PARENTAL PERSPECTIVES ON TWENTY-FIRST CENTURY LEARNING ENVIRONMENTS IN PRIVATE MIDDLE SCHOOLS: A PHENOMENOLOGICAL STUDY

by

Matthew Oswald Ozolnieks

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

Liberty University

2019

PARENTAL PERSPECTIVES ON TWENTY-FIRST CENTURY LEARNING MODEL ENVIRONMENTS IN PRIVATE MIDDLE SCHOOLS: A PHENOMENOLOGICAL STUDY

by Matthew Oswald Ozolnieks

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

Liberty University, Lynchburg, VA

2019

APPROVED BY:

Meredith Park, Ed.D., Committee Chair

Deanna Keith, Ed.D., Committee Member

ABSTRACT

Over the last decade instructional technology has experienced tremendous growth in adoption and implementation throughout K-12 schools; pedagogy has shifted to keep pace. Within this growth of technological and pedagogical adoption and implementation a lag has emerged. While teachers and administrators have worked hard to maintain the pace with regard to changes, a major stakeholder (i.e. the parents), have struggled to keep up. The purpose of this transcendental phenomenological study was to better understand the experiences of parents with middle school students enrolled in private, twenty-first century learning model/technology-rich ACSI schools in South Florida. The theory guiding this study was Schlossberg's transition theory as it addresses the progression of parents from elementary through middle school and on to high school. Participants in this study included parents of middle school students enrolled in technology-rich ACSI schools in South Florida. Phenomenological analysis identified common four themes across four schools, Socio-economic levels, and degree attainment levels. These were: Technology change & strategic consideration, parental control, parental isolation, and parent pacing. Implications for the research suggested that improved communication and more granular approach by schools in reaching out to parents could have a significant positive impact parents experiences. Recommendations for future research are provided.

Keywords: twenty-first century learning, parents, parental expectations, transition theory, educational technology, pedagogy change.

Copyright Page (Optional)

Dedication

This document is dedicated to my wife, Jamey, without whom none of this would be possible. You are my motivation, my inspiration and my champion. Your love and undying support saw me through this journey. Life together has been an adventure, this chapter has been no exception. The miles ahead will bring new challenges and I look forward to facing them all with you. I love you.

Acknowledgments

I want to first and foremost thank God for providing me with the life full of experiences, opportunities, challenges, and triumphs. Thank you for calling me to a profession where I daily have the chance to reach into the lives of future generations.

I want extend a special thank you to Dr. Jennifer Courduff who challenged me to start this journey so long ago. Your heart shines through all you do.

I want to thank my family for all their encouragement along the way. It's not always the grand statements that make a difference, quite often it's the little subtle gestures that do the trick. Thank you all, Paul, Pete, John, Mark, and Andy. To my in-laws, Larry and Nancy, I have felt every prayer. To friends including Bob, Jeff, Brian, Dan, and Nick. Your encouragement and support have helped this goal to become reality.

I would also like to acknowledge all those at CCA, faculty, staff, and administration who have continually prayed for me and encouraged me as I continue through this process. Your willingness to step up and help out when I needed it got me to this point. The love and commitment you extended to me helped get me over the finish line. Ans a special thanks to my students who robustly cheered me on from day one.

Thank you to my committee. The encouragement and responses to all of my questions provided just what I needed.

I would like to say thank you to ACSI for partnering in this study, and David Holtzhouse, in particular for connecting me with the schools that participated in this study. Together we will continue to improve education for our students, parents, and colleagues.

So many more...You know who you are.

Thank you!

Table of Contents

List of Tables

List of Figures

List of Abbreviations

Association of Christian Schools International (ACSI)

Effective Learning Environments Observation Tool (ELEOT)

Google Applications for Education (GAFE)

Information and Communication Technology (ICT)

National Center for Education Statistics (NCES)

Partnership for Twenty-First Century Learning (P21)

Professional Learning Communities (PLCs)

Project Based Learning (PBL)

Technology Literacy Challenge Fund (TLCF)

Twenty-First Century Learning Model (21CLM)

CHAPTER ONE: INTRODUCTION

Overview

Parents are the primary stakeholders in all aspects of their children's lives, and as such, approach their students' education guided by a lens of experience they gained in a different era. Parents find themselves in a difficult position of being a guide to their students while having to learn and adapt to new instructional techniques and tools to the educational processes. These new tools include mobile devices, laptops, wireless networks, and other technology that connects the students' to opportunities to absorb new content and express themselves to a broader world. New techniques include pedagogical practices and venues of student interaction and expression with which parents may be unfamiliar. This study will bring clarification and deeper understanding of the challenges parents face as they rely on and adapt their own middle school experience in order to guide their children through middle school in the context of the twenty-first century learning model tools and strategies. Within this chapter I will present the background, situation to self, problem statement, purpose statement, significance of the study, definitions, and summary.

Background

Education is in a perpetual state of evolution, reflecting the needs of the day. Early American education revolved around literacy, thus, providing a platform to help students read the Bible (Nation, 2016). Later reforms brought education to factory children in the industrial age (Boers, 2007). Often a gradual process, the last decade has introduced a kind of punctuated equilibrium to the adoption of new tools and techniques in the area of K-12 instruction (Sanders & George, 2017). Many terms have emerged to help label the current drive toward educational technology integration. These terms and the concepts they represent, like the new learning

model, technology-infused learning, twenty-first century learning model, and others all incorporate the use of technology tools like laptops and tablets in tandem with new pedagogy designed to maximize the impact of these devices. These new ideas bring with them new ways of functioning within the classroom. They are characterized by pedagogical shifts away from didactic instruction in the classroom toward collaborative problem-solving; from theoretical constructs toward real-world application; from traditional testing toward problem-based assessment that mimics real-world; from the teacher as the source of knowledge to the teacher becoming facilitator of student understanding.

The technology-integrated pedagogical models are en route to becoming the norm in K-12 education. This shift in pedagogy has been driven by educators, legislation and market demand. Legislation has been generated to address the needs of educators and students within the changing instructional landscape, but legislation alone only addresses one piece of the larger instructional technology puzzle. The social and theoretical aspects of instructional technology adoption and implementation contribute to parents' confusion concerning the learning model in their students' academic life. A certain synergy must exist among the stakeholders if the student is to benefit from technological and pedagogical change. All of this contributes to an atmosphere of successful, long-term pedagogical change (Admiraal, van Vugt, et al., 2017).

Historical

While the schools in this study are private, faith-based schools that are largely not bound by the constraints of new regulation, federal legislation has influenced how these schools function by providing strong guidance to all educators, public and private alike (Gilbert, 2016) Private school compliance with many school guidelines is voluntary. Limitations on the application of state and federal regulation is outlined in court cases that touch on areas like the

dismissal of staff may not apply due to a ministerial exception that applies by means of interpretation of the first amendment protections against government interference with religious institutions. This exclusion has its most recent roots in Hosanna-Tabor Evangelical Lutheran Church & School v. EEOC (2011); While the courts do recognize limits on the type of study that may be pursued using federal and state funds as found in Arizona Christian School Tuition Organization v. Winn, (2011), Hein v. Freedom from Religion Foundation, Inc. (2007), and Locke v. Davey (2004). Due to their religious ties, states have been hesitant to create school regulations that impose obligations on private, religious schools. Any regulation that may apply generally concerns little more than health and safety standards and academic requirements in the area of graduation minimal graduation requirements, attendance regulations, and student contact hours for the school year. These regulations tend to avoid interference with the schools' mission, vision and values. Outside of the general mission of all schools, that to educate students, other parallels exist between public and private schools (Allen, Kern, Vella-Brodrick, & Waters, 2018). The development of and use of technology-based instructional platforms is neutral; both private and public schools develop their instructional technology use along similar lines. While the platform presents a neutral medium for educators, the legislative history surrounding the advent of instructional technology is not without controversy.

In 1994, Congress passed landmark legislation promoting the use of technology in K-12 education (H.R. 1804: Goals 2000: Educate America Act of 1994). This legislation included $105 million in funding for the newly created Technology Literacy Challenge Fund (TLCF). This legislation laid the foundation for instructional technology, as the goal of this legislation was to encourage state and local governments to improve education by implementing instructional strategies that were designed to prepare students for continued education and the

workforce. These improvements centered on the use of new technology and the development of teacher skills in their use during instruction. President Clinton (1996) reinforced this legislation in 1996 by enacting executive action that aimed at four goals:

1. Training teachers to use computers in the classroom and help students learn through use of the "Information Superhighway;"
2. Providing computers for the classroom;
3. Connecting classroom computers to the internet;
4. Creating and integrating engaging software as an essential component to classroom instruction and the school curriculum.

While this legislation and these goals were important, two problems arose within the plan. First, the funding mechanism for the TLCF was competitive grants; the funds were not intended for all classrooms in all districts. Only those who apply for the funds and rise to the top were eligible, leaving some of the most vulnerable, low-income districts and schools without the technology needed to prepare students for the next phase of their education and the workforce. Second, the legislation failed to identify parents in the technology discussion, a critical element in student success in education (Douglas, 2011). Funding for the TLCF ended with the Fiscal Year 2002 Education Appropriations Conference Committee Report, as a response to the adoption of "No Child Left Behind" (NCLB) in 2001(Congress, 2002).

In 2015 NCLB was replaced by Every Student Succeeds Act (ESSA). This reauthorization of the Elementary and Secondary Education Act of 1965 allows for more flexible use of federal funding at the local and state level. Much of the language contained in ESSA is intentionally soft, as the legislation provides that the states and local districts implement the necessary changes required to comply with its objectives. This flexibility may help struggling

districts more efficiently use available funds to improve instruction and student outcomes. Conversely, the standardization of assessments and curriculum causes some states and districts to consider other options. Autonomy in course design and assessment allows districts to customize courses and track outcomes that are more meaningful to the students and communities they serve. Less obligatory are the parental and family engagement requirements within the legislation. Districts are directed to set aside 1% of their total Title I funds for parent and family engagement. Title I funds are granted to the states to distribute to lower socioeconomic community schools throughout the state. Loose guidelines on mandatory parent involvement stipulate that parents and families of low income students must be included in the planning process, where the use of these funds is concerned. In addition, these funds must be used for five areas:

1) training staff in family engagement techniques;

2) programs designed to increase parent and family engagement with the school;

3) the distribution of materials describing best practices in the area of engagement, particularly with low income and at-risk students and their families;

4) the use of grant funds to subgrant in order to collaborate with outside organizations or businesses that can demonstrate success in these areas; and,

5) engaging in any other activities the district believes to be appropriate to increase family and parental engagement with the school (Leadership Conference Education Fund, 2016).

The state must provide assurances that these funds are aimed at proven strategies in areas where they are likely to attain some degree of success (Leadership Conference Education Fund, 2016).

In 2007, mobile technology emerged with the introduction of the iPhone. Prior to this

time, technology in the classroom was a network-connected desktop computer in the back of the classroom. Microsoft PowerPoint was a cutting-edge lecture tool and student devices were nonexistent. Since then numerous new tools and platforms have emerged offering users the benefit of connectivity without tethers. This freedom hit the K-12 world with force and has shown no signs of relenting. This new wave of technology has been accompanied by commensurate shifts in classroom pedagogy. The most notable shift in K-12 pedagogy is demonstrated in the use of instructional technology and its expansion from single computers tethered to the back corner of the classroom to bring your own device (BYOD) initiatives.

Beyond the use of mobile devices, instructional technology includes focus on student competencies such as critical thinking, communication, collaboration, creativity, problem solving and technological literacy (Benade, 2015; Bridgstock, 2016). These competencies are demonstrated through the use of tools like e-portfolios, Google applications, learning management systems, collaborative tools and presentation applications (Bridgstock, 2016). As students become more proficient in the use of these tools and competencies, a growing divide has emerged in the home.

Concurrent to the enactment of new legislation, new organizations arose to support teachers, schools, districts and state educational leaders implement instructional technology tools and practices. Partnership for 21st Century Skills (P21) is one such organization. Founded in 2002, P21focuses on being a:

> catalyst for 21st century learning to build collaborative partnerships among education, business, community and government leaders so that all learners acquire the knowledge and skills they need to thrive in a world where change is constant and learning never stops. (Partnership for 21st Century Learning Skills, 2017)

The goal of P21 is to help educators enact strategies that support students as they prepare for future education and entry into the workforce. Essentially, this organization encourages educators to incorporate instructional technology in daily lessons. Twenty states have joined the P21 plan and are currently moving their school districts toward full compliance with the P21 instructional objectives.

Social

Further illumination of the dynamic surrounding the phenomenon of interest may be found in a recent study published by Pew Research (2015). For the purposes of this study, the phenomenon of interest is identified as parental interaction with instructional technology tools and systems in support of their middle school students' academic environment. The data appears to indicate that the parents of middle school students could be behind the curve when it comes to the use of instructional technology both at home and as a component of their children's education (Pew, 2015).

Pew (2015) reports that 85% of American adults have access to the internet. This represents an increase of 33% since 2000. Even with these increases, socio-economic gaps remain. While class divisions in Internet use have declined, those earning $75,000 or more are more apt to be connected to the internet than those earning below $30,000. Within this study, it is clear that English-speaking Asian Americans use the internet more than any other group (97% as opposed to 85% of Whites, 81% of Hispanics and 78% of Blacks). Those in rural areas are still less likely to be connected to the internet than those in cities. Age represents the most significant qualifier for this study, and while the Pew (2015) study examines those 18 years old or older, the trend seems to indicate a generational divide that hints that younger Americans (those under 18 years old) use the internet at an even higher rate than their 18-year-old siblings.

More recent research supports these numbers and points to the abuse of technology by school-age users (Neging, Musa, et al., 2017).

Learning in a technology-rich environment involves the use of new tools which includes devices, software and internet platforms, and the use of new skills to include project-based assignments, collaboration, and problem solving. The students' primary stakeholders, the parents, often find themselves at a loss with regard to these twenty-first century tools and skills. This all colors parents' attitudes and perceptions in ways that may not compliment pedagogical strategies at play(Bartau-Rojas, Aierbe-Barandiaran, & Oregui-González, 2018; Irwin, 2018).

Parental attitudes and perceptions may put parents at odds with educators (Irwin, 2018). As students transition from elementary school through middle school and on to high school, parents' ability to apply strategies that they used to succeed in school may no longer be applicable (Bridgstock, 2016). For the middle school student, this emotionally volatile period is further complicated by the increased inclusion of new tools and techniques with which their parents have little experience. Thus, the home support network may be lacking. The emotional, social, and academic challenges are augmented by the lack of resolve demanded of states and districts in the area of parental and family engagement in middle school students' education (Leadership Conference Education Fund, 2016). With the aggressive adoption of new technology-rich learning tools and techniques, a more comprehensive model of parent engagement is needed to help ensure student success in this emotionally, socially, and academically fragile period of student development.

Theoretical

Schlossberg's (Anderson, Goodman & Schlossberg, 2011) transition theory provides a framework for better understanding the phenomenon. While it is clear that parents carry their

experiences in school to help their students through these years, K-12 education has undergone dramatic changes. The pace of these changes only continues to quicken, further separating the parents' experience from that of their students'.

Schlossberg's (Anderson, Goodman & Schlossberg, 2011) transition theory identified three phases of transition: *moving in, moving through* and *moving out*. A transition may be categorized as either *anticipated*, *unanticipated*, or *non-events*. An anticipated transition is one in which the individual expected the transition to occur. These include events like graduation from high school and entering the work force. Unanticipated transitions are those for which the individual did not plan. An automobile accident, serious injury or death, and divorce fit into this category. Finally, non-events are those transitions that the individual expected to occur that simply did not come to pass.

