the findings. "The development of themes is a common feature of qualitative data analysis, involving the systematic search for patterns to generate full descriptions capable of shedding light on the phenomenon under investigation" (Gale, Heath, Cameron, Rashid, & Redwood, 2013, p. 3). Each theme coded from each interview was counted and placed in a chart for each teacher. Once all fourteen themes were coded and categorized for each teacher, the charts were then organized from teachers who described using the most technology in their classroom to teachers who described that they did not utilize technology at all. This allowed for organized

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data that allowed for new emergence of themes, information, and findings.

The use of an anonymous online survey allowed for teachers to answer honestly to questions related to their beliefs and perceptions about the use of technology in education. Teachers were sent an email that brought them to an anonymous Qualtrics survey. The survey asked twenty-eight questions with responses ranging from strongly agree, agree, disagree or strongly disagree. The survey did not include open responses. This survey provided results that were organized and themes were identified and coded. Because the survey was anonymous, it did not allow for the arrangement of results from teachers who use the most technology to teachers who use none. The results of the survey were used to track differences from the results of the interviews.

Summary of Findings

This section describes the results of the data coding and analysis. The research questions will be used to discuss the findings. The results from the coded interviews are available in Table 1.

RQ1: How do primary teachers describe their beliefs, opinions, and perceptions about the use of technology in and outside of the classroom?

The eight primary teachers interviewed for this case study were able to describe their beliefs and perceptions about technology use in and outside the classroom. Outside of the classroom, all of the teachers said they utilize technology for personal use. All of the teacher participants said that they had positive opinions of personal technology use and that they do like using technology in their personal

lives. Six of the eight teachers had utilized technology when they were a student except for two teachers in the 50 & over age range. Every teacher mentioned that they use technology in their personal lives for communication or social media. All of the teachers interviewed mentioned their phone as a type of technology they utilize. All of the participants utilize technology outside of the school and mentioned positive aspects of technology use in their personal lives.

Teacher beliefs and opinions on utilizing technology in their personal lives ranged from describing they have no feelings one way or another when using technology to the belief of not being able to live without it. One participant described technology for personal use as wasting a lot of time. Two teachers described a feeling of being "sucked in" to the technology. Participants described feeling happy, excited, frustrated, good, tired, and enjoyment when using technology in their personal lives. Two teachers had the perception that technology made the world available to them at their fingertips and their opinion was that technology was helping and informing them. All of the participants shared that they have positive feelings or no feeling either way when they are utilizing technology in their personal lives. The researcher also wanted to note, that the teacher who does not feel one way or another about technology use for personal life is also the teacher who does not utilize technology in her classroom and does not want more technology in her classroom.

The teacher participants describe their beliefs, opinions, and perceptions about the use of technology in the classroom differently from one another. Teachers

perceived technology in the classroom to be beneficial for giving immediate feedback, learning skills like keyboarding and using the mouse, providing differentiation for at student level learning experiences, preparing them for life skills because technology is everywhere, to gain fine motor skills, for skills students need later in life and outside of school, student engagement, and students are being informed about the world. Two teachers shared a perception that students are getting enough access to technology at home. Outside of the classroom all of the teacher participants use technology and had positive beliefs and perceptions about it.

Although all of the teachers shared positive beliefs and perceptions of technology for personal use, the coded interviews revealed that only one of the teachers interviewed had more positive mentions of technology than negative. All of the teacher participants, no matter their amount of technology usage in the classroom, were able to share their perception of benefits from using technology. Only one of the teachers had more overall positive beliefs and perceptions of technology than negative. Every teacher who uses technology had experienced feelings of helplessness in relation to utilizing technology in their classroom. Of the teachers who did utilize technology, only the teachers in the 20-29 age range did not state confusion about how to utilize computers into their classroom. Of the eight teachers who were interviewed, seven of them brought up that they have concerns about utilizing technology in their classroom. Five teachers also brought up concerns about supervision in relation to when students are utilizing technology. All

of the teachers, even the ones who do not utilize classroom technology perceived classroom technology use to have benefits. Although benefits have been perceived, teachers still have confusion, concerns, and feelings of helplessness in relation to utilizing technology in their classroom.

Teachers also shared perceptions about student growth, home life connections and assessments on technology. Every teacher mentioned a connection between the student's home life and school in relation to technology. Only four of the eight teachers brought up that the district provided assessment takes place on technology. All eight of the teachers made assumptions about technology use in their classroom and the assumptions were perceptions that they believed to be true but were opinion based.