The theory also identifies four factors that influence transitions, the four Ss. These factors function as coping mechanisms within the transition. They are identified as: situation, self, support, and strategies (Anderson et al., 2011). Situation identifies the circumstances surrounding the transition. Here, the individual's past experiences concerning this event may color their perspective concerning the new event. In the context of this study, a parent may have an understanding of the basic tools involved in instructional technology but lack the personal connection to their own middle school experience that was devoid of their use, thus putting the two together may prove challenging. Self may prove less an impediment as this factor focuses on personal demographic and psychological resources. Support addresses the individual's access to support through the transition. Parents without adequate support may experience frustration. This could result in conflict. The final "S" refers to strategies that the individual uses to manage

the experience of the transition. All four Ss work together during the transition both positively and negatively.

Parental perceptions and attitudes toward their childrens' education may act as propellant or a brake on student outcomes (Irwin, 2018; van Tetering, and Jolles, 2017). There is a clear relationship between parental attitudes and student social, emotional, and academic development (Irwin, 2018). These attitudes and perceptions impact all aspects of their childrens' education. What's more, there remains a difference in priorities between parents and educators (van Tetering, and Jolles, 2017). This divide in priorities is clear in the students' middle school years and carries a lasting impact (Irwin, 2018). In the age of technology adoption in education parent attitudes and perceptions must be addressed and incorporated into any technology adoption plan at the onset. This means that educators must first identify these parental attitudes and perceptions and then work to understand and address them in order to achieve the best outcomes for students.

The Association of Christian Schools International (ACSI), as the largest association of private, Christian schools, has generated standards that guide member schools into greater adoption of instructional technology tools and strategies. Functioning as independent districts, these schools may adopt these techniques at a faster rate than do larger public school districts, allowing parents less time to both fully understand and to help their students adjust to the new systems and tools.

As the student's primary stakeholders, parents effectively transition from elementary school through middle school and on to high school along with their students. All of this is done through the lens of their own middle school experiences emotionally, socially, and academically. A better understanding of the parents' experiences as they encounter new and different

approaches to education at each level will assist educators in their daily practice and may result in parents being more effective in their role as stakeholders.

Situation to Self

As a former middle school teacher and a current high school teacher in an ACSI school that uses instructional technology, I am engaged daily in the process of communicating with parents about the progress of their students. This communication frequently addresses misconceptions about parent expectations regarding the application of instructional technology principles within instruction. I have seen firsthand how parents seem overwhelmed with the complexity of the middle school years, let alone the addition of instructional technology requirements with which they are unfamiliar. The capstone project for many technology-rich middle schools is the Student E-Portfolio Presentation. In this presentation, the student assembles a digital archive demonstrating their personal development academically, spiritually and socially. My primary motivation is to identify gaps in parental understanding of instructional technology concepts. This identification should lead toward improved communication and a more complete understanding of instructional technology for parents, and a deeper understanding of the needs of middle school parents within the technology-rich learning environment. Improved communication and deeper understanding is likely to provide a more positive connection among parents, students, and educators throughout their experience with instructional technology.

As a high school teacher, I have witnessed firsthand how the rapid expansion of instructional technology in K-12, and particularly in the middle school grades, has begun to mirror the scope of the introduction of mobile technology in schools. Within the last decade schools have gone from a few tethered devices in scattered classrooms to broad distribution of

technology, applications and instructional techniques designed to maximize their use (Redecker & Oystein, 2013; Sanders & George, 2017; Tucker, 2014). The volume and complexity of the processes involved requires the support and involvement of the parents (Redecker & Oystein, 2013; Workman, 2015). Parents often express anxiety and frustration early in the process stemming from their inexperience with these new dynamics. Paired with the introduction of interpersonal conflict and developmental issues associated with early adolescents, the confusion and frustration felt by this group of parents is only deepened (Ben-Eliyahu, Linnenbrink-Garcia, & Putallaz, 2017; Bhargava & Witherspoon, 2015). Exacerbating the problem is the trend toward independence explored by students as they move into higher grades (Bhargava & Witherspoon, 2015; Camacho-Thompson, Gillen-O'Neel, Gonzales & Fuligni, 2016; Workman, 2015).

Parents, who closely support their student through elementary years may become detached from the daily process through the high school years as students and parents prepare for college and career (Ben-Eliyahu et al., 2017; Bhargava & Witherspoon, 2015; Camacho-Thompson et al., 2016; Irwin, 2018; Workman, 2015). It is clear that this group of parents is truly wrestling with how to effectively apply technology to their students' education (Ekici, 2016). Compounding this situation are parent attitudes and perceptions toward education as a whole and the incorporation of technology (Irwin, 2018; van Tetering, and Jolles, 2017; Workman, 2015).

Parents are not alone in their struggle to keep up with the increasingly technology-integrated pedagogy (Admiraal, van Vugt, et al., 2017). As a K-12 teacher who has successfully transitioned from a technology resister, through the mobile revolution to becoming an early adopter of instructional technology tools and techniques in the classroom, I can relate to parents

who often feel frustrated with the application of new technology (Ekici, 2016; Moawad & Ebrahem, 2016) to the already complicated middle school years. This provides further connection between my own experience and the phenomenon. The classroom teacher provides a similar degree of guidance to parents as they navigate new and unfamiliar academic and technological territory.

This study is philosophically epistemological in its assumptions because it focuses on the underlying knowledge and understanding, presuppositions and foundations parents bring to the table in dealing with the new structures involved in their children's education in a technology-rich learning environment (Cricton, 2014; Davidsen & Vanderlinde, 2016; Ekici, 2016). The significant shift from didactic instruction to student-centered instruction means these assumptions may be misaligned with the modern technology-rich learning environment. Axiologically, parents may find themselves challenging students and educators concerning the ethics of various components of instructional technology. Collaborative design, for example, a critical component of the technology-rich learning environment, may be outside of the experience of these parents, thus, they may experience critical judgment both overt and internal throughout the learning process. As a teacher, I value instructional technology; this value may not be shared by parents who have not been fully informed on the benefits associated with the use of technology tools, collaboration, problem solving, and technological literacy in the classroom.

Stakeholders hold different priorities. Teachers place a high value on order and behavioral compliance, while parents give precedence to scheduling (van Tetering & Jolles, 2017). The differences in parental and educator priorities extend to new areas of pedagogy as well, thus, it is important to remember that the value placed on instructional technology by

educators may not be shared by all stakeholders (Irwin, 2018). Stakeholders in education are defined as individuals that desire a voice in decision-making (Razik & Swanson, 2010). They include students, teachers and parents (McNeal, 2014). The speed of adoption in the area of new instructional technology and pedagogical techniques has placed increased pressure on educational leaders to focus their attention on teachers and students (Whiteside, Bould, et al., 2017). Researchers have followed suit, addressing deficiencies found in all aspects of teacher, administrator, student and district technology adoption.

Another area of disagreement may stem from the constructivist elements within the technology-rich learning environment. Parents who were educated in a more didactic environment may have trouble connecting the constructivist activities that are common in technology-rich classrooms to the process of learning. Parents may view collaboration as *cheating* as opposed to an opportunity for peer-assisted learning. Constructivism seeks to help the learner build meaning through experience (Creswell, 2013; Patton, 2015). The experiences generated within the technology-rich classroom will likely look unfamiliar to the parents of middle school students. This study hopes to identify and clearly define the theoretical and social disconnects between parental expectations of their students' middle school education, and the reality of instructional technology.

Problem Statement

The problem is a growing divide between middle school parents' expectations and perceptions and those of their students and educators; while students' and educators' expectations and perceptions of technology-rich learning environments are well documented, parents have not kept current with these trends (Keane & Keane, 2018). Education is continually evolving (Sanders & George, 2017). Over the last decade, this on-going change has included the

adoption of new technology tools and systems. While technology and tools have changed how things are done in education from both the teacher and student perspectives, parental attitudes may not have changed to adapt to the shift in pedagogy (Keane & Keane, 2018). Within this shift, a problem has emerged. Parents lack understanding about the application of new tools, a lack of faith in the positive impact of new tools and techniques, and the fear of devices becoming distractions for students both at school and at home (Keane & Keane, 2018). A divide between parent and educator perceptions has become apparent (Keane & Keane, 2018). In their interactions with educators, parents of middle school students have demonstrated that they do not fully understand the technology-rich learning environment (Eutsler, 2018). This lack of understanding is rooted in deeply personal perceptions of the value of new technology and how it is best adopted in education (Eutsler, 2018). Parents can stake positions in which they become entrenched, and, at times are at odds with instructional priorities of the classroom teacher or school administration. This kind of claim staking generates communication issues and, ironically, can impede the parents' ability to fully support their student through the middle school years (Irwin, 2018; van Tetering and Jolles, 2017).

Through this study, I aim to examine the parent experience with instructional technology in light of their attitudes and perceptions (Irwin, 2018; van Tetering and Jolles, 2017). Studies have been conducted on the impact of parents' attitudes and perceptions on student achievement (Inam, Nomaan, & Abiodullah, 2016; Irwin, 2018; Khan, Ahmad, et al., 2014; Odongo, et al., 2016; van Tetering and Jolles, 2017). Each identifies parental attitude or perception as a threat or enhancement to student success. In addition, studies have been conducted on the use of instructional technology from teacher, administration, and student perspectives at both the elementary and high school levels (Bodinet, 2015; Breen, 2016; Crichton, 2014; Ejsing-Duun &

Skovbjerg, 2016; Farkas, 2012; Gunn & Hollingsworth, 2013; Hepp, Prats-Fernández & Garcia, 2015; Koh et al., 2016; Walsh, Durrant & Simpson, 2015); however, there is no research giving voice to parents of middle school students in a technology-rich learning environment. Thus, an exploration of parental experiences with instructional technology in middle school will add much-needed insight for practitioners. A study focusing on a smaller universe of private Christian school parents from three ACSI schools in South Florida could help shed light on the complexities involved in this phenomenon. Additionally, it is hoped that an exploration of the experiences of these parents will help teachers and administrators better connect critical elements of student success with stakeholders (Razik & Swanson, 2010; Whiteside, Bould, et al., 2017).

Purpose Statement

The purpose of this transcendental phenomenological study is to understand the lived experiences of parents of middle school students enrolled in private, twenty-first century learning model ACSI schools in South Florida. At this stage in the research, instructional technology will be generally defined as a technology-based, student-centered instructional approach that focuses on collaboration, communication, creativity and technical literacy (Benade, 2105; Chai et al, 2015; Koh et al., 2016; Schrum & Levin, 2016). This definition is intentionally broad, as the term is applied in an equally broad manner throughout K-12 education. The theory guiding this study is Schlossberg's (Anderson et al., 2011) transition theory as it addresses the progression of parents from elementary through middle school and on to high school. The role of parental attitudes and perceptions in the successful implementation of new technology tools and strategies is a central concern as these play a significant role in student outcomes (Irwin, 2018; van Tetering, and Jolles, 2017). A better grasp of parent-student interaction may provide additional insight into both the problem and potential solutions.

Significance of the Study

Through this study I will address the empirical, theoretical and practical implications of the experience of parents with their children's middle school education in a technology-rich school environment. While other studies have detailed the importance of parents in education, this study will focus on the lived experiences of middle school parents in order to identify factors that help shape parent attitudes and perceptions of the technology-rich learning environment. Thus, this study will illuminate parent perceptions and attitudes concerning the technology-rich learning environment with the aim of helping to provide a richer educational experience for future middle school students and related stakeholders. I will provide insight into the experience and perceptions of middle school parents and, thereby, offer clear guidance for implementation of instructional technology tools and techniques educators in generating clearer communication and expectations for parents of middle school students. Essentially, clear communication will aid in better understanding throughout the learning community and among all stakeholders, thus informing practitioners on the lived experience of parents.

Empirical

This study will add to the body of knowledge by addressing a gap in the literature that exists in the area of parent experiences with technology-rich learning environment schools. Schools continue to evolve and modify their pedagogical models from didactic instruction toward student-directed education (Hummell, 2015). The role of the teacher within the classroom is changing from that of central source of all students understanding toward that of facilitator of student exploration of understanding. It is a shift from a teacher-centered learning environment to a student-centered learning environment. Understanding how parents experience this shift from teacher-centered instruction to a student-centered, technology-rich model will

further inform practitioners, that is educators, in better relating to the parents of their middle school students (Hummell, 2015; Krahenbuhl, 2016; Martell, 2015). This will ultimately empower parents in their role as stakeholders to better contribute to their middle school students' education.

Theoretical

Schlossberg's (Anderson et al., 2011) transition theory generally pertains to adult students. I will apply this theory to parents' experiences as their students transfer from elementary to middle school and onward to high school and beyond. By addressing parent experiences concerning anticipated events, unanticipated events, and non-events (Anderson et al., 2011), all of this is in the hope of gaining a rich, deep understanding of the essence of the parent experience involving technology-rich education in middle school (Moustakas, 1994; Patton, 2015).

The beneficiaries of this study will be students, educators, and parents. Students will benefit academically from improved parental support. Educators will benefit from a deeper understanding of the gaps that exist in the parents' grasp of how the elements of instructional technology work individually and collectively to improve student outcomes. This understanding is also likely to improve communication between the home and school as teachers and parents will be "speaking the same language." Finally, middle school parents will likely benefit from this study through improved ability to clearly communicate their attitudes and perceptions about technology-rich learning, and a better grasp of the benefits of the various aspects of instructional technology. The synthesis of the benefits to these three stakeholders should positively impact learner outcomes.

Practical

Parents use their life experience to help direct their students academically and socially. The speed of technology integration in K-12 education has contributed to the lack of research aimed at parents (Sanders & George, 2017). Within rapid advance of new technology and shifting pedagogy, even foundational educational theory has required adaptation to keep pace (Ardila, 2016). Crichton (2014) notes that in a world of changing paradigms in education, teachers still cling to what they know. This means they may be slower to adopt new tools and techniques in the classroom. If this can be said of teachers, it is not a stretch to apply this same idea to parents.

Parents' attitudes about their childrens' education have had a profound impact on academic performance (Irwin, 2018; Khan, Ahmad, et al., 2014; Odongo, Aloka & Raburu, 2016; van Tetering and Jolles, 2017). These studies have suggested that misaligned parent-educator priorities is associated with lower student academic performance (Irwin, 2018; Khan, Ahmad, et al., 2014; van Tetering and Jolles, 2017). As pedagogy continues to change, educators need to be aware of potential areas of conflict with parents and how these parent-educator divisions influence student academic development. This is even more important in the digital age where dangerous sites and inappropriate material are easily accessible (Bartau-Rojas, Aierbe-Barandiaran & Oregui-González, 2018; Gezgin, Cakir & Yildirim, 2018).

To date, researchers' attention has been toward helping teachers and student better incorporate and use instructional technology tools in teaching and learning. The more things continue to change, the more attention these two groups will require (Tucker, 2014; Webb, 2014). As parents of middle school students in technology-rich learning environments may have a limited framework from which to guide their students (Tucker, 2014; Webb, 2014; Whiteside,

Bould, et al., 2017), they are susceptible to misperceptions and inaccurate conclusions about proper use and the overall role of new technology tools and techniques. The results of this study should inform educators in schools that employ instructional technology tools and techniques while illuminating strategies designed to support parents by identifying experiences that help shape parent attitudes and perceptions of the technology-rich learning environment (George Lucas Educational Foundation, 2012; Hummell, 2015).

Research Questions

The central question for this phenomenological study follows Moustakas' (1994) approach by supplying a broad, general question designed to guide the study toward a general goal of inquiry (Moustakas, 1994; Patton, 2015). What are the lived experiences of parents of middle school students engaged in technology-rich ACSI schools in South Florida?

The following sub-questions follow Schlossberg's (Anderson et al., 2011) transition theory by addressing the three central categories (anticipated events, unanticipated events and non-events) identified by Schlossberg (2011). The first three sub-questions align with Schlossberg's concept of *moving in, moving through* and *moving out*. The last sub-question addresses Schlossberg's (2011) notion of expected and unexpected events that occur during transition. These sub-questions will guide the collection of additional detail supporting the central question:

1. What are the expectations of parents regarding instructional technology prior to student enrollment in a technology-rich middle school?
2. In what ways are parents' expectations of instructional technology met or not met?

3. What do parents view as essential skills necessary for success in the technology-rich learning environment?
4. What are the expectations of parents in technology-rich schools as their student prepares for high school and beyond?
5. What do parents view as problems associated with instructional technology/ technology-rich education?
6. What do parents view as benefits of technology-rich education in middle school?

Definitions

1. *Association of Christian Schools International* – Accrediting organization for Christian schools in the United States and around the world.
2. *Effective Learning Environments Observation Tool* – The instrument used during site visits to score the instructional effectiveness of schools undergoing accreditation and re-accreditation. The ELEOT is a student-centered instrument designed by AdvancED that gauges technology use and other 21CLM criteria such as the use of technology, access to technology, collaboration and making connections to real-life experiences (see Appendix A and Appendix B).
3. *South Florida* – The geographic area on the east coast of the southern peninsula of the state of Florida comprised of the counties of Broward, Miami-Dade and Palm Beach.
4. *Stakeholder* – Any individual with a connection to a student who has an interest in the student's success academically and socially (Razik & Swanson, 2010). For this study, the primary stakeholders are identified as the parents or guardians of the student. Although not an exhaustive list, other stakeholders include educators and the students themselves.

5. *Twenty-first century learning model* - a student-centered instructional approach that focuses on collaboration, communication, creativity and technical literacy (Benade, 2105; Chai et al, 2015; Schrum & Levin, 2016).

Summary

This chapter has examined the issues surrounding parent engagement with the 21st Century Learning Model in middle school. The synonymous nature of terms like technology-rich learning environment, twenty-first century learning model, and instructional technology have been addressed and contextualized. Having identified the problem of parental attitudes and perceptions concerning the shifting learning model, the historical, philosophical and theoretical perspectives of pedagogical change require students, educators, and parents to communicate differently as new tools and techniques are employed in K-12 education. Further, a better understanding of this phenomenon may allow educators to better identify experiences that help shape parent attitudes and perceptions of the technology-rich learning environment in order to address parents' questions and concerns while their students are transitioning through this difficult stage in life. A close examination of individual and collective parent experiences with the technology-rich learning environment will provide strong guidance to educators in the adoption of new technology tools and strategies far into the future.

CHAPTER TWO: LITERATURE REVIEW

Overview

The current state of academic change in K-12 education involves the transformation of both tools, hardware, and devices and pedagogy. The process is not linear; it encompasses the codependent, mutual interaction between advancements in tools and modifications in instructional approaches. This chapter presents the theoretical framework, related literature and summary. Schlossberg's transition theory is presented as a framework for the study. As such, the phenomenon will be examined in relation to participants as well as to the various aspects of the instructional technology adoption process.

Within the literature two parallel lines of discussion emerge: one focusing on technology, the other focused on stakeholders. First, the literature presents good volume on the history of technology adoption practices and pedagogy change. The second track identifies and discusses educators' use of technology tools to improve instructional outcomes, and students' adoption of implemented technology. While treated separately, these two elements are interconnected. Advances in instructional technology cannot succeed in an environment devoid of a well-developed network of informed stakeholders willing to take risks and implement new ideas (Charania & Davis, 2016).

Changes in both of these tracks within education are also guided by larger demands of the workplace and higher education (Ullrich, 2016). The increasing demand for technological literacy in the workplace, and the increased reliance on digital assessment in higher education are the primary impetus for pedagogy change in K-12 education (Staton, 2016; Ullrich, 2016; Ursavas, Kabakçi Yurdakul, Türk, & Mcilroy, 2016). Additionally, both of these tracks have generated movement towards the twenty-first century learning model, sometimes referred to as

the technology-rich learning environment, instructional technology, the new learning model, or information and communication technology (ICT).

While each of these appear to have a different purpose, they have, over time, merged into a collective understanding of the implementation of new communication, technology tools and devices, and new pedagogical techniques designed to maximize the use of these tools in education. The merger of these terms is a reflection of the changes taking place within both the technology and pedagogy surrounding instructional technology (Sanders & George, 2017). This pragmatic approach to defining twenty-first century learning is evidence of the change in ownership and control in the twenty-first century education model from a teacher-centered, didactic model toward a more Vygotskian, student-directed approach (Lawlor, Conneely, Oldham, et al., 2018). Thus, within this study, twenty-first century learning, ICT, technology-rich learning and instructional technology will be used synonymously.

Just as technology and stakeholders must advance concurrently, technology tools and practices continue to interact with one another to produce deeper changes throughout K-12 education (Lih-Juan, 2017). While these are all important elements within the scope of technology in education, none of these stand alone as a silver bullet to resolve all of the issues and concerns that instructional technology brings with it. Similarly, pedagogy change tends to be too reactionary to stand alone. It requires a catalyst to help drive it forward. Technology and pedagogy are simply too interconnected to advance independently (Ilaria, 2017).

Technology adoption is an incremental process which moves through the learning community one stakeholder at-a-time (Chiu, 2016; Lih-Juan, 2017; Noguerón-Liu, 2017). The process of adopting even small changes follows a general structure from administration to teachers to students and other stakeholders. School administrators are a typical starting point for

any proposed change, providing guidance for other stakeholders. School leaders establish the basic framework and direction for the learning community. Once this is established, teachers enter the discussion and begin the conversation concerning the use of tools and techniques (Lih-Juan, 2017).

Subsequent to the administrators are teachers, who are interested in connecting these new techniques to their current instructional practices and classroom procedures (Chiu, 2016; Lih-Juan, 2017). Clear communication is essential to the education process. As new pedagogical models are adopted, changes made by teachers are conveyed to students through new communication, tools, and techniques (Lih-Juan, 2017).

Technology advancement has changed how educators communicate among themselves and with other stakeholders. Gone is the printed note sent home with the student, replaced by announcements in the learning management system, class texts, email, and website notifications (Frache, Nistazakis & Tombras, 2017; Fui-Theng, Mai & Soon Hin, 2016; Gabriel, Campbell, Wiebe, et al., 2012; Hudson & Vasil, 2015).

Teachers begin to use these new avenues of conveying information, collecting student work, and providing feedback (Noguerón-Liu, 2017). Like any new skill to be done well, this requires instruction, practice, and time to consistently achieve high standards (Chiu, 2016). Each of these steps in the process of adoption takes time. The administrator introduces the idea to faculty and begins the discussion, teachers begin discussing the idea and how to best incorporate the new tools and techniques individually and as teams (Noguerón-Liu, 2017).

Finally, teachers and administrators introduce the new tools and techniques to students, providing instruction, expectations, and time to become proficient in the new learning environment (Chiu, 2016). This cycle continues -- administrator to teacher to student – with

each new, successive wave of technological and pedagogical change that arrives (Chiu, 2016). Often, the waves of change arrive in such rapid succession that students are working on perfecting one new tool or task when the next is introduced to administration or teachers (Chiu, 2016; Noguerón-Liu, 2017).

This overlapping of new tools and techniques tends to focus educators on immediate needs (Lih-Juan, 2017). Administrators turn their attention to teachers, who in turn, focus heavily on students (Chiu, 2016). Parents are often left to learn from their students or through observation. The cycles of change are moving far too quickly to allow for effective outreach to all stakeholders, thus parents are often left with semi-annual status reports on the big picture as opposed to real inclusion on how this impacts each of them and the student.

A broader, more inclusive, comprehensive discussion must emerge; a discussion that includes all stakeholders. This begins by examining the role of parents in the adoption and use of technology in education and concludes with a better synthesis of perspectives on the role of technology in education. The lack of inclusion, in available studies, of all stakeholders as a significant element in the use of instructional technology presents a gap in the research. Specifically, the inclusion of middle school parents as stakeholders in these discussions is missing.

Clearly, including parents at all stages of the educational process is beneficial to the learner (Chiu, 2016). Including feedback from parents will only serve to benefit the continued development of instructional technology. These parental stakeholders provide significant influence in the academic life of K-12 students (Wong, Ho, et al., 2018). Far from being simple correlational relationship, the connection between parental involvement and student achievement represents a clear causal relationship (Huat See, & Gorard, 2015). Parents bring real, beneficial

leverage to the success of their child's education. Capitalizing on this leverage is critical to the success of any pedagogical model, particularly when those models are new and unfamiliar to the student (Huat See, & Gorard, 2015).

Theoretical Framework

Schlossberg (2011) framed the experience of adult learners as they transition from the K-12 learning environment through college and beyond. Within this framework, the transitional process is described as three distinct stages of *moving in, moving through,* and *moving out* (Anderson et al., 2011). *Moving in* refers to the challenges and preparation students face as they prepare for a new phase of social, academic, and emotional development. *Moving through* refers to the process of applying new social, academic, and emotional standards and norms in a different environment or stage of life. *Moving out*, then, refers to the phase of emotional, social and academic application of what was learned in the process of *moving through*. This final stage may include the application of established understandings in new situations or novel ways (Anderson, 2011). Thus, Schlossberg's (2011) transition theory is capable of being flexed to fit a broad spectrum of student contexts.

According to Schlossberg (2011), adult learners apply a number of coping devices, identified as the four Ss to address areas of conflict during the stages of transition. These devices include: situation, self, support, and strategies. Situation identifies the circumstances surrounding the transition. How the family found and selected the school is an important facet to the situation. Past experiences with this stage in education may color parents' expectations, as will their experience and comfort with the use of new techniques and technology.

A parent may be an avid technology user, but have little or no practical experience using these tools and techniques in an instructional setting. Simply understanding what instructional

technology entails provides no guarantee of an experience free of unexpected events, non-events or misunderstandings. Lacking personal experience with this educational model may prove challenging to some parents.

Self is the next device. This component focuses on personal demographic and psychological resources (Anderson et al., 2011). The participants' socio-economic status may contribute to or limit their ability to readily adapt to changing technological demands (Pew, 2015). Parents in lower socio-economic levels, those with lower educational attainment, and minorities may experience more negative impact from this component.

Next, support is identified as the individual's capacity to locate and interact with structures and individuals who can assist them through the transition (Anderson et al., 2011). With the additional demands placed on them by their adolescents, participants may find it increasingly difficult to make time to fully understand the new instructional demands placed on their student during the transition, thus, they will likely experience frustration in the process of trying to assist their student.

Finally, strategies refer to the formal and informal tools and techniques the individual employs to move through the transition (Anderson et al., 2011). This could be as simple as carefully reading email from the school or talking to other parents at dismissal or as complex as taking a course in instructional technology at the local university. It is important to note that avoidance is a coping strategy that many employ when facing an uncomfortable situation (Barsky, 2011).

Ideally, all four Ss work together during the transition, but often they are found to be in conflict with the progress of the individual moving through the transition. Each of these may function independently or in tandem with the others throughout the transition (Anderson et al.,

2011). Adding to this dynamic is the participant's perception of events as anticipated, unanticipated or as non-events as they progress through the transition since this may tend to bend the 4 Ss in a more positive or negative direction.

These four devices may operate independently or in concert to help or hinder student progress through the transition process (Anderson et al., 2011). It is important to note that while this theory generally applies to adult learners advancing through the process of education, this study applies this same framework to the parents of middle school students enrolled in schools using technology rich learning environments. The three stages discussed by Schlossberg (2011) will be represented by the parent moving with their student from elementary into middle school *(moving in*), the experiences with instructional technology within middle school (*moving through*), and their student's progress into high school (*moving out*). Of primary concern to this study are the participants' experience with the use of technology tools and techniques as they encounter anticipated events, unanticipated events and non-events in their learning environment (Anderson et al., 2011) as well as the application of the four coping devices referred to as the four Ss.

Through this study I propose a shift in focus for Schlossberg's (2011) transition theory from the adult learner transitioning from high school, through college and beyond, to parents of middle school students enrolled in an ACSI middle schools in South Florida that engages students with a technology rich learning environment. This may, at first glance, appear to be a disjointed use of transition theory, but closer examination proves otherwise. Technology is advancing and changing at an increasing pace (Sanders, & George, 2017). Parents of middle school students attended schools with little technology use and little-to-no pedagogy aimed at preparing students for the needs of the twenty-first century. This experience colors their idea of

what middle school is like, thus anchoring their expectations to a past that no longer applies to their student.

By the same token, teachers and administrators tend to bend their practice toward their own experience. This tendency is moderated by on-going professional development, best practices and the use of professional learning communities. A vast array of studies have been conducted in the area of teacher, student and administration interaction with educational technology tools and strategies (Mitchell, Wohleb & Skinner, 2015; Orhan Goksun, Filiz & Kurt, 2018). Within these studies, parents are the last stakeholders to be fully addressed. This has been largely due to the rapid expansion of technology tools and techniques throughout K-12. Researchers have been trying to address the most critical needs first in a kind of educational technology triage. The rate of change has not yet slowed enough to allow for a robust discussion of parent needs, particularly middle school parents, concerning the use of instructional technology in the classroom. Applying the principles of Schlossberg's (2011) transition theory to the parents of middle school students enrolled in schools engaged in the use of technology rich environments will provide a better understanding of the strategies that educators need to provide in order to help this significant stakeholder in the transition from elementary through middle school and beyond.

Related Literature

Research shows a deep connection between past experiences and future expectations and behavior (Kose & Arslan, 2015; Scott-Janda, et al., 2016). Parents enter their student's education with a template of expectations. With the seismic shift in technology use in the last decade, parents' expectations may be disconnected to modern classroom reality (Bhargava &

Witherspoon, 2015; Keengwe, 2013; Ozdamli & Yildiz, 2017; Sanders & George, 2017; Yamamoto, Chang, Wu-Yuin, Ming-Puu & Muller, 2011).

Instructional Technology Adoption

Mobile devices usually refer to tablets, laptops and mobile phones (Keengwe, 2013), and since 2007, the use of technology, particularly mobile technology tools in the K-12 classroom, has emerged at a rapid pace (Keengwe, 2013; Sanders & George, 2017). Classroom procedures are critical to effective instruction. Clear routines are essential to helping teachers establish expectations for their students. Typically creatures of habit, teachers have begun to fully embrace the active use of technology both in the classroom and outside the classroom (Durak & Saritepeci, 2017). These tools have transformed pedagogy. New routines have emerged in the technology-rich learning environment.

The question of equity is a primary concern with the adoption of technology tools. For private Christian schools, this can be particularly difficult as funding may not be available to provide devices to all students in the learning community (Keengwe, 2013; Min, Navarrete & Wivagg, 2014). Some private Christian schools have addressed the issue of equity through 1:1 initiatives. Here, the school provides devices for its students to use while enrolled as students. This solution can represent a significant financial investment by the school, but it allows all students access to the same hardware and software, pushing students toward greater collaboration and collective problem solving; two significant elements of the technology rich learning environment (Kitchen & Berk, 2016).

Some pedagogical change has been driven by textbook publishers and by the educators themselves. Publishers such as Pearson have fully integrated the use of technology in their curricula by providing ancillary tools like online textbooks, videos, enrichment resources, online

assessments and student portfolios (Keengwe, 2013). While in the past, publishers drove much of the pedagogy change adopted by educators, the current atmosphere is a more collaborative environment of shared motivations for change driven by both educator demand and publisher improvement (Wagner, 2015).

Educators have driven pedagogical shift toward technology integration by involvement in Professional Learning Communities (PLCs) (Lin, 2017) and the sharing of best practices among departments and grade-level teachers (Min, Navarrete, & Wivagg, 2014; Periathiruvadi & Rinn, 2012). Competition among private K-12 schools has helped drive this trend. Schools with the resources to adopt new technology tools have invested in them, while less affluent schools may need to focus their attention on more cost-effective improvements to pedagogy.

Monetary considerations are not the only drivers in technology adoption and implementation. Administrators and teachers are also guided by a set of principles identified in the school's mission, vision, and values. The role of the mission, vision and values of the school should not be overlooked (Stich, & Reeves, 2016; Tondeur, Braak, Ertmer, & Ottenbreit-Leftwich, 2017). Each of these guiding elements provide overt and underlying direction to the entire organization. In the case of K-12 education, the guidance provided through the mission, vision, and values is aimed at the entire learning community, both on campus and off (Stich, & Reeves, 2016).