Six of the teachers mentioned that they want a change in their classroom in relation to technology. One teacher was waiting to receive four Ipads to implement more technology. She believed that the addition of Ipads will help her low readers, and would make her reading rotations "much better". Another participant mentioned a want for change of adding computers in her classroom and not needing to use the computer lab. Two teachers mentioned wishing for a change in district-provided technology, specifically the opinion that a Smart Board would be beneficial for their classroom. Four teachers wish to change the number of computers they have in their classroom and they all stated they want more Chromebooks. One of the teachers has the perception that if she gets more Chromebooks she will have to do homework to "figure out how to use it and in what targeted ways and not just

throwing kids on it." A second-grade teacher wanted to be able to use technology as a way for students to publish their writing.

Six of the teachers also mentioned how using technology can add to or change student growth. They perceived that when technology was implemented in a classroom that student growth was improved or changed.

Five teachers also brought up their beliefs and perceptions about their students' future and the future of their classroom practices. One teacher mentioned a feeling of adding technology into the classroom routine felt like the right thing to do because it is 2018. A teacher also perceived that the use of technology could be a way for students to communicate and share with their mom or dad what they are working on at school. Two teacher participants mentioned using technology to connect with an international class or class around the country to make connections with and for their students. One teacher also made a goal to add in typing practice every week in his or her classroom routine. A participant mentioned, "Technology is definitely something we should all be integrating because these children, this is their life." And that students need to understand that "computers are something they are going to be using for education, not just fun." One participant had an opinion that for second grade there may be too much emphasis on writing when students should focus on typing, as they grow older. A teacher noted that her students needed to be prepared for their future and need to develop the necessary skills to help them succeed. Also that using technology in the classroom is helping students to be ready in a society that values technology and it is crucial that

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students be exposed to it and know how to use it. Another teacher explained that "in this day in age we are, students should be exposed to technology and students should learn to use a computer, use a mouse, locate keys. It even goes into phonological awareness skills, and I think it goes into life skills later in life even past college, outside of school." One teacher brought up how cyber-bullying affects students and how it is going to become worse over time. Her perception is that as an educator she wants to help her students not go down that path, and help students see technology as a successful resource and not a place to bully or ridicule people.

RQ2: In what ways do primary teachers utilize technology in their classroom as a learning tool?

The eight primary teacher participants were also able to describe their level of technology use inside their classroom. Teachers were asked what types of technology they currently have and utilize in their classroom. Four teachers described how they utilize technology in their classrooms every day. One teacher who utilized technology daily had a class set of Chromebooks, another teacher who implemented daily technology didn't have classroom computers but utilized the school computer lab daily, and the two other teachers who use technology daily in class have five Chromebooks inside their classroom. Two teachers described using technology sometimes. One of them has three Chromebooks inside her classroom and uses the computer lab 2-3 days a week, the second teacher has Chromebooks and Ipads but describes that they are not used very much. There were two teachers who do not utilize technology in their classroom and one of them was working with

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Donors Choose to get four Ipads, the second teacher who does not use technology only uses it for the Measure of Academic Progress (MAPs) testing.

Teachers who utilized technology described different ways of using it in their classroom as a learning tool. One of the teachers who used technology daily described using technology for math, reading, listening to stories, spelling, and writing stories. She perceived this use of technology to be beneficial to her students because she can differentiate to her students' needs. The second teacher who utilized technology daily in the classroom described using a reading program and math program. Students also used Chromebooks for research and for learning games. The teacher perceived this technology to be beneficial to students because it can help students who are struggling with reading, and the math program is at the student's level. The third teacher who utilized daily technology had students use Chromebooks during reading groups. She perceived technology as being beneficial to students because students are gaining fine motor skills and that students need to be exposed to technology and know how to use it. The fourth teacher who utilized technology daily in her classroom had students listen to audiobooks, play literacy or leveled math games and do online research. She perceives this technology to be beneficial to students because it is preparing them for skills because technology is around them everywhere and they should know how to utilize it.

The first teacher in the sometimes use of technology category describes using reading apps, math resources, and a phonics based program. She perceives that students are getting a lot of access to technology at home, so at school, there is a

focus on teaching them how to use the mouse and keyboard for assessment purposes but not on a regular basis. The second teacher in this category used technology in the classroom for reading, math, and research. She perceives this technology to be beneficial to the students because if the technology gets them engaged in reading and informing students about the world, then that is beneficial.