Technology Adoption

Technology has undergone significant change in the last decade (Pierce & Cleary, 2016). For educators, change in the area of technology has become the new normal (Carver, 2016; Delgado, Wardlow, McKnight & O'Malley, 2015; Venkatesh, Greenhill, et al., 2012). As publishers update their textbooks to reflect the increased demand for technology-friendly

materials (Chiu, 2016; Hechter & Vermette, 2013; Martin & Carr, 2015; Min, Navarrete & Wivagg, 2014), K-12 schools are under increased pressure to keep up with the latest technology for their students (Admiraal, van Vugt, Kranenburg, Koster, Smit, Weijers & Lockhorst, 2017; Buss, Wetzel, Foulger & Lindsey, 2015; Carver, 2016; Chiu, 2016).

Many districts have adopted instructional technology using a top-down approach to the adoption of new technology (Chui, 2016). This means that as new tools and strategies come to the attention of district administrators, they provide guidance to site administrators in the adoption of new technology. These site administrators then direct the teachers to begin using the new technology. This compulsory process leaves little flexibility for teachers who must seamlessly implement the new technology (Chiu, 2106). Students are usually next to get directions concerning the new technology, but this is passed through the prism of the teachers' perspective which may be fraught with technical gaps and inarticulate language that may reduce the benefit of the new technology on student outcomes (Smith, 2014).

Through these processes the hierarchy within the learning community, which is largely driven by the tyranny of the urgent, is established. As new techniques are added to accepted pedagogy, the flow of information continues from administration to teachers to students and beyond. The problem arises when the latest changes arise while communication concerning the last set of changes is still working its way through the channels of communication through the learning community. The first few levels of stakeholders get more clear direction than do the lower tiers in the lines of communication. Thus, parents may often experience a lag in communication or even overlapping, disjointed communication about changes in technology and techniques.

Technology adoption for private schools has shifted from a competitive advantage and marketing tool to a curriculum-wide and well-integrated necessity (Admiraal, van Vugt, et al., 2017). Parents have come to expect the use of new technology tools and techniques. Some of these mandates involve device implementation and pedagogy change. The effective incorporation of devices and new pedagogy requires teacher familiarity and technical proficiency to be carried out well (Young, 2016). Unfortunately, the speed of technology evolution impedes the ability of many teachers to keep up with new tools and strategies (Siemens, 2005; Young, 2016).

Attitudes, both positive and negative, remain key to the success or failure of the adoption process (Chiu, 2016; Young, 2016). This applies to all corners of the learning community; students, teachers, administrators, and parents. Professional development can help alleviate anxiety among teachers (Chiu, 2016; Ozdamli, & Yildiz, 2017), and allow for more effective adoption of new tools and strategies (Young, 2016). Greater depth of understanding about strategies to ameliorate misconceptions and anxiety among teachers and administrators. This ultimately will then impact both students and parents, alike.

Bring Your Own Device

Bring Your Own Device (BYOD) programs are popular in schools with limited resources (Arpaci, 2015; Caldwell, Zeltmann, & Griffin, 2012). BYOD allows the student to use the technology device that they already own and with which they are familiar (Burns-Sardone, 2014; Wasko, 2016; Yanjie & Siu Cheung, 2017). These programs allow schools to offer good technology integration into their curriculum outside of budgetary constraints.

While the BYOD program lifts the financial burden from the school, it potentially generates additional problems (Santos & Bocheco, 2016). The primary concern is the question

of equity issue among students (Adhikari, Scogings, Mathrani & Sofat, 2017). Schools need to be careful to keep from creating an environment of "haves" and "have nots" among students where students with devices and home internet access enjoy a greater degree of interaction with course materials and objectives (Parsons & Adhikari, 2016). The school needs to partner with parents in order to close these gaps (Parsons & Adhikari, 2016).

School-Provided Technology

One way to address the equity concerns is through a one-to-one device adoption initiative (Harper, & Milman, 2016; Nelson, 2013). Within these programs, also referred to as 1:1 programs, the student is issued their own device as they would be a textbook (Harper & Milman, 2016). With these programs, the student takes the device home so, if they have internet access at home, they have access instructional resources at home (Harper & Milman, 2016), otherwise offline work environments allow the student to complete assignments on their device and submit their work once they return to the school network. This allows all students, even those without home internet to complete assignments on their devices. In addition to providing flexibility and access to students who might not otherwise have a device, 1:1 adoption programs provide a layer of security. Schools often dictate what software may be loaded onto the school-owned devices, thereby protecting students and school networks from malicious software. Activity monitoring software may also be used by the school to help guide students in the proper use of their devices. **One-to-one initiatives** can be implemented as either 1:1 or as group-used devices.

A set of shared devices (tech carts) may be another way to provide technology to students. A classroom set of devices would allow those within the classroom to use the devices during the school day, or mobile carts that allow educators to schedule the use of the devices for a particular class or lesson (Harper, & Milman, 2016; Nelson, 2013). Depending on the ability

of the school to fund tech carts, this may be one-to-one, where each student gets to use a device on their own, or shared where pairs of students or small groups of students share the devices (Burns-Sardone, 2014; Carver, 2016; Charania & Davis, 2016). This cost-effective solution carries with it an expense. Teachers and administrators must invest time in scheduling and planning professional development to ensure that the devices are used effectively and that they are where they are needed most. For some teachers, this may even serve as a deterrent to the consistent use of technology within daily lessons (Admiraal, vanVugt, et al., 2017; Arpaci, 2015; Bourrie, Jones-Farmer & Sankar, 2016; Davidsen & Vanderlinde, 2016).

Within the technology adoption program, schools must balance school and student needs (Harper, & Milman, 2016; Nelson, 2013). Schools that may need general instructional space more than dedicated computer labs may find that mobile technology meets their instructional needs more effectively than do static computer labs (Delgado, Wardlow, et al., 2015). Because of the premium placed on classroom space, and the availability of cheap mobile devices, the use of expensive tethered technology, including computer labs, interactive white boards and student response devices are fading among K-12 schools (Mumba, & Zhu, 2013). While this technology evolution may represent an expensive change for schools, it also reflects improvements in the technology available for students (Nelson, 2013).

Pedagogy Change

The adoption of new technology tools, alone, is no guarantee that teachers will use those tools to help improve student outcomes. New technology and new pedagogy must work in tandem. The introduction of new tools means the introduction of new instructional techniques (Jacobson, Spence, & Pan-Wei, 2017). Changes in classroom procedures are a natural consequence of the incorporation of new technology tools and techniques (Jacobson, Spence, &

Pan-Wei, 2017). However, with the continual changes in technology, pedagogy has struggled to keep the pace (Nelson, 2013; Tarling & Ng'ambi, 2016). Consider that in 2007, a technology-rich classroom was one that used PowerPoint in lectures and provided one or more hard-wired desktop computers to students (Tarling & Ng'ambi, 2016).

Since the introduction of tablets, laptops and other tools in the classroom, pedagogy has responded in a lagging, reactionary manner (Geer, White, et al., 2015). This places educators in the unenviable position of trying to catch up with the wave of technological adoption demanded by administration (Chui, 2016). Prior to the introduction of mobile technology in 2007, the primary concern of teachers wanting to keep up with the times in their instructional design focused primarily on the application of new theory (Hendry, Hiller, et al., 2017). Today educators update their instructional design to meet the changing requirements of instructional technology platforms (Vandeyar & Swart, 2016).

Just as teachers have found it necessary to adjust to new instructional tools and strategies, students and parents must move along the same lines (Gokpinar & Reiss, 2016). Any variation in how teachers, students, and parents adapt to the changing pedagogical environment will create conflict that threatens to reduce student outcomes (Admiraal, van Vugt, et al., 2017). The gap, created as educators adopt new generations of technology tools and techniques without fully enlisting parents in the existing tools and techniques, continues to expand and threaten student achievement (Bourrie, Jones-Farmer & Sankar, 2016; Yunus, Nordin, et al., 2013).

All of this new knowledge does not simply stop at the desk of educators. Educators continually guide parents through the shifting pedagogical landscape (Bourrie, Jones-Farmer, & Sankar, 2016; Gokpinar & Reiss, 2016; Vandeyar & Swart, 2016). The International Society for Technology in Education (ISTE) has established sets of standards to guide the implementation of

technology in instruction. The National Educational Technology Standards (NETS) are directed at educators, to include both administrators (NETS-A) and teachers (NETS-T), and students (NETS-S) (ISTE, 2016). These standards offer broad guidelines for technology use and understanding for stakeholders.

In recent years, ISTE standards have improved to change NETS-T into NETS-E (educators) in order to reflect the broader benefit and appeal of these standards (Simsek, & Yazar, 2016) to the educational community from K-12 through graduate instruction. While ISTE is an organization for educators, it has clearly developed NETS-S, which outlines standards for students. The clear goal of NETS-S is to inform and direct educators in their interaction with students (ISTE, 2016).

Educators and Instructional Technology

Much research has been done in the area of educator experience with instructional technology, particularly at the elementary and high school levels (Bodinet, 2016; Breen, 2015; Bridgstock, 2016; Crichton, 2014; Deluca, Shulha et al, 2015; Gunn & Hollingsworth, 2013; Schrum & Levin, 2016; Tarling & Ng'ambi, 2016; Tucker, 2014; Webb, 2014). Within the field, concerns over premillennial educators' ability to adapt to new learning environments have been largely addressed and, through improved professional development (Hussain, 2018; Kaldor & Donohue, 2018; Swallow & Olofson, 2017; Trust, 2017) and communication among professionals both in professional learning communities and other collaborative efforts, best practices have been developed and disseminated (Foulger, Graziano, Slykhuis, Schmidt-Crawford, & Trust, 2016; Provenzano, Klein, & Davis, 2016; Trust, 2017). Attention is turned to pre-service teachers and programs that are generating the next generation of classroom

teachers (Foulger, Graziano, Slykhuis, Schmidt-Crawford, & Trust, 2016; Hussain, 2018; Kaldor & Donohue, 2018; Swallow & Olofson, 2017).

Even with this progress, challenges loom (Burden, Aubusson, Brindley & Schuck, 2016). Educators continue to be concerned with communication throughout the educational community as well as new hardware and software as it correlates with changes in pedagogy (Bartau-Rojas, Aierbe-Barandiaran & Oregui-Gonzalez, 2018). Communication is hampered by differences in preference of communication platform. Educators, who have been conditioned to communicate electronically via email and websites may find this does not reach parents who are, in increasing numbers looking for a more personalized approach to communication through social media, phone calls, and text messaging (Adhikari, Scogings, Mathrani, & Sofat, 2017; Bhargava & Witherspoon, 2015; Blau & Hameiri, 2017). This personalization works in both directions in the lines of communication. Hardware preferences also represent a threat to effective adoption and implementation. Parents who have their own device have already established their preference in laptop or tablet technology. They show little interest in learning to operate a new device. This preference may be driven by brand loyalty, familiarity, or economics (Arpaci, 2015; Camacho-Thompson, Gillen-O'Neel, Gonzalez & Fuligni, 2016). Finally, learning a new software program is a challenge for all involved. Parents, especially those with younger students, are expected to assist their students navigate and master these programs with little-to-no training. The problem is escalated when digital curriculum changes or updates (Borup & Stevens, 2016; Swallow & Olofson, 2017).

In addition, while much of this research has been conducted in the high school and elementary grades (Kaldor & Donohue, 2018), significantly less research has been done on instructional technology in middle school. Within the available studies, the research has aimed

at examining teacher pre-service training and capabilities with instructional technology (Ching Sing, Lynde et al, 2017), qualities that enhance teacher performance in the technology-rich classroom (Faulkner & Latham, 2016), and in-service training and support models (Janssen, & Lazonder, 2015; Jones, & Dexter, 2016; Tondeur, Pareja, et al., 2017). The available research presents two significant gaps. The first gap is the study of middle school students' use of technology, the other involves middle school parents' experience with the use of educational technology tools and techniques.

As is the case with every group of stakeholders within the educational community, when it comes to adoption and implementation of new technology tools and techniques, attitude is key (Stich, & Reeves, 2016; Swart, 2017). Every group of stakeholders has their unique role to play in the process – from administrators to parents. Teachers and parents, for instance, need to see the clear connection between the new tools and techniques and instructional goals (Jacobson, Spence, & Pan-Wei, 2017; Swallow & Olofson, 2017). With both of these stakeholders, establishing clear connections between the new tool or technique with desired goals and outcomes will promote advocacy in both groups (Ozden, Mouza, & Shinas, 2016).

Another significant challenge for teachers is seen in the shifting role of the teacher from central authority to that of facilitator (Gatima & Reynolds, 2013; Hussain, 2018). As a student-centered approach, effective implementation of instructional technology requires the classroom teacher to guide students toward understanding within subjects and units, while also helping students better understand how to apply the ever-expanding array of applications available to help them demonstrate their understanding (Awuah, 2016; Garba, Byabazaire & Tombras, 2016; Franche, Nistazakis, & Tombras, 2017).

Gamification, social media, personalized learning and cooperative learning all play a role in the daily implementation of instructional technology (Kingsley & Grabner-Hagen, 2015; Kivunja, 2014; Mohd & Shahbodin, 2015; Specter, Ifenthaler, et al, 2016; Taufik & Maat, 2017). The inclusion of new instructional strategies like these requires a pivot on the part of the teacher (Koh, Chai, et al, 2017; Wagner & Pigza, 2016). Each of these technology tools requires some degree of technical proficiency and familiarity with new vocabulary (Gatimu & Reynolds, 2013). Instructional design has and will continue to change to adapt to the effective use of new, emerging instructional technology strategies (Asian, 2015; Koh, Chai, et al, 2017).

Educators have assets designed to guide them in the process of adopting and improving the use of instructional technology tools and techniques. ISTE has developed 3 critical sets of standards that provide general guidelines for the technology-rich learning community. NETS-T and NETS-A (ISTE, 2016) are comprehensive standards for teachers and administrators to use in building their instructional technology strategies. These standards change with the technology and its application in pedagogy. In a reflection of the changing digital landscape, ISTE (ISTE, 2016) changed their standards to reflect the flexibility of technology within schools. The new standards, NETS-E, (educators) replaces NETS-T and provides a broader platform for this critical guidance (ISTE, 2016). Far from a mandate, educators and administrators use these standards to guide and inform their own school and classroom practice. The strength and proven benefit of these standards for teachers is that they provide succinct, concise guidance on the use of technology in education (Simsek, & Yazar, 2016).

The goal of academic standards is to propel the entire learning community in the same direction. They help establish benchmarks and allow educators to track the progress of the learning community. Educational technology standards are no different. These standards,

developed by ISTE, provide strong guidance for administrators and educators when adopting, improving, or developing instructional tools and techniques.

These include standards for administrators, NETS-A; educators, NETS-E; and, students NETS-S. While all of the standards, NETS-A, NETS-E, and NETS-S harmonize, a closer examination of the standards for educators (NETS-E) shows them to be comprised of 7 individual areas of educator interaction with instructional technology. These standards are separated into 2 broad areas of focus. The *empowered professional* is the first, which views on the educator as: 1) Learner; 2) Leader; 3) Citizen. The second broad area of focus views the educator as a *learning catalyst* and is directed at viewing the educator in the roles of 4) Collaborator; 5) Designer; 6) Facilitator, and: 7) Analyst (ISTE, 2016). Each of these roles is critical to the success of any technology-rich learning environment, as the role of the teacher has shifted from that of central figure in the students' academic life, to the role of facilitator. This move toward the student-centered model allows the teacher to guide students through problem solving, data collection, collaboration, and communication using real-world models – all of which play a role in the new technology-rich pedagogical model.

NETS-A provides a less focused set of guidelines as standards for school administrators. These standards are intentionally broad in that they are intended for the use of school and district leaders in guiding their faculty and staff toward the adoption, implementation, and continued improvement of technology-rich learning tools and techniques.