The first teacher in the category of no technology use felt as though she should have some technology because it is missing from her classroom. She wanted to use technology for math practice. The second teacher in the no technology category described that students only ever use technology for MAP testing. She perceived that students are having enough technology at home and she did not want any technology in her classroom.

The public school teachers in this primary school had a wide range of technology use and perceptions about technology that was used in their classroom. None of the teachers used the exact same methods, amount of time, or had the same perceptions about the implementation of technology in their classroom. All of the teachers had different perceptions and ways of utilizing technology in their classroom as a learning tool.

RQ3: How much do teachers' beliefs and perceptions about technology impact the use of it in their classroom?

The researcher looked at teacher beliefs and perceptions about technology and how those beliefs and perceptions impact the use of technology in the classroom. All of the teachers held positive and negative feelings about technology

use. The two teachers who utilized the most technology had the least amount of negative feelings that were mentioned. Only one of the teachers had more positive feelings than negative feelings in regards to using technology in the classroom. This teacher was also one of the ones who utilized technology daily in the classroom. The two teachers who were in the age range 20-29 were the only two teachers who utilize technology in their classroom who did not mention confusion in the implementation process. These two teachers also brought up how they had been utilizing technology in their own education since they were in elementary school. All of the teachers who utilize technology in their classroom also mentioned feelings of helplessness. All eight teachers also mentioned a connection between technology and the student's home life. The researcher noticed that even though the teachers who used technology in their classroom did hold negative feelings and feelings of helplessness, it did not impact the use of technology as a learning tool in the classroom. Six of the teachers held negative beliefs and perceptions of technology but continued to utilize technology in their classroom anyways. Half of the teachers mentioned assessment as an important factor in the utilization of technology. The teachers who utilize technology in their classroom also mentioned how technology can add to student growth. The two teachers who did not utilize technology in their classroom did not mention student growth through the use of technology. Of the two teachers who did not currently utilize technology, one of them was in the process of adding technology to her classroom routine and one of them had no desire to add technology into her classroom. The teacher who did not have a desire to add any

technology to her classroom was in the 50 and over age range.

     The online anonymous survey (Appendix C) showed that teachers held similar perceptions and beliefs about technology use in an early childhood education classroom. Teachers had the opportunity to respond to statements about technology and its use in the classroom and were able to respond: strongly agree, agree, disagree, or strongly disagree. The survey revealed that all teachers agreed or strongly agreed that technology allows for individualized learning and that the use of technology is fun for students. The survey also showed that all eight of the teachers agree or strongly agree that using technology helps students prepare for assessments and that teachers like having the choice to use technology in their classroom or not. Technology is not a choice in all primary schools, but in this school the use of technology is not enforced, but up to the discretion of the teacher. The district does not provide classroom computers or Ipads, but the school does have a computer lab. The teachers in this small rural district also all agreed and strongly agreed that larger school districts have more technology integration support. All teachers no matter the amount of technology they implemented in their classrooms also agreed and strongly agreed that they would like more professional development about technology and that using technology is an important 21st-century skill. All of the teachers who took the survey at this school had the perception that technology is fun for students, allows for individualized learning, and technology would help prepare students for assessments. All eight of the teachers also like having the choice of whether or not to use technology in their

classroom, they all shared the understanding that technology is an important 21st-century skill, and all of the teachers are interested in more professional development about technology.

The online anonymous survey also showed that teachers hold different perceptions and beliefs about technology use in primary school. Six teachers stated they agreed or strongly agreed that they were confident in their ability to use technology, while two teachers did not. Teachers also did not agree on whether the use of technology was an important use of class time, whether Chromebooks were needed in every classroom, or the belief technology is hard to use. They also did not agree on whether schools should enforce the use of technology in the classroom or the belief that high-stakes testing is best done on computers. Only two of the teachers agreed that they were knowledgeable about the Washington State Technology Standards. The results of the survey showed that teachers leaned towards the same beliefs for only seven of the twenty-eight questions that were asked. Teacher beliefs were spread across the spectrum of agreeing and disagreeing with the statements made about technology use in education. The survey results are available in Figure 1 and Figure 2.

Summary

This chapter included information on how the Framework Method for qualitative data analysis was used to collect, analyze and code the data. Coded interview results are available in Table 1. Participants were discussed, the data analysis strategy was shared, and the three levels of coding were explained.

Interviews were coded to find common themes. Once common themes were found,

the researcher was able to organize the results and place data along a continuum of

teachers who use no technology to teachers who describe using the most

technology. The data was shared in reference to the research questions. The results

of the online anonymous survey were also shared in relation to the case study.

CHAPTER V

DISCUSSION, CONCLUSION, SUGGESTIONS FOR FUTURE RESEARCH

In this chapter discussion will take place, conclusions will be made, and suggestions for future research will be shared. First, a discussion will be shared about the findings of the case study in relation to the research questions. Next, conclusions will be made in regard to the significance of the data. Last, the researcher will make recommendations and suggestions for future research.

Discussion

This case study investigated how teacher beliefs and perceptions can impact the implementation of technology in early childhood education classrooms. The data collected from this project shed light on the large differences that exist in relation to teacher beliefs and perceptions and the variations in the amount of time and uses for technology within one primary school. The data revealed that all of the teachers held negative beliefs and perceptions of technology, but most of the teacher participants chose to utilize technology in their classrooms despite holding negative beliefs and perceptions. The case study discussion will interpret the findings based on the research questions.

Research Question #1

How do primary teachers describe their beliefs, opinions, and perceptions about the use of technology in and outside of the classroom?

This case study allowed for teachers to describe their beliefs, opinions, and perceptions about the use of technology in and outside the classroom. All teachers held negative and positive beliefs about technology use in the primary education classroom. However, only one of the teachers held more positive than negative beliefs. The teachers all agreed that technology was fun for students and allowed for individualized learning. This study also found that all of the teacher participants utilized technology in their personal lives and held positive personal beliefs about their personal life use of technology, but that did not have a correlation to the utilization of technology in the classroom. All of the teachers noted that there are inequalities that exist between their small rural district and larger districts when it comes to technology support.

Research Question #2

In what ways do primary teachers utilize technology in their classroom as a learning tool?

This case study investigated how technology is utilized in different early childhood education classrooms as a learning tool. The researcher found that in a school with teacher autonomy, all teachers held varying levels of technology usage and the amount of time that students utilized technology. Two teachers utilized no technology as a learning tool, with one of those teachers who wanted to add Ipads into their classroom routine. There were two teachers who used some technology as a learning tool in their classroom. And four teachers who chose to utilize technology every day in their classroom with the use of Chromebooks. Even within the

classrooms that utilized technology every day, teacher beliefs about the appropriate time for technology use ranged from 20 minutes to 30 minutes to no more than an hour. All teachers described some positive aspects for the technology that can be utilized at school, even the teachers who did not currently implement technology in their classroom. Only one of the teacher participants held higher positive beliefs and perceptions about technology use in the classroom, and that teacher was one of the participants who utilized technology every day as a learning tool.

Research Question #3

How much do teachers' beliefs and perceptions about technology impact the use of it in their classroom?

The researcher investigated how much a teacher's beliefs and perceptions about technology will impact the usage and amount of technology a teacher chooses to use in their classroom. The results of the case study showed that there were more negative than positive beliefs and perceptions about technology use in the primary classroom. Even teachers who held more negative than positive beliefs and perceptions about technology still implemented it in their classroom. The teacher who utilized the most technology and the teacher who utilized the least amount of technology shared the same amount of positive and negative feelings. However, the teacher who utilized technology every day mentioned instances of confusion, feelings of helplessness and concerns related to technology integration. The teachers who utilized technology in the classroom held more confusion and helplessness towards technology integration, but also had a higher number of

assumptions they made towards technology. Teachers with technology use also had more want for change in their classroom and beliefs on student growth and thoughts about the future and technology's role in the future. Teachers held a wide range of beliefs and perceptions with most of the beliefs being negative. The less amount of technology utilization in the classroom led to higher amounts of negative feelings and beliefs. So although all teachers held negative beliefs about technology, the less they used technology in the classroom, the more negative feelings, beliefs, and perceptions they had. Teachers with more technology use, held less negative feelings, beliefs, perceptions, and opinions. Teacher beliefs and perceptions did hold a correlation between negative feelings and the amount of technology use in the classroom. The data shows that the more negative beliefs and perceptions a teacher holds towards technology use in the early childhood education classroom would mean there is less chance for the teacher to implement technology as a learning tool in their classroom. The outlier in the data is the teacher who used no technology who did not describe any confusion, concerns, or feelings of helplessness because there was no attempt to utilize technology and the coding of her interview revealed all of her responses to be less than the norm of other respondents.