NETS-A comprises 5 standards which could be divided into 3 sections: cultural development, Cognitive development, and technical development. Standards 1, visionary leadership, and 5, digital citizenship, focus on cultural development within the digital instructional environment. These standards are concerned with the transmission and adoption of

a shared vision about the purpose and implementation of instructional technology. This vision is the most effective when it is shared by all stakeholders (ISTE, 2016). These standards also interested in transmitting the idea of a shared responsibility for the effective adoption, development and implementation of digital culture across stakeholders. Standards encourage modeling safe, legal, and ethical practices for students to follow (ISTE, 2016), as well as responsible social interactions using new technology tools and techniques. Each successive level of standards increases the involvement of those for whom the standards are drawn. The heaviest demand of the ISTE standards appears to lie on the shoulders of teachers, who need to be aware of standards drafted for them (NETS-E) and for students (NETS-S).

Central concerns of technology adoption and related changes in pedagogy revolve around communication, hardware, and software. In Ed Week's Technology Counts 2018, researchers found that school principals, particularly those at the middle school level describe themselves as unprepared to help students responsibly use social media (Herald, 2018). This is rooted in principals' and teachers' lack of awareness of available resources (Herold, 2018). The question, then arises: If educators do not feel adequately equipped to help guide students through the modern social media landscape, how can we expect parents to do so? As key stakeholders, teachers need to possess technical proficiencies beyond those required for digital assignments and assessments (Greene & Hale, 2017). Communication with parents must be clear, unambiguous and done in a manner with which both educators and parents are familiar. As important as communication is to the process of technology adoption and implementation, hardware familiarity also plays a critical role. In order to function well using a new device, users must be acquainted with the capabilities of that device and how to make the most of them to meet course objectives. The same can be said of software. Familiarity with the capabilities of

the software to be used in the classroom will help students express the depth of their understanding of critical concepts. In addition it must be noted that software development continues at an accelerated pace. Teachers simply cannot be expected to master all of the possible applications that might be useful to students within their courses. Allowing students to locate, master and use new applications and software provides a good avenue for student choice and voice.

Cultural, technical, and cognitive standards all converge on teachers. Unfortunately, even those who are early adopters of instructional technology are finding some difficulty engaging technology in a holistic manner in their classrooms (Chai, Deng, et al., 2015; de Vocht & Laherto, 2017; Martell, 2015). It is evident that even teachers who are on the cutting edge of instructional technology can find room for improvement in these standards (de Vocht & Laherto, 2017). Teachers need to establish clear expectations for both students and themselves as they develop their own familiarity with new technology tools and techniques. A teacher without a clear plan on how to assess student understanding presents a moving target for students. When adopting new technology tools and techniques in the curriculum, teachers must communicate among themselves to collaborate and share best practices. This collegial work will return good dividends when presenting new technology tools and techniques to students (Benade, 2015).

Although insightful, studies tend to be narrow in focus. The tight focus causes researchers to fail to view the challenges of completely implementing instructional technology from any other point of view; Stakeholders like parents are often not included early enough to allow them to provide helpful feedback on the technology adoption and implementation process. This lack of parental perspective may leave the observer to conclude that the focus of the study is the most critical element to successful implementation of technology tools, devices and

strategies. While an important component, educators alone cannot address all of the challenges associated with the adoption and implementation of instructional technology.

Rigid adherence to the top-down approach to adoption of instructional technology tools and strategies has likely negatively impacted other stakeholders like parents (de Vocht & Laherto, 2017; Greene & Hale, 2017). As school administrators present new technology to teachers, the new tools and techniques are infused with culture, establishing how and when to use the tools and techniques. It is, thus, important that other stakeholders be considered early in the school's implementation process. It is this kind of integrated approach to technology adoption, improvement, and development that the ISTE standards hope to encourage, bringing together the broad spectrum of technological ability and skill that exists in most schools.

Students and Instructional Technology

Throughout the literature student experience has been well documented. This is clearest within discussions of the impact of pedagogy change, assessment and device adoption that is primarily focused in the high school (grades 9-12) and elementary school grades (grades K-5) (Boyaci & Atalay, 2016; Lemley, Schumacher & Vesey, 2014). Communication, hardware, and software remain central concerns of curriculum developers, educators, and students alike (Adhikari, Scogings, Mathrani, & Sofat, 2017; Bhargava & Witherspoon, 2015; Blau & Hameiri, 2017; Bodinet, 2016; Harper & Millman, 2016). Students need clear expectations communicated using means of communication and terminology with which they are familiar. Students must be familiar with devices used in the classroom (Herald, 2018). Developing this familiarity must be developed as a part of the course expectations for the class early in the school year. The same must be said about the use of software. In order to function well within a classroom using new applications, students must be familiar with software and techniques designed to help them

demonstrate their understanding of course objectives (Huat See & Gorard, 2015; Keane & Keane, 2018).

Mirroring research conducted around teacher adaptation to the new tools and techniques that accompany instructional technology, studies involving student experiences with new tools and techniques focus on various elements of instructional technology. The changing learning environment and how that impacts learner outcomes (Fakomogbon & Bolaji, 2017; Lemley, Schumacher & Vesey, 2014; Smith, 2014; Walsh et al., 2015) is of particular interest to many researchers as student success is central to measuring the benefit of the robust application of instructional technology throughout the learning environment. Without an engaging learning environment, learning outcomes decline (Fakomogbon & Bolaji, 2017), however, effective instructional technology techniques have proven beneficial to student outcomes (Damnik, Proske & Körndle, 2017; Smith, 2014; Walsh et al., 2015).

Student perceptions play a significant role in the successful implementation of any learning environment (Chai, Deng et al., 2015; Shadiev, Hwang, et al., 2015). Allowing students to explore new information in a way that improves understanding, as in collaborative approaches found in a technology-rich learning environment, shows positive results (Fui-Theng, Mai & Soon-Hin, 2016). Some of these results include: improved work relationships, active participation, improved leadership and positive attitudes towards learning and contributing new ideas (Bray & Tangney, 2016; Fui-Theng, Mai & Soon-Hin, 2016).

Student attitudes toward the use of new tools and techniques is critical to outcomes (Stich, & Reeves, 2016). New tools and techniques must compliment the curriculum and enhance student perception of the learning process if they are to be embraced (Stich, & Reeves, 2016; Swart, 2017). Students not only value these elements of the new learning approaches

being developed and adopted in the classroom, but prefer the use of these new tools and strategies to promote critical thinking, collaboration, and problem solving skills (Swart, 2017). This is particularly true when they are well aligned with instructional goals for the course in which they are used (Swart, 2017). So, the use of technology is not a stand-alone solution in the eyes of students. It is one component of a broad array of new tools and instructional approaches that, when used together produces stronger outcomes for students (Stich & Reeves, 2016; Swart, 2017).

One common misconception is that adolescents are all proficient in the use of technology (Clay-Buck & Tuberville, 2015; Ragusa, 2017; Santos, Ali & Hill, 2016; Yuen, Lau, et al., 2016; Yunus, Nordin, et al., 2013). In relation to their adult counterparts, students demonstrate greater proficiency and flexibility in the adoption and use of new tools, both in an academic and non-academic settings, however, within this group, there is some degree of variation that occurs (Yunus, Nordin, et al., 2013). This generates a barrier to the effective use of technology for both students and schools (Clay-Buck, & Tuberville, 2015; Santos, Ali & Hill, 2016).

The largest contributor to this variation is digital equity, which remains a problem for some students and schools (Clay-Buck, & Tuberville, 2015; Thieman, 2017; Yuen, Lau, et al., 2016). Students in low-income, racially and linguistically divers groups may find ownership of a laptop or tablet or even access to the internet at home to be a challenge (Resta, & Laferrière, 2015; Thieman, 2017). While there is no simple solution to this problem, the increased availability of low cost options such as Chromebooks and inexpensive tablets like the Fire and Galaxy have helped grant access to many who could not afford a device (Yuen, Lau, et al., 2016).

Another common misconception is that students' technological literacy will transfer into an effective use of technology as an educational tool (Gabriel, Campbell, et al., 2012; Yunus, Nordin, et al., 2013). While new technology tools and techniques show great promise for student outcomes, this push for technology in the classroom is not without hazards. The use of technology during a class may, itself represent a distraction to the student as they may be tempted to use the technology for other, less academic pursuits (Aagaard, 2015; Gabriel, Campbell, et al., 2012; Miah, Adnan, & Allison-Golding, 2013; Yunus, Nordin, et al., 2013). Bringing educators and parents together in an effort to help guide students in the most effective use of technology provides students with the best opportunity to adopt beneficial technology habits (Miah, Adnan, & Allison-Golding, 2013).

While studies have shown a strong correlation between age and confidence in the use of technology, care should be taken to not over-apply this stereotype (Gabriel, Campbell, et al., 2012; Ragusa, 2017). Numerous variables can negatively impact the outcomes of these studies. Users' socioeconomic status, availability of tools, access to networks, and general demand for the use of these tools each can play a role in whether an individual at any age is at all familiar with technology. Also, the general reason or need for using the technology can be a factor. For instance, if the user needs to use a given device for their job, regardless of age, they may tend to be more receptive to the device, whereas the casual social media user or video gamer may not readily adopt a new platform for the application with which they are already familiar.

Compelling users to adopt new tools and techniques often produces a more negative view of the new device or procedure. Students tend to describe their experience with educational technology in negative language as compared to their descriptions of traditional brick-and-mortar educational experiences (Ragusa, 2017). Much of this negative ideation is developmental.

Simply put, immature students do not appreciate the benefits of accountability that come with many of the new technology tools and techniques used in the technology-rich classroom (Archambault, Kennedy & Freidhoff, 2016).

Like NETS-E and NETS-A, objective standards (NETS-S) have been generated for teachers in the area of student use of instructional technology (ISTE, 2016). As with the previously discussed ISTE standards, these guidelines are intended for educators, and as such, help inform educators in the beneficial application of educational technology throughout their academic environment. These standards for students are designed to empower students and equip them as they adapt to the changing demands of the technological world developing around them (Cantu, 2016). Effective standards include discussions of digital culture, pedagogical concerns, like collaboration, problem solving, and technological literacy while addressing other areas of concern in the technology-rich learning environment.

The seven areas addressed within these standards are designed to help the student become a(n): 1) Empowered learner; 2) Digital citizen; 3) Knowledge constructor; 4) Innovative designer; 5) Computational thinker; 6) Creative communicator, and; 7) Global collaborator. While these standards each aim at an individual are of focus for students engaged in technology-rich education, they represent areas where different central themes converge. Two of these themes are cultural and cognitive elements embedded throughout the standards. Cultural components comprise points 1, 2, 6, and 7 entailing elements of choice, guidelines for safe, legal and ethical digital behavior, respect for intellectual property and the contributions of others, collaboration, respect for other cultures, and using technology to engage others in the exploration of real world problems (ISTE, 2016).

Cognitive components of these standards are embodied largely in points 1, 3, 4, 5, 6, and 7 focusing on reflection, personalization, customization, evaluation, innovative design, data collection and analysis, problem-solving, creation of artifacts, collaboration, and knowledge-building (ISTE, 2016). The overlap in these standards mirrors the complexity of the technology-rich learning environment. This synergy is a strength of the standards. Parsing-out individual cognitive or cultural items would likely require the addition of numerous new points to the standards, generating a cumbersome tool. Thus, the overlap in themes with these standards provides flexibility and perspective that is helpful to educators in developing instructional practices that maximize the tools and techniques embodied in the new high-technology learning environment.

The shift from a teacher-centered learning environment toward a student-centered learning environment also fuels a questioning attitude that drives student inquiry (Brenner, Matlen, et al., 2017; Gómez-Rey, Barbera, & Fernández-Navarro, 2017; Pei-Shan, Ching Sing, Yen-Yuan, Min-Hsien, Jyh-Chong & Chin-Chung, 2016). Collaboration is an essential element to the student-centered technology-rich learning environment (Hummell, 2016; Martell, 2015; Pei-Ling, Koh, et al., 2017; Santos, Ali & Hill, 2016; Shadiev, Hwang, et al., 2015). Project based learning (PBL) is another earmark of the technology-rich learning environment. Here students are assessed on their understanding of academic content through their creation of learning objects or presentations designed help classmates better understand the material (Lin, Ma, et al., 2015; Santos, Ali & Hill, 2016; Shadiev, Hwang, et al., 2015). As an addition to classroom pedagogy, PBL is a technology-friendly technique that helps move assessment towards real world benefits.

Parents and Instructional Technology

Surprisingly, almost nothing has been added to the literature in recent years concerning parent experiences with instructional technology in middle school. Middle school parent voices are relegated to oblique discussions of the importance of parents as stakeholders and the need for parent involvement in developmental issues (Kiadarbandsari, Madon, et al., 2016; Sawyer, Praimos & Towns, 2010; Stanley, Vaterlaus, et al., 2017). It is clear that for younger students, the primary stakeholders are the parents (Bhargava & Witherspoon, 2015). They are the primary support for the student (Kiadarbandsari, Madon et al., 2016; Razik & Swanson, 2010; Stanley, Vaterlaus, et al., 2017), yet the speed of new technology adoption has kept the focus of new research on teachers, students and schools (Benade, 2015; Davidsen & Vanderlinde, 2016; Hepp, Prats-Fernández & Garcia, 2015).

Parent involvement in their students' technology-rich learning experience begins with communication between both the student and teachers (Borup, 2016). This communication will provide the support necessary for the parents to be full partners in their students' education (Borup, 2016; Stanley, Vaterlaus, et al., 2017). Teachers know that they need to communicate with parents, but the task of opening lines of communication and dialogue is difficult and is exacerbated by the lack of common vocabulary (Borup, 2016). Three tiers of communication occur in the area of a technology-rich learning environment. The first is that which takes place between administrators and teachers/ educators. This communication is technical, and is never intended for parents. Educators must learn how to meaningfully convey critical information about new technology tools and techniques to parents, thus ,closing the circle between educators, learners and parents in this critical area.

Next comes the communication between educators and students. Educators and students interact on similar planes. Both educators and students continually engage in the painstaking process of learning how to communicate in technical terms concerning their expectations, questions, and needs in the area of instructional technology (Mølster & Nes, 2018). Students, who spend 180 days interacting with peers and teachers about assignments, tools, and techniques are far more experienced in these interactions than their parents who function in the final tier (Mølster & Nes, 2018).

Communication between educators and parents may fail because both of these stakeholders are communicating about common struggles in different languages (Mølster & Nes, 2018). While both are speaking English, for instance, they may be talking past each other – the teacher using terminology with which the parent may be unfamiliar; the parent using terminology that is inarticulate or altogether inaccurate to describe the circumstance for which they need assistance (Mølster & Nes, 2018). Either way, the communication loop breaks down, and the situation is likely to continue to degrade. In addition, there are parents who may tend to communicate only in the event of a problem, thus, frustrating the communication process (Mølster & Nes, 2018).

Parental attitudes and perceptions are no less important in the area of technology adoption and pedagogical change (Jacobson, Spence, & Pan-Wei, 2017; Manigo, & Allison, 2017; Stich, & Reeves, 2016; Swart, 2017). Parent optimism and skepticism of new instructional techniques can translate into commensurate changes in student attitudes and outcomes (Manigo & Allison, 2017). Parents' beliefs about how devices should be used can also impact student attitudes both in the classroom and at home (Swart, 2017).

Three areas of concern arise in parental interaction with the adoption and implementation of new technology tools and strategies in their students' education. These include communication, hardware and software. These critical areas represent significant barriers for all stakeholders to overcome, but due to their remoteness, they embody the core of the issue for parents. In education communication is critical. In essence, education is all about communication and the communication loop is engrained in the process of education.

The communication loop is often fractured between teachers and parents, particularly in the area of new technology and pedagogy (Blau & Hameiri, 2017). The successful transmission of information from the teacher to the student and back again is essential to measuring student misconception and understanding, thus providing a framework for evaluation and student growth. This cycle is also critical to supporting positive student engagement with new tools and techniques (Blau & Hameiri, 2017; Manigo & Allison, 2017).