Conclusion

The teacher participants in this case study held a wide range of beliefs, opinions, and perceptions about the use of technology in primary education. All of the teachers shared an interest in professional development in relation to technology implementation. Teachers can hold many different beliefs and

perceptions, even mainly negative feelings and opinions towards technology, which didn't impact their choice to implement technology as a learning tool in their classroom. Technology is an area of concern for teachers but most of the participants chose to make it a part of their classroom routine and student learning experiences. The researcher concludes that teachers held mainly positive beliefs about technology use for personal life but also held negative beliefs about technology use in education. Meaning that not all teacher perceptions and beliefs about technology use were negative. The researcher notes that all eight early childhood education teachers, in this case study, no matter their perceptions and beliefs about technology use in education agreed or strongly agreed that they desired more professional development about using technology in their classroom. School districts, district level administration, and building administration should recognize that teachers of all beliefs and perceptions of technology use in education aspire to learn more about the implementation of technology in the classroom. All eight of the teacher participants held positive and negative beliefs and perceptions, they all held a desire to know more about technology integration, and they all enjoyed using it in their personal life, which led the researcher to believe that teachers need more support and learning experiences on how to best implement technology in their classroom. The researcher also notes that the more technology integration a teacher had, resulted in less negative beliefs and perceptions about the use of technology in the classroom. The researcher also concludes that if a teacher utilizes more technology in their classroom the negative beliefs and perceptions will

go down. The implementation of more technology in the early childhood classroom should be done by supporting teachers in the implementation and teaching process, providing professional development on technology integration and best practices, and helping to shape positive beliefs about the use of technology in the classroom.

Suggestions for Future Research

The study of technology integration in classrooms should be an ongoing process. Technology changes at a rapid pace and the study of its implementation in schools should continue to be researched. Teacher beliefs and perceptions should also continue to be researched. Researching teacher beliefs and perceptions gives insight into why certain choices happen in some classrooms and not others. Future research on the same topic should look at a larger sample size of teachers to give a better representation of the entire teacher population beliefs and perceptions. Research that looks into best practices to support early childhood education teachers in the technology implementation process should be investigated as well.

Summary

The purpose of this qualitative study was to explore how the professional beliefs and perceptions of teachers in early childhood education influenced their acceptance for the use of interactive technology as a learning tool for children. There were eight primary grade teachers in a rural school district in Washington State who were interviewed and took part in an online anonymous survey. Of the eight early childhood education teachers, two had no student technology use in their classrooms. The second group of two teachers had some student technology use on

a weekly basis, and the last group of four teachers utilized daily student technology in their classrooms. The data were looked at through the Framework Method, which helped determine similarities or differences in the results. This case study focused on beliefs and practices that teachers hold, and how it influences the implementation and use of technology in the classroom concerning student's use and experiences. This case study provided information for teachers, administrators, and the educational community. Recommendations for future research were discussed.

This case study looked to address the problem of how the personal perceptions and beliefs of the teacher can have an impact on the use of technology in the early childhood education classroom and the differences that exist between classroom teachers for implementing technology as a learning tool. Also if a teacher's personal opinions about a tool like technology are negative it is important to look at if those beliefs will have an impact on the student's opinion of technology, their ability to use technology, or the future of their education or career in the future?

The research questions were measured by this case study to investigate the beliefs and perceptions teachers held about the use of technology inside and outside of the classroom. Teachers were asked what types of interactive technology they had been currently using in their classroom. The third research question asked to what extent did teacher perceptions and beliefs impact the implementation of technology in the early childhood education classroom. Significant findings from this

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case study were that all of the teacher participants held negative beliefs and perceptions about the use of technology in an early childhood education classroom. Only one teacher held more positive beliefs and perceptions than negative. The case study revealed that the more negative beliefs and perceptions a teacher held, the less amount of technology they were to implement. Teachers with less negative beliefs and perceptions of technology were more likely to utilize technology in their classrooms.

The researcher recommends that teachers be supported in their implementation of technology, especially where teachers hold negative beliefs and perceptions about technology. All of the teacher participants agreed or strongly agreed that they desired more professional development around technology integration in the classroom. The researcher recommends that school districts and school district and building level administration should understand that as technology use increases in a classroom, negative teacher beliefs and perceptions about the use of technology go down. As teachers are supported in the technology integration process, their negative beliefs will decrease as they are supported and become comfortable with utilizing technology in the classroom. All eight teachers agreed that larger school districts have more technology support and the researcher recommends that all schools in America should be supported and provided the same technology support and resources. The researcher recommends that schools support teachers who want to implement technology in their classrooms and provide relevant professional development.

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Appendices

Appendix A

Research Participant Informed Consent

Central Washington University

RESEARCH PARTICIPANT INFORMED CONSENT

Study Title: EXPLORING EARLY CHILDHOOD TEACHERS' BELIEFS AND PERCEPTIONS ABOUT THE USE OF TECHNOLOGY IN THE CLASSROOM

Investigators: Sharron Hallanger, Curriculum, Supervision, and Leadership, ███████████, sharron.hallanger@cwu.edu

1. What you should know about this study:
- You are being asked to join a research study.
- This consent form explains the research study and your part in the study.
- Please read it carefully and take as much time as you need. You will get a copy to keep.
- Ask questions about anything you do not understand now, or when you think of them later.
- You are a volunteer. If you do join the study and change your mind later, you may quit at any time without any penalty.

2. Why is this research being done?
We want to better understand how teacher's opinions and beliefs affect their use of technology in the classroom. We will interview 8 individuals about utilizing technology in the classroom. You may not directly benefit from taking part in the research. However, we hope the results of this study will help us better meet the needs of teachers and students when it comes to utilizing technology in the classroom.

3. What will happen if you join this study?
If you agree to be in this study, we would like to do a face-to-face interview with you and an online survey. we will schedule a convenient time to interview you. It will take about 30 minutes. We will ask questions about if you use technology in your classroom, and why or why not. We will not use your name on our notes or in the written report unless you give us permission to use your name. The online survey will be anonymous and consist of 28 questions. Taking about 10-15 minutes to answer. You can agree to be in the study now and change your mind later. If you want to withdraw from the study we will ask you whether we may use any information gathered up to that point.

4. What information about you will be kept private and what information may be given out?

Taking part in this study is voluntary. You can stop at any time. Information about you is confidential but necessary to contact you about where and when we will meet. We will not identify you in any way in our notes and reports unless you give us specific permission below.

5.   What should you do if you have questions about the study?

Call the principal investigator, Sharron Hallanger at (425) ███████. You may contact the CWU Human Protections Administrator if you have questions about your rights as a participant or if you think you have not been treated fairly. The HSRC office number is (509) 963-3115.

6. What does your signature on this consent form mean?

By signing this consent form, you are not giving up any legal rights. Your signature means that you understand the study, have been able to ask questions about the information given to you in this form, and you agree to join the study.

Initial here _____ if you give permission for your name to be used in notes and reports.

Participant's Printed Name: _____

Participant's Signature: _____Date: _____

Appendix B

Case Study Interview Questions

Case Study Interview Questions

EXPLORING EARLY CHILDHOOD TEACHERS' BELIEFS AND PERCEPTIONS
ABOUT THE USE OF TECHNOLOGY IN THE CLASSROOM

1. What grade do you teach?
2. What is your age group?
   a. 20-29   30-39   40-49   50 & Over

3. What is your initial reaction, feeling, or perception to being interviewed about technology in your classroom?

4. Did you use technology when you were a student? For what uses?

5. Explain your personal experience and usage of technology outside of school.
   a. Do you like using technology in your personal life?
   b. What types of technology do you use at home?
   c. What do you use the technology for?
   d. How much time do you spend using technology in your personal life?
   e. How do you feel when you are using technology at home?

6. What types of technology do you currently have in your classroom?
   a. How often do students use this technology?
   b. What are students doing on this technology?
   c. Do you feel like this is an adequate amount of technology?
   d. Do you perceive this technology to be beneficial to the students?

7. Do you wish you had more technology in your classroom?
   a. If so, what kind of technological devices?
   b. How would you like your students to use this technology?
8. Do you feel fully capable of using technology in your classroom?
   a. Is there anything that you feel limits your ability to include technology in the learning process?
   b. How do you feel when you are not able to adequately use technology in your classroom?
   c. Do you feel as though you are doing as much as you can to include technology? Do you wish you had more? Less?

9. For your grade level, what do you think is the appropriate amount of time technology can be used for this age group?
   a. What do you think are the best uses of technology for these students at this age level?
   b. What do you think are the least important uses of technology for these students at this age level?

10. What aspects of technology can negatively affect your students?
    a. What do you believe are other reasons technology use is negative or detrimental to children?
    b. Is there any research you are aware of that shows the negative aspects of technology in education?