As a primary stakeholder, the teachers' communication with parents is essential to the success of the learning process (Manigo & Allison, 2017). It is clear that when a breakdown in the communication loop between teachers, students, and parents occurs the learning process is hindered. This communication between educators and parents is increasingly established through new tools such as email, the school website, the learning management system, and social media (Jacobson, Spence & Pan-Wei, 2017). The rapid development and utilization of communication tools means that users continually evolve their adoption and use of these tools; adding new tools and allowing others to atrophy (Jacobson, Spence & Pan-Wei, 2017). Parents and educators must continue to find new ways to stay connected (Manigo & Allison, 2017). This connection is solidified through clear, effective communication.

Where the school website used to be the central repository for parent communication, recent trends have driven parents toward more personalized, direct communication through email and other less-broadcasted communication platforms (Jacobson, Spence & Pan-Wei, 2017; Ozdamli & Yildiz, 2017). This means that the use the learning management system and the school website to disseminate critical information like grades and school events may become less meaningful to parents. Passive communication tools are being supplanted by more direct, targeted, and personalized communication (Blau, & Hameiri, 2017).

It is clear that any of these tools are only as good as the parents' willingness to accept and engage them (Manigo, & Allison, 2017). If a parent views the school text message system, email, or social media as a nuisance, critical information will be missed (Ozdamli, & Yildiz, 2017). Conversely, if the use of new communication technology is viewed as an extension of the value of the parents in the education process, parents may be more likely to engage and improve the communication across stakeholders (Blau, & Hameiri, 2017; Ozdamli, & Yildiz, 2017).

Research has concluded that parents and students are not communicating on parallel lines when discussing technology (Borup, 2016; Stanley, Vaterlaus, et al., 2017). Parents and students' interactions about technology often involve the use of disjointed and disconnected vocabulary. Simply stated, parents and students simply do not speak the same language when it comes to technology. This generates misunderstandings and even resistance within parents to the communication process. The same could be said about the technology language gap between parents and educators (Noguerón-Liu, 2017). Parents and their students often view and use communication and new communication tools differently. While adults see social media as a means of both gathering and disseminating information, and not as a replacement for real, human

interaction, some adolescents' view of technology places their social media interactions on the same interpersonal level as face-to-face conversations (Miah, Adnan, & Allison-Golding, 2013; Stanley, Vaterlaus, et al., 2017).

Adults interact with social media differently, favoring its use as a secondary communication medium (Muñoz, Cornejo, Gutierrez, Favela, Ochoa, & Tentori, 2015). This generational divide is not isolated to social media. The basic transactional vocabulary varies to the point of distraction for some parents, thus generating a barrier between them and the rest of the learning community. This breakdown renders the most influential stakeholder, the parent, powerless in the educational process.

Both teachers and parents find that the failure to communicate on common ground about elements of instructional technology inhibits student progress (Borup, 2016; Borup & Stevens, 2016). These divisions further define the inadequacy felt by parents in the realm of instructional technology and the technology-rich learning environment (Borup & Stevens, 2016). Parents also find communication with their students' teachers challenging where elements of instructional technology are involved (Borup & Stevens, 2016; Miah, Adnan, & Allison-Golding, 2013; Stanley, Vaterlaus, et al., 2017).

Improved communication has clear benefits: clear, quick dissemination of critical information and flexibility in the choice of platform through which to communicate (Hudson, & Vasil, 2015). It also promotes improved attitudes in students (Ozdamli, & Yildiz, 2017). As parents better understand the connection between the use of new tools and techniques to student outcomes, they may become more likely to encourage student engagement (Jacobson, Spence, & Pan-Wei, 2017; Manigo, & Allison, 2017; Ozdamli, & Yildiz, 2017; Stich, & Reeves, 2016; Swart, 2017).

There remains a disconnect in the communication loop. The gap is represented by parents' lack of familiarity with new hardware and software (Kong, 2018). The concepts of hardware and software tend to merge into one unified idea, but they must be kept distinct, because, although they are related, they serve very different purposes. Since the advent of mobile computing in 2007, users have become more comfortable with nomadic computing. This use of devices means more flexibility for educators and students alike. No longer are lessons trapped within the four walls of the classroom. Students are able to share notes and ideas through collaboration software that allows for real-time interaction between learners and allows for quick feedback from teachers (Kong, 2018).

Schools have shifted their investments away from tethered technologies. The idea of the computer lab in many schools has been all-but-forgotten, replaced by inexpensive mobile tablets and laptops. This allows for more flexibility within school facilities and provides the opportunity for more creative use of these former single-use spaces.

Mobile devices also provide additional benefits, such as providing students access to academic content beyond the four walls of the classroom (Kong, 2018). Students who are not present at school may still participate in class activities and submit assignments. Teachers are no longer bound by the class schedule in accepting student work. If students need additional time to complete an assignment, their teacher now has the ability to collect work over the weekend through class websites and learning management systems (Al-Emran, & Salloum, 2017). This ability to time bend is enhanced when students have their own mobile device with which to complete and submit their work (Kong, 2018).

The digital divide represents a real threat to effective parental involvement in their students' education (Kong, 2018, Noguerón-Liu, 2017). This gap is generated by parents who

want to get their students to unplug, and by those families who are struggling to gain access to the internet. While the result of both of these situations is the same, parental motivations may have far different impacts on student achievement using technology tools within the learning environment.

The student that is engaged in the technology-rich learning environment may be applying academic skills that are unfamiliar to the parent that is not engaged. All of these new forms of interaction are alien to the parent that cannot connect to them. This gap is typically generated by socioeconomic barriers that keep parents from owning devices or providing connectivity and cultural challenges in the home (Kong, 2018; Noguerón-Liu, 2017).

In recent years, this concern has been addressed by the implementation of digital education strategies that offer students offline interaction with applications like Google Applications For Education (GAFE), the introduction of initiatives like Access by AT&T and Comcast's Internet Essentials programs that offer free-and-low cost internet access to low income households, and the seemingly ubiquitous availability of free Wi-Fi throughout the community (Awuah, 2015).

For many users, devices remain very personal. In 1:1 programs, parents may not be familiar with the platform chosen by the school. This unfamiliarity may breed apathy toward the tools used, and, thus providing another point of disconnect between the parent and other stakeholders. Parents involvement in their students' education is critical to student success (Kong, 2018). Without it, the student is left to fend for themselves, often to their own academic and social peril.

To take their place as primary stakeholders and realize their potential within their students' education, parents need to fully engage students in all aspects of their education,

particularly in their middle school years. Full parent engagement with the devices used in their students' education means a richer engagement of critical digital citizenship concepts across their education (Kong, 2018). Unfortunately, no recent research has been conducted concerning the middle school parent in relation to instructional technology. This creates a significant gap both in the literature and for educators who want to better support struggling students in this new instructional world. A deep, rich understanding of parent experiences with middle school instructional technology will benefit teachers, students and parents alike (Crichton, 2014; Davidsen, & Vanderlinde, 2016).

One such benefit is the reduction of risky online behavior engaged in by adolescents with parents who are conversant in the potential problems surrounding technology use (Miah, Adnan & Allison-Golding, 2013; Moawad & Ebrahem, 2016). Parental knowledge and parenting limits on the use of technology in the family help protect adolescents (Tomczyk & Wasinski, 2017). Furthermore, parents' educational background influences student interaction with social media, thus parent interaction with students helps guide the student toward good choices online, while parent disengagement appears to promote risky online behavior (Tomczyk & Wasinski, 2017). Parents are critical to helping their student navigate the challenges of the digital age.

Finally, the relationship between parents and adolescents in the home plays a role in the students' online activity, and, thus, their use of instructional technology (Tomczyk & Wasinski, 2017). Over-protective parents may restrict students' use of devices at home, thus reducing critical collaboration outside of the classroom (Swart, 2017). Conversely, permissive parents may not provide the structure required to keep students on task (Tomczyk & Wasinski, 2017). Benefits of improved communication involve parent support of students in helping them organize and manage schedules, assisting in the development and application of interpersonal skills,

encouraging student engagement and providing academic support where possible (Borup, 2016; Tomczyk & Wasinski, 2017).

In the end, parents represent the most significant influence in their child's social, emotional and academic development (Hudson & Vasil, 2015). There is little research available to help practitioners build an understanding of exactly how to best help parents engage the technology-rich learning environment (Borup, 2016; Crichton, 2014; Stanley, Vaterlaus, et al., 2017). This study will add to the body of knowledge in this critical area of curriculum development.

Summary

Research on the adoption and implementation of new tools and techniques is abundant. The available research gives voice to many; the tools, machines, and devices (Admiraal, van Vugt, et al., 2017; Buss, Wetzel, Foulger, & Lindsey, 2015; Carver, 2016; Chiu, 2016; Delgado, Wardlow, McKnight, & O'Malley, 2015; Venkatesh, Greenhill, et al., 2012), strategies and tools (Carver, 2016; Chiu, 2016; Delgado, Wardlow, et al., 2015; Hechter & Vermette, 2013; Martin & Carr, 2015; Min, Navarrete, & Wivagg, 2014; Venkatesh, Greenhill, et al., 2012), the institutions and their agents (Bodinet, 2016; Breen, 2015; Bridgstock, 2016; Chui, 2016; Crichton, 2014; Deluca, Shulha et al, 2015; Gunn & Hollingsworth, 2013; Schrum & Levin, 2016; Tarling & Ng'ambi, 2016; Tucker, 2014; Webb, 2014), the students (Boyaci & Atalay, 2016; Damnik, Proske & Körndle, 2017; Fakomogbon & Bolaji, 2017; Lemley, Schumacher & Vesey, 2014; Smith, 2014; Walsh et al., 2015), have all been examined and been heard through academic research. The needs of individual stakeholders like students and teachers are thoroughly explored in the literature. Other areas of concern are also addressed through instructional technology standards, like the ISTE standards.

While stakeholders, like administrators, teachers and students play important roles in the education of the student, their impact is diminished by the omission of a key stakeholder in the learning community – the parents. In order to more completely address the challenges associated with technology adoption, implementation, and improvement, all of the educational stakeholders need to be included. This means that parents need a stronger voice in the process.

Parent attitude is critical to student success. The successful adoption and continued implementation and improvement of new technology tools and techniques requires the support and engagement of all stakeholders. Key to increasing parental engagement with new tools and techniques in the technology-rich learning environment is communication. The communication loop must be complete for parents to fulfill their role in the process.

A richer understanding of parent experiences and interactions with the adoption and implementation of instructional tools and techniques will be instructive to educators and curriculum designers. Of particular benefit to educators is the parent experience and interaction in the areas of communication, and technology -- both hardware, and software. A more comprehensive understanding of the strengths and weaknesses of each of these will help inspire beneficial improvements in each. This understanding will aid in the development and adoption of new instructional technology tools and strategies (Borup, 2016; Miah, Adnan & Allison-Golding, 2013; Moawad & Ebrahem, 2016; Tomczyk & Wasinski, 2017).

The perceptions and expectations of many of the stakeholders have been widely studied in the literature. The research clearly indicates that teachers have a variety of perspectives and strategies for implementing instructional technology tools and techniques (Awuah, 2016; Garba, Byabazaire & Tombras, 2016; Franche, Nistazakis & Tombras, 2017; Kingsley & Grabner-Hagen, 2015; Kivunja, 2014; Mohd & Shahbodin, 2015; Specter, Ifenthaler, et al, 2016; Taufik

& Maat, 2017). Student perceptions and attitudes have been widely examined. This research has improved the process of new technology adoption in K-12 schools by informing educators about the needs of students. Administration and district needs and concerns have been heavily studied. However, the experience of the parents of students enrolled in middle schools that employ instructional technology tools and techniques is yet to be explored.

Communication, hardware, and software continue to evolve in ways that are, at times, anticipated by many in the learning community, yet parents continue to lag in their inclusion within the process of adoption, development, and improvement instructional technology tools and techniques. A clearer understanding of these parents' experiences with these tools and techniques is likely to improve the teacher-parent and parent-student lines of communication and result in stronger student outcomes.

The complex interaction of social, emotional, and new academic challenges makes the middle school experience worthy of a closer look. Improving parent engagement will generate closer ties between these critical stakeholders and educators. Aligning the needs of stakeholders throughout the learning community will result in increased outcomes for learners.

A closer examination of the attitudes and perceptions of parents will provide better insight into the challenges and potential presented by technology-rich learning environments. This study will explore the lived experiences of middle school parents in technology-rich learning environments through personal interviews, focus groups and cognitive representations. The results of this study may improve professional practice by providing strong guidance to middle school educators as they seek to improve parent engagement, communication between educators and parents, and ultimately help parents navigate through these difficult years. The next chapter will discuss the methods used to explore the experience of middle school parents in

the technology-rich learning environment. These methods will include personal interviews, cognitive representations and focus groups to gather data as well as the process of interpreting that data for this report.

CHAPTER THREE: METHODS

Overview

This chapter will present the design, research questions, setting, participants, procedures, researcher's role, data collection, data analysis, trustworthiness, ethical considerations and summary. The purpose of this study is to understand the lived experiences of parents of middle school students enrolled in private, twenty-first century learning model ACSI schools in South Florida. To examine this phenomenon, I will recruit participants from three technology-rich academic middle school programs in South Florida. These programs will be identified through their participation in ACSI programs as reviewed using the Effective Learning Environments Observation Tool (ELEOT). A variety of methods will be used to provide at least three data sources for the study. Interviews, cognitive representations, and a focus group will be used to gather data in an effort to encapsulate the essence of the lived experience of middle school parents in the application of instructional technology.

Design

A qualitative transcendental phenomenological design best fits this study as it seeks deep, rich understanding of the experiences of the parents relating to the phenomenon (Creswell, 2013; Patton, 2015; Schwandt, 2015), the implementation of instructional technology at ACSI middle schools in South Florida. Since I want to understand the essence of the daily experience of participants with regard to the phenomenon (Husserl, 1931), an existential phenomenology fits this study. Additionally, since I want to better understand the pure meaning of the experiences of these participants, I will use epoche to set aside my own experience and preconceptions about middle school education and the adoption of a technology-rich learning environment during the study. Throughout the research and data analysis process I will use journaling to isolate and

eliminate my own perspective and experiences and give the research a fresh look at the phenomenon (Moustakas, 1994). Since the participants are a group with little to no voice in the literature, this approach represents an underused approach in the current scholarly literature.

Transcendental design is a good fit for this study as I want to identify universal themes and structures that underlay the participants' experience while setting aside prejudgments and biases (Moustakas, 1994). In this process, I want to develop a fresh picture of the phenomenon from the perspective of those who have experienced it. All of this is conducted through the first and continual use of epoche or bracketing, imaginative variation, and finally data analysis and reporting.

Qualitative phenomenology is concerned with understanding the experience of individuals in relation to a central event or phenomenon. Within this research design the researcher gathers relevant data through relational processes to identify commonalities within the experiences of many individuals. Clusters of meaning will be identified by studying transcripts and interviews with participants. These will be connected to statements made by other participants.

These commonalities will develop into themes that are used to explain the essence of the phenomenon in question (Creswell, 2013; Patton, 2015; Schwandt, 2015). More specifically, transcendental phenomenology is a good fit for this study because it allows the researcher to discover how the participants perceive the phenomenon, thus, discover the reality of their experiences. The use of imaginative variation and continued use of epoche will help develop these concepts throughout the research process (Moustakas, 1994).

Research Questions

The central question:

What are the lived experiences of parents of middle school students engaged in technology-rich ACSI schools in South Florida?

Sub-questions:

1. What were the expectations of parents regarding instructional technology prior to student enrollment in a technology-rich middle school?
2. In what ways were parents' expectations of instructional technology met or not met?
3. What do parents view as essential skills necessary for success in the technology-rich learning environment?
4. What are the expectations of parents in technology-rich schools as their students prepare for high school and beyond?
5. What do parents view as problems associated with instructional technology/ technology-rich education?
6. What do parents view as benefits of technology-rich education in middle school?