11. Are you aware of any positive aspects of technology use in education?
    a. Is there any research you are aware of that shows the positive aspects of technology in education?

If you had to summarize your beliefs about technology in the classroom in one to two sentences, what would those sentences b

Appendix C

Case Study Online Survey Questions

Case Study Online Survey Questions

EXPLORING EARLY CHILDHOOD TEACHERS' BELIEFS AND PERCEPTIONS
ABOUT THE USE OF TECHNOLOGY IN THE CLASSROOM

Rating System

Strongly Agree – Agree – Disagree – Strongly Disagree

1. I am confident in my ability to use technology.
2. Technology is an important use of class time.
3. Technology allows for individualized learning.
4. Technology can help all students learn.
5. Chromebooks are needed in every classroom.
6. 1-to-1 computers would help my students.
7. I like using technology.
8. Technology is fun for students.
9. Technology is hard to use.
10. My class would do more technology if someone else could teach it.
11. I am knowledgeable about the Washington State Technology Standards.
12. Using technology helps students prepare for assessments.
13. Too much technology is a bad thing.
14. Technology can have harmful effects on children.
15. Technology is a useful learning tool.
16. I use my classroom computer mainly for email and grades.
17. I would like more support implementing technology in my classroom.
18. I like having the choice to use technology in my classroom or not.
19. Schools should enforce the use of technology in the classroom.
20. High-stakes testing is best done on computers.
21. I think it is best to let teachers decide if they will use technology in their classroom or not.
22. Technology should be used everyday in the classroom.
23. Ipads are a useful technology tool in the classroom.
24. Students from low socioeconomic backgrounds need more technology use time.
25. I would like more professional development about technology.
26. Students in primary school (k-2) should not be using computers or Ipads in school.
27. Larger school districts have more technology support.
28. Using technology is an important 21st Century skill.

Appendix D

Tables

Table 1 – Coded Interview Results Table

Coded Interview Results Table

	Teacher	Negative Feeling	Positive Feeling	Confusion	Helplessness	Self Concept	Inequalities	Student home life connection
Most computer usage	A	2	2	1	2	2	1	1
	B	2	9	1	1	2	1	1
	C	7	7	0	1	1	1	3
To	D	8	3	0	1	3	0	1
	E	5	6	1	3	4	2	1
Least Computer usage	F	8	2	1	1	3	1	2
	G	11	7	1	1	1	0	1
	H	2	2	0	0	0	1	2
Average		5.6	4.8	.6	1.3	3.1	.9	1.5

Teacher	Assessment	Assumptions	Want for Change	Student Growth	Thoughts of the Future	Supervision	Concerns
A	1	1	1	2	0	0	1
B	0	5	2	1	3	3	1
C	0	3	2	4	1	1	0
D	1	1	1	1	4	2	4
E	0	1	1	5	3	3	3
F	4	2	0	1	0	0	1
G	0	1	2	0	4	2	3
H	1	1	0	0	0	0	2
Average	.9	2	1.1	1.8	1.9	1.4	1.9