Setting

This study will include multiple participants at multiple sites. Three ACSI schools in South Florida will be the settings for this study. For this study, "South Florida" will be defined as the area of Florida encompassing Pope (pseudonym), Bennett (pseudonym), and Morgan (pseudonym) counties. The selection of schools in South Florida allows for easy access for the researcher who lives and teaches in the region. South Florida is home to 65 ACSI schools. This

represents a target-rich environment for the researcher. In addition to being ACSI member schools in South Florida, selected schools will have successfully completed accreditation or reaccreditation within the last two years (either 2015 or 2016). Selection of these schools will help ensure the involvement of technology rich schools as ACSI uses the Classroom Observation Tool for Accreditation (COTA) as the instrument for gauging the success academic programs and pedagogical structures. COTA replaces the Effective Learning Environments Observation Tool (ELEOT) (Appendix A). It is expected that as the needs of the schools they serve change, ACSI will continue to develop and improve the instrument used for school assessment. Both of these instruments address the need for increased twenty-first century learning methods and tools.

The three schools used in the study will be similar in the socioeconomic and ideological composition of their student bodies. Thus, a more unified picture of the lived experiences of participants will be framed through the collected data. This will be important to the drawing of common themes across sample groups.

School 'A' is a large Christian school in South Florida. It has a student body of 1,000, 75 of which are 9th grade students. Although they have used technology in their instruction for the last five years, they recently introduced a 1:1 laptop program. The middle school program has a reputation for effective application of technology.

School 'B' is a large Christian school in South Florida. It has a student body of 900, 65 of which are 9th grade students. Although they have used technology in their instruction for the last five years, they recently introduced a 1:1 laptop program. The middle school program has a reputation for effective application of technology.

School 'C' is a large Christian school in South Florida. It has a student body of 1,500, 112 of which are 9th grade students. Although they have used technology in their instruction for

the last five years, they recently introduced a 1:1 laptop program. The middle school program has a reputation for effective application of technology.

Interviews will take place on the campus of the school where the participants' child is enrolled. This means there will be interviews held on the campus of school 'A', school 'B', and school 'C'. Holding interviews on their school campus will provide a measure of comfort and familiarity to participants. Familiarity with the location will allow the participants a more relaxed environment in which to engage the interview process. The focus group location will be directed by the participants. This will be on the school campus most convenient for participants.

Participants

Purposeful sampling will be used to identify participants for this study (Patton, 2015). To fully explore the phenomenon, I am interested in collecting data from parents of students who have completed their middle school education in a technology-rich learning environment in South Florida private schools. This requires an identification of a narrowly defined group for participation. Participants for this study will be parents of 9th grade students enrolled in ACSI schools in South Florida that completed an accreditation visit between 2015 and 2017. The use of schools that completed ACSI accreditation between 2015 and 2017 will allow me to narrow my participation pool to those who are involved in a technology-rich middle school. The focus on participants with children enrolled in that school's ACSI middle school program between the years 2015 and 2017 will help narrow the focus of the study to those who have interacted with a technology-rich middle school learning environment. It is expected that 4 to 5 participants will be identified to take part in the study from each school.

ACSI is interested in enhancing the experience of those enrolled in its member schools. This means providing guidance for member schools toward increased use of instructional

technology. This guidance comes in the form of guidelines for administrators, professional development seminars, communication on the ACSI website, and through discussion groups that focus attention on effective methods of technology adoption and integration in Christian schools. As such, ACSI support will be enlisted to help both identify schools for participation and provide an introduction of the research study and researcher to the site administrators and parents. To this end, ACSI will aid in identifying member schools in South Florida that successfully completed accreditation visits between the years 2015 and 2017. The regional office will contact qualifying schools and introduce the study and its importance to the schools and their families. In addition, the regional director will also encourage participation in the study. Site administrators will be reminded that this study will require minimal effort on their part, to include identifying potential participants (the sample pool of 9th grade parents) and these principals will then be asked to reach out to the sample pool to introduce the study and encourage participation (Moustakas, 1994; Patton, 2015).

In order to insure an adequate number of participants from each participating school, snowballing will be used to expand the sample once interviews begin. Snowballing is described as the process of gathering participants for a study through the interview process with other participants (Creswell, 2013; Patton, 2015). Thus, the initial sample pool will provide additional potential participants for the study if they are needed. While not the primary method of identifying participants, the inclusion of this sampling method will help provide new participants as attrition occurs within the original sample pool (Patton, 2015). This will help the study reach saturation by allowing participants to identify others that they know would be willing participants and have an interesting perspective to provide (Creswell, 2013; Patton, 2015).

Wanting a heterogeneous sample, steps will be taken to ensure balanced participation in terms of socio-economic representation (Patton, 2015). This information can be obtained by using a brief biographical questionnaire that will ask questions about income and technology use. This information will not exclude participation, but rather potentially guide understanding and interpretation of data later in the study.

Excluded from the study will be parents who serve as faculty or staff of the participating schools. This group of participants has ostensibly already transitioned successfully into a technology-rich learning environment, and will not offer the rich description that will come from those who full range of positive and negative experiences involving instructional technology in middle school. Involving those who have been close to instructional technology from the point of view of an educator will bring polarized perspectives. The biases of this group may tend to imprint heavily on others involved in the study, as they have a close connection to the school. This influence may tend to diminish candor and expand biases reflected by these individuals.

In addition, these connected individuals will be either adopters or resisters of technology implementation. This would be likely skew results as well. I will interview 10-15 participants or until saturation is reached (Moustakas, 1994). This means four to five participants from each school will take part in the study.

Procedures

The research process begins with obtaining Institutional Review Board (IRB) approval for the research. All procedures, releases and data collection techniques will be developed and presented to the dissertation chair prior to submission to the IRB. Once written IRB approval has been obtained, I will secure releases from all involved in the study in order to gather data. This means gathering written approvals from both site administrators and participants.

Participants will be identified with the help of site administrators at each of the schools taking part in the study. Written releases and permissions will be collected as participants are interviewed, thus, in the case of those who join by snowballing, these permissions will be collected far later than those who may have referred them to the study. It is expected that clusters of original participants will be identified in short time periods at each site, then those participant pools will expand through referrals/ snowballing. In addition, participants will receive written reminders prior to all data collection procedures that they are not obligated to answer any question that they may choose to skip any question(s) they wish to, and may end their participation at any time (Moustakas, 1994) for any reason.

Bracketing will be used to set aside my personal experience through memoing throughout the research process. In addition, prior to the research process, I will outline my own personal experience with instructional technology and interactions with parents as a teacher. This will help me both better understand my own biases and keep them from inadvertently tainting the data as it is collected and analyzed. In addition to bracketing, I will take note of non-verbal responses to questions. Pauses, fidgeting, gestures, and other nonverbal cues can be informative and may reveal important information that is not apparent through an audio recording or transcript. This data will be used to add richness to the statements given by each participant.

A pilot study will be conducted at my own school to test interview questions and other data collection and analysis techniques and tools like ATLAS.ti. This pilot study will involve five participants who match the criteria for participation in the study. Administration from the school will assist in identifying the participant pool, introducing the study to potential participants, discussing the relationship between the researcher and the school, and communicating other preliminary information to these parents. The data collected will be

protected using the same procedures outlined for the study, including the use of secure storage, coding, and separating the code key from transcripts and other descriptions generated for the pilot study. Data collection and analysis procedures will be followed and adjusted as necessary for the study.

Once I am satisfied that the data collection techniques and processes are effective, I will begin contacting the identified schools for participation in the study. Before the pilot study I will contact ACSI to identify South Florida schools that include a middle school program and that use a technology-rich learning environment. ACSI regional leadership maintains close relationships with their member schools, and, as such, will prove helpful in both identifying qualifying schools and enlisting their support for the study.

From a complete list of ACSI schools that have recently successfully completed the accreditation process, I will identify three ACSI schools that have recently (2015-2017) successfully completed their ACSI/AdvancEd accreditation visits. Communicating with the Florida/Caribbean Regional director, David Holzhouse has proven helpful in narrowing the number of schools that meet the criteria to four. Two are located in Miami-Dade County and two are located in Palm Beach County.

ACSI is interested in the collection of data that will help them serve the administrators, teachers, students, and parents of member schools and, thus, will be interested in actively partnering with this study. The results of this study will be made available to ACSI for publication in their written and electronic journals for member schools as well as the ACSI annual conference.

Two sets of communication will take place with potential participating schools. The first has been through an email from the ACSI regional office introducing the study and providing the

school leadership with a brief introduction to me and my study (Appendix D) . Written approval from ACSI (Appendix E) will be helpful in enlisting the support of local school leaders. Next, I will reach out to the same schools via email to follow up with the ACSI contact and ask for their participation in the study (Appendix G). Affirmative responses will be followed-up with phone contact and personal visits. All follow-up communication will be through the site administrator.

As schools join the study, I will obtain permission (releases) and enlist help contacting prospective 9th grade parents for the study. The basic framework of the study will be explained, detailing the participant profile, data collection methods, and locations to be used. This information will be important for the site administrator, because they will need to provide a location for initial interviews and focus group meetings. The participating site leaders will be asked to communicate with their 9th grade parents in an effort to recruit participants. In order to assist the site administrator, I will provide them a copy of the email for the site administrator to use in this process. This participant email (Appendix F) will introduce the potential participants to the study, the purpose of the study, a discussion of confidentiality, the timeframe and commitment for participation, and introduce the researcher. It will also provide a link for participants to accept participation in the study. Here, the participants will provide basic contact information to include their name, email address, phone contact and will be introduced to the research question, theoretical framework, and data collection methods for the study. Participants will also provide three best days and times to meet during the week. Immediate email contact will be made with each participant to thank them for agreeing to participate, asking them to prepare to provide a cognitive representation at the interview, and supplying detailed information about interview dates and times based on feedback from participants. Since the concept of cognitive representations is likely a new concept for many of them, a detailed description of what

they are and an example that does not interfere with or bias this study will be provided. For instance, participants may be presented with my cognitive representation of driving in South Florida. This might be a tangle of yarn, a cartoon about bad driving, or picture of snarled traffic. Presenting this kind of example will help ensure that participants clearly understand the purpose and meaning of their own cognitive representation. Each participant will be asked to think about and present an item that represents his or her recent experience with instructional technology in middle school. This item, called a cognitive representation, could be a small item, meme, photo, video clip, quote that encapsulates their experience (Patton, 2015). This cognitive representation will be brought to the interview.

Four to five participants will be recruited from each qualifying site. The study will be described to each participant and the scope of participation will be outlined including a description of the timeline, interview, cognitive representation and focus group. Expectations and token reimbursement will be discussed. For agreeing to take part in the study, participants will be given a $25 gift card. Once prospective participants have been presented the scope of the study and have signed all study-related releases, they will become participants. Participants will be reminded about their cognitive representations, provided an exemplar and instructions, and interviews will be scheduled.

At the first meeting, the participants will present their cognitive representation and explain how it ties in or represents their experience with instructional technology. Photos of the representations will be taken and detailed notes will be collected. Next, an interview consisting of 25 open-ended questions will be conducted with each participant. Additional questions will be developed and added as the interview proceeds in order to further clarify statements or further develop the researcher/participant relationship. At all times bracketing will take place to help

eliminate researcher bias and experience. Audio recording will be made using three audio recording devices to ensure faithful recording. Interviews will be audio recorded for verbatim transcription. The use of the transcribe.me application will be helpful, but I will verify the quality of the transcription by comparing recordings to the transcription results.

As interviews are conducted, I will hire a transcriber to generate a verbatim transcript of the interview. I will then code the transcripts and use ATLAS.ti to help identify and analyze themes. Data analysis will take place once saturation is reached or all participants from a site have been interviewed. These themes that emerge from individual interviews will be presented to the participants at a focus group.

A focus group will be scheduled at a time convenient for both participants and the site site administrator of the selected location. This meeting is designed to be open discussions in which the participants will interact with other participants concerning their experience with instructional technology and the technology-rich learning environment in middle school. Themes that emerge as a result of cognitive representations and interviews will be presented and further developed. Focus group questions will be developed from themes that emerge within interviews and cognitive representations. These themes will be added to those already identified in the individual interviews. In this process, some themes will emerge, while others recede or even disappear. Keeping an open mind with regard to themes will allow for imaginative variation to take place (Moustakas, 1994). This process will allow me to examine the phenomenon from varied angles, generating new perspectives on the phenomenon as the data collection process continues (Moustakas, 1994).

Participants will present their cognitive representation to the group. These will be the same items that each participant presented in their individual interviews. Participants will be

asked to give their thoughts about the item(s) presented. During each of these sessions I will again engage in bracketing. Three audio recording devices will be used to record discussions. All focus group interactions will be transcribed verbatim.

Participants will be asked to complete a writing activity connecting their own middle school experience and their students' technology-rich middle school experience. The prompt will direct each participant to write a letter to a middle school teacher, providing feedback on their experience with instructional technology in general and in specific, challenging or rewarding assignments. Writing prompts may be as long or brief as the participant likes.

All of this plays a role in the process of research for this study. Following the procedures of Moustakas (1994), transcendental phenomenology I will follow a general procedure consisting of eight steps: 1) The researcher identifies a research problem that is best explored through a phenomenological approach (Moustakas, 1994); 2) The researcher identifies a phenomenon of interest within the problem to be examined (Moustakas, 1994); 3) The researcher identifies the philosophical assumptions in order to bracket out their own experiences with the phenomenon (Moustakas, 1994); 4) Data is collected from individuals who have experience with the phenomenon. Data is collected from 5-25 participants, or until saturation is reached (Moustakas, 1994). Within this step, the researcher is careful to bracket their own experience out of the process, most commonly through memoing; 5) Two general questions are posed to the participants. These questions are designed to gather data that will help define the experience surrounding the phenomenon, thus building a common thread of experience among participants (Moustakas, 1994); 6) Data analysis consists of horizontalization, that is identifying significant statements that help develop an understanding of how the participants experienced the phenomenon.

Interviews will serve to help develop rapport between participants and the researcher while getting a clear understanding of individual perceptions and expectations concerning the use of new technology tools and techniques in their children's education. The researcher will take careful note of general themes as they emerge and repeat. The use of cognitive representations will help in this process as participants present and describe items that symbolize their experience with the technology-rich learning environment. Each individual interview transcript will be turned into a Wordle to give a visual representation of frequently mentioned ideas and themes. Additional Worldes will combine transcripts of multiple participants to produce a graphical representation of themes as they develop across participants. Focus groups will serve at least two purposes: confirming themes from individual interviews and clarification of unclear concepts drawn from interviews and cognitive representations. This process will help confirm themes as the use of ATLAS.ti proceeds. The themes that emerge and repeat will be identified through the use of ATLAS.ti. Within the software, I will group terms as themes and process interviews and focus group transcripts to identify themes.

Following this step, the researcher pulls these statements into clusters of meaning, or themes that arise from close examination of participants' statements (Moustakas, 1994); 7) Building from these themes, the researcher writes a textural description of the common experience among the participants (called the textural description). Here, the researcher discusses how the setting may have played a role in the participants' experience with the phenomenon (called the structural description) and adds commentary concerning their own experience in context (Moustakas, 1994); and 8) The researcher uses the textural and structural descriptions to write a composite description of the participants' experience with the phenomenon. This is meant to describe the essence of the phenomenon. The common

experience of the participants is the focus of this essential.

The Researcher's Role

As the human instrument in this study, I am closely connected to the phenomenon. With over 20 years of classroom teaching experience, I have developed deep relationships with fellow teachers, students, parents and administrators. Much of this interaction between these has been connected to the adoption and application of instructional technology in class. Having close experiences with parents as they attempt to navigate the technology-rich learning environment, I am aware of a number of barriers to successful implementation of instructional technology tools and strategies. I am also aware of some of the frustration that misapplication of these tools and techniques generates in parents and the impact of this frustration on the parent-teacher relationship. As a K-12 teacher with has extensive experience teaching middle school students in the context of a twenty-first century learning model environment, I have been identified by my peers and technology leadership at his school as an early adopter of technology in the classroom. I have lead local professional development workshops on the use of instructional technology tools and techniques in the K-12 classroom and presented the topic at college seminars.