Figures

Figure 1 – Online Survey Results Graph
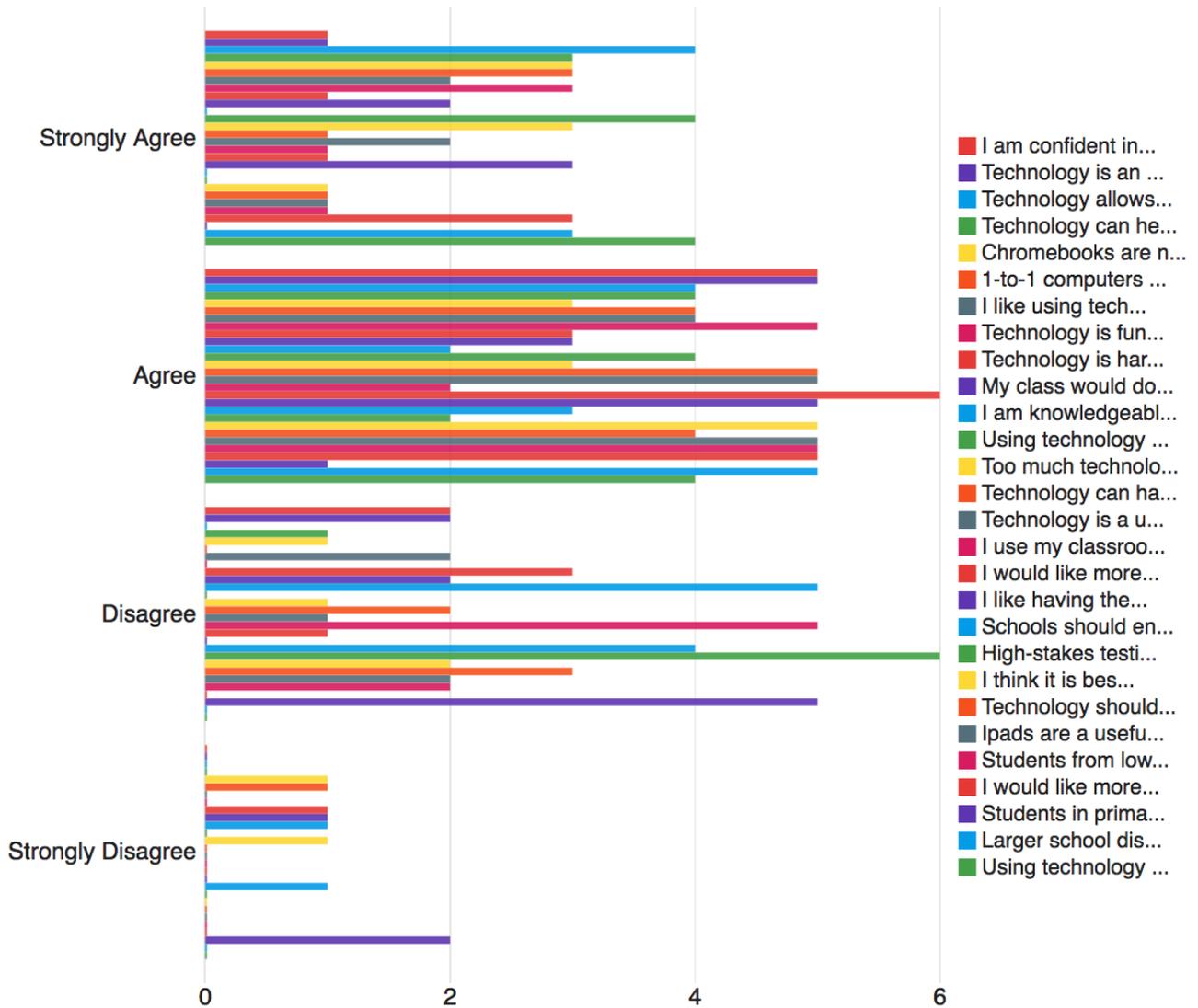
Figure 2 –Online Survey Results

Field	Strongly Agree	Agree	Disagree	Strongly Disagree	Total
I am confident in my ability to use technology.	1	5	2	0	8
Technology is an important use of class time.	1	5	2	0	8
Technology allows for individualized learning.	4	4	0	0	8
Technology can help all students learn.	3	4	1	0	8
Chromebooks are needed in every classroom.	3	3	1	1	8
1-to-1 computers would help my students.	3	4	0	1	8
I like using technology.	2	4	2	0	8
Technology is fun for students.	3	5	0	0	8
Technology is hard to use.	1	3	3	1	8
My class would do more technology if someone else could teach it.	2	3	2	1	8
I am knowledgeable about the Washington State Technology Standards.	0	2	5	1	8
Using technology helps students prepare for assessments.	4	4	0	0	8
Too much technology is a bad thing.	3	3	1	1	8
Technology can have harmful effects on children.	1	5	2	0	8
Technology is a useful learning tool.	2	5	1	0	8
I use my classroom comptuer mainly for email and grades.	1	2	5	0	8
I would like more support implementing technology in my classroom.	1	6	1	0	8
I like having the choice to use technology in my classroom or not.	3	5	0	0	8
Schools should enforce the use of technology in the classroom.	0	3	4	1	8

High-stakes testing is best done on computers.	0	2	6	0	8
I think it is best to let teachers decide if they will use technology in their classroom or not.	1	5	2	0	8
Technology should be used everyday in the classroom.	1	4	3	0	8
Ipads are a useful technology tool in the classroom.	1	5	2	0	8
Students from low socio-economic backgrounds need more technology use time.	1	5	2	0	8
I would like more professional development about technology.	3	5	0	0	8
Students in primary school (k-2) should not be using computers or Ipads in school.	0	1	5	2	8
Larger school districts have more technology support.	3	5	0	0	8
Using technology is an important 21st century skill.	4	4	0	0	8