Having worked closely with parents who are both overwhelmed by and enthusiastic about the significant changes brought about by the implementation a twenty-first century learning model in middle school, I fully expect parents to express a full array of personal perspective and transformation from frustration through recognition of the benefit of the technology-rich learning environment in middle school. On the positive end of parent responses are typically parents who are well acquainted with the use of new technology. These are usually early adopters and are enthusiastic about their students' opportunity to engage technology in their education. These parents are normally able to handle hiccups in the adoption process because their enthusiasm

carries them through the rough patches. On the other end of the spectrum are the parents who are much less well acquainted with technology. They may use social media or even a computer for work, but they seldom wander into the exploration of new applications, thus, what their student is using in the way of tools and applications begins with resistance and tends to become more negative over time. Glitches in the use of new tools and applications tend to exacerbate the situation with these parents, straining the lines of communication between home and school.

Having no children of my own, I am interested in understanding the essence of the experience of today's middle school parents in the shift to technology-rich instruction and the challenges they encounter as they adapt to this evolving educational landscape. This will help me better apply this new pedagogical design to my own courses, thus allowing me to better inform peers on strategies that will lead to greater parental engagement at the middle school level. Better understanding parent experiences and attitudes should help me better relate to parents as they transition with their student through this stage of education. A more robust understanding of the interaction between significant pedagogical change and parenting style will also provide future guidance for educators and parents alike. Ultimately, the more fully parents are involved in their students' education at all levels, the greater the outcomes the student achieves.

I am employed by a fellow ACSI/ AdvancEd accredited school in South Florida. Whereas this is not expected to influence the participants, this connection to the participating schools should help me develop a rapport with participants. I will have no prior relationship with any of the participants involved in the study, except that they are parents with students enrolled in nearby ACSI middle schools. In order to insure personal bias is removed from the

process, I will enlist colleagues that will periodically review coding and themes as a member check (Creswell, 2013; Patton, 2015).

Data Collection

A critical aspect of qualitative inquiry is rigorous and varied data collection techniques (Creswell, 2013; Lincoln & Guba, 1985; Patton, 2015). In order to collect enough data to generate a deep, rich, thick description of the participants' experience with the phenomenon, the researcher will use five data collection techniques. The sequence of these will be: cognitive representations, interviews, a focus group, and writing prompts. Cognitive representations and interviews will be collected concurrently, as will focus groups, cognitive representations, and writing prompts.

Interviews and Cognitive Representations

The first data collection strategy to be used will be cognitive representations. Cognitive representations are objects, images or quotations that are used to "externalize an individual's internal representations" about the phenomenon (Jonassen, 2014). In the planning process, participants will be asked to bring an artifact, photo, meme or another physical representation of their experience with instructional technology through middle school to the interview. Participants will be asked to reflect on the meaning of the representations during the interview. These items will also be presented to the focus group at the end of the open-ended questions. Here, participants will be asked to reflect on theirs and others' cognitive representations.

Immediately following the presentation and description of cognitive representations will be individual interviews. Lincoln and Guba (1985) describes the interview as "a conversation with a purpose" (p.268). Furthermore, the purpose of the interview is to "obtain 'here-and-now' constructions of persons, events, activities, organizations, feelings, motivations, claims concerns,

and other entities" (Lincoln & Guba, 1985, p. 268). Essentially, interviews gather pertinent information in the form of conversation with participants. Prior to the beginning of each interview, the researcher uses epoche to set aside biases and preconceptions (Moustakas, 1994).

Interviews will begin with an overview of the research objectives and ethical considerations to include the participants' option to not respond to any question or withdraw from the study at any point. Participants will be given contact information for the researcher and will be given a list of participation activities that they will be asked to join. These will conclude the interview, focus group, cognitive representations, and writing prompts. Any general questions from the participants will be addressed at this point. Interviews will consist of 26 open-ended questions and necessary follow-up questions designed to elicit the essence of the participants' experience with the phenomenon. These interviews will take place at the school in which their student is enrolled. All interviews will be audio recorded for transcription (Creswell, 2013; Lincoln & Guba, 1985; Patton, 2015). Audio recordings will be made on at least two devices during the interviews to insure recording quality.

Standardized Open-Ended Interview Questions

1. Please introduce yourself to me, as if we just met one another.
2. Please tell me about your personal experience in middle school.
3. Please define instructional technology/technology-rich learning environment.
4. What was your fondest memory of your own middle school experience? Most challenging?
5. School culture is defined as the shared beliefs and values of the community. What do you identify as essential to your school culture? As it pertains to technology?

6. Tell me how your middle school experience helped prepare you for future academic and career success.
7. Talk to me about the technology you use at home and on the job.
8. How much time does your family spend using mobile devices on a daily basis?
9. How do you typically communicate with school?
10. What role does the school website play in your communication with school? Email? Text? The school learning management system (digital gradebook, class announcements, etc)?
11. How does your student's middle school education compare to yours?
12. How do you think your experience compares with that of other parents?
13. What are some of the challenges you have seen your student encounter in middle school?
14. What did you do to help your student through these challenges?
15. Looking at your student's middle school experience at (School A, School B, School C), what were your expectations concerning the use of instructional technology prior to beginning the program?
16. What were your biggest concerns from the onset?
17. Looking at your student's middle school experience at (School A, School B, School C), what are your expectations concerning the use of instructional technology tools and techniques following the middle school program?
18. What adjustments did you have to make to better assist your student through this technology-rich program?
19. How did the use of technology in your students' middle school meet your expectations?
20. How did the use of technology in your students' middle school miss the mark?

21. Tell me about an expected event (something that happened that you were prepared for) that did not occur during enrollment in the middle school.
22. During middle school (over the last few years), how did you address problems that arose as a result of a particular challenging assignment?
23. What about your school's use of new technology tools and instructional techniques makes you optimistic about their impact on your student's education?
24. What about your school's use of new technology tools and instructional techniques makes you skeptical about their impact on your student's education?
25. How have you changed or adjusted what you do as a parent as a result of having your student in this program?
26. As you have interacted with other parents, are there any discussions you have had recently that touch on these topics? I am always looking for additional participants, perhaps you can tell me about a friend who has had a similar experience as you have?
27. What final comment(s) do you have concerning the value of the technology-rich learning environment in this middle school program?
28. Imagine you have the opportunity to address a gathering of middle school teachers. What might you tell them about instructional technology? What do teachers *not* understand about the use of technology tools and techniques that you would like to tell them?
29. If you were a parent of a 12-year-old, how would you help them as they develop a better grasp of technology-rich education?
30. We've covered a lot of ground in our conversation, and I so appreciate the time you've given to this. One final question… What else do you think would be important for me to know about the middle school instructional technology academic program?

Interview questions are designed to address a number of critical elements: establishing rapport between the interviewer and participants, connecting data collection techniques, alignment with Schlossberg's (2014) transition theory, and snowballing and preparing participants for writing prompts. Questions 1-5, 23, and 26 are designed to build rapport and provide context (Moustakas, 1994). Questions 6-8, 10, 11, 12 are designed to align with the timelines created by the participants. These questions will help provide clarification and deeper understanding of these artifacts. Questions 9, 13, 16, and 21 center on parent perceptions and expectations. Questions 14,15, and 17-20 are designed to align with Schlossburg's (2014) transition theory. These questions guide participants through the phases of transition and anticipation they may have experienced. Question 22 is designed to provide an opportunity for snowballing. Possible follow-up questions might ask participants to elaborate on why they mentioned these individuals and provide their perspective on how the experiences might be similar or different. Questions 24 and 25 work to help prepare participants for writing prompts and help provide insight into parenting style and other personal variables.

Focus Group

At a time and location convenient for at least 10-15 participants (Moustakas, 1994), a focus group will meet to discuss themes that emerged in interviews and discussions of cognitive representations. This group will likely meet between one and two weeks following the conclusion of individual interviews. Focus groups are defined as interviews or conversations with "a group of people to discuss a particular topic or range of issues" (Schwandt, 2015, p. 122). Typically, the group consists of 6-10 participants and last 1 to 2 hours (Patton, 2015, p. 475). Thus, in this study, one focus group will provide an opportunity for participants to interact with multiple participants from all of the schools involved in the study at the same time. This

group will consist of participants from each school. The purpose of this data collection method will be to confirm themes and clarify points made in the interviews and through the timelines. This group will meet for at least one hour and will be comprised of open-ended questions (Moustakas, 1994).

Sample focus group questions will include:

1. This discussion is intended to be a conversation among yourselves. I will help guide the discussion, but I want you to feel free to express yourself and share your experience. First, I want you to introduce yourself. Tell us your name, what school your student attends and your favorite computer/ mobile application.
2. What is your favorite technology tool? How frequently do you use it?
3. During our individual interviews we all shared an item that summed up our experience with the technology-rich learning environment. As I show them to you, raise your hand if you think this item in any way represents your experience with instructional technology.
4. (After showing each item, I will ask specific individuals why they raised their hand.) What did the item say to you about the use of instructional technology tools and techniques?
5. I am interested everyone's thoughts on these items. (Each individual is asked about all items except their own) What was your first impression of these items?
6. As we talked in our interviews, a few items came up. The first was the question of (issue). How did you experience (this issue)?

7. How did the middle school use of the twenty-first century learning model compare with your expectations?
8. What role does parenting style play in twenty-first century education? Can you provide an example?
9. Let's talk about some of the expected and unexpected events that took place during middle school in relation to the use of the twenty-first century learning model.
10. Now let's think about how our middle school experience helped prepare you for the transition into high school and beyond. What were the expected and unexpected events and even non-events that you experienced?
11. To wrap things up, give me a word or short phrase that summarized your experience with the use of instructional technology tools and techniques.

Whereas, most questions focus on Schlossburg's (2014) transition theory, question 3 draws in the participants' perception of their experience with the technology-rich learning environment while question 6 provides an opportunity for the group to elaborate or guide the discussion toward themes not yet discussed.

Cognitive Representations

Sample focus group questions concerning cognitive representations might include:

1. During our interviews, I asked each of you to bring an item that sums up your experience with the twenty-first century learning model. As I show a few of them to you, raise your hand if you can relate to the item or depiction.
2. Following up on your responses, item # (give item number(s) of the cognitive representations that produced a strong response) connected with many of you.

(Name of a participant), you raised your hand for # (give the number of a corresponding cognitive representation), how did this item (show the item) relate to your own experience with communication, hardware or software? This line of questioning continues through all items presented as cognitive representations.

3. What do these items say to you individually and collectively?

The use of these items will further illuminate the participants' experiences while providing them an opportunity to view the phenomenon from different perspectives. Participants will be encouraged to interact with each other and provide informal feedback on each presentation.

Data Analysis

Once data has been collected, I will begin the process of analyzing the statements, recordings, and representations for themes and meanings. This process begins with me engaging in bracketing or epoche. This process continues as I engage in phenomenological reduction, horizontalization, development of invariant qualities and themes, the development of textural and structural descriptions, and the synthesis of the textural and structural descriptions. Data analysis is recursive in nature, circling back on themes, changing perspectives and reconsidering concepts as they develop and recede (Moustakas, 1994), thus, I must be prepared to reconsider themes as data analysis continues.

Epoche/Bracketing

Epoche or bracketing is defined by Moustakas (1994) as "systematic effort(s) to set aside prejudgments regarding the phenomenon under investigation" (p. 22). This process is essential to keeping the researcher's biases in check. This will be done through memoing at all stages of

the research process. Moustakas (1994) described the benefit of this process as keeping the researcher "open, receptive and naïve in listening to and hearing research participants describe their experience of the phenomenon being investigated" (p. 22).

Phenomenological Reduction

This is the stage of the research process that requires the researcher to describe "in textural language just what one sees, not only in terms of the external object, but also the internal act of consciousness, the experience as such, the rhythm and relationship between phenomenon and self" (p. 90) (Moustakas, 1994). As a researcher, I am interested in identifying "an essential finding that is intrinsically general" (p. 356) (Giorgi, 2006). Through triangulation, I hope to uncover what Moustakas (1994) describes as "multiple angles of perception" (p. 91) that will add richness and depth to my understanding of the phenomenon. This will include data collected from cognitive representations, interviews, and a focus group. Discovering common, general themes across the data collection methods will further validate those themes and help build a more detailed understanding of the phenomenon (Creswell, 2013; Moustakas, 1994; Patton, 2015).

Horizontalization

This is the organization of participant statements in terms of their value (Moustakas, 1994, p. 180). Here the researcher must view, according to Moustakas (1994, p. 95) the perspective of "self-awareness, self-reflection and self-knowledge." This stage of research will incorporate transcribed interviews, focus groups, and descriptions of cognitive representations individually and collectively to "highlight significant statements, sentences and quotes" (Creswell, 2013, p. 82) that help build the collective understanding of the phenomenon form the participants' perspective. This is a recursive process which begins with the first interview and

continues throughout the data collection process and beyond (Moustakas,1994). This process continues to circle back over the statements of participants in search of new points of view (Moustakas, 1994). Again, this stage of data analysis will include data collected from cognitive representations, interviews, and focus groups. As these processes take place and recur, themes will continue to develop, emerge, and expand.

Invariant Qualities and Themes

At this stage in the process, themes and statements that appear across participants will be examined. These broad concepts will be generated by grouping together threads of statements, themes or units of meaning together (Moustakas, 1994). This stage will, again, include data collected from timelines, interviews, focus groups, cognitive representations, and writing prompts. This process will begin with the first interview and continue throughout the data collection process. The objective of this process is to discover common, general themes across the data collection methods and participants. This will further build themes by connecting broad concepts that appear throughout the data collection process (Moustakas, 1994).

Individual Textural Descriptions

At this stage of the study, a narrative will be developed to describe the participants' experiences with the phenomenon. This will be an individual description of *what* happened with each participant concerning the phenomenon (Moustakas, 1994). Using the broad themes identified and illuminated through the invariant themes, I will construct an image of what happened (Moustakas, 1994). Here, I may use unconventional tools to evaluate data. The use of Wordles or similar applications may provide insight as to the strength of feeling projected by participants. This tool will allow me to demonstrate in, graphical form, the frequency of words used throughout a transcript from an individual or group. This will allow me to compare

intensity of feeling through participant word use across participants and within and across groups.

Structural Description and Imaginative Variation

The researcher is also interested in the impact of the setting on the experience of each of the participants. This narrative represents a rich description of "how" the participants experienced the phenomenon (Moustakas. 1994). The researcher attempts to view the phenomenon from multiple perspectives to get a grasp of the structure of the phenomenon (Moustakas, 1994). This is a recursive process. Repetitive reading and re-reading of individual accounts of experiences with the phenomenon will help the researcher examine the phenomenon from multiple perspectives and apply novel meanings to the transcribed narratives.

Synthesis of Structural and Textural Descriptions

Next I will join themes from the structural and textural descriptions into a composite description or essence of the phenomenon (Creswell, 2013). This new description of the phenomenon represents a composite experience of all participants, and as such is the culmination of the experience of the phenomenon by the participants.

A pilot study will be conducted prior to the full research study. This pilot study will be conducted among parents at my school to test questions, procedures, techniques and data analysis. Questions will be amended to adjust for issues encountered in the pilot study. The pilot study will also help hone interview skills and identify any unanticipated problems with any of the data collection processes. My familiarity with the learning community and the stakeholders and their history will also allow for more rapid analysis of collected data.

During the study, interviews will be conducted with participants at the school their student attends as they are identified. Due to the geographic limitations, this study will include

four school locations for interviews and two locations for focus groups (Jackson, 2012; Kolar et al., 2015; Leung, 2010; Patterson et al., 2012). All interviews and focus groups, and participants reflections on cognitive representations will be recorded and transcribed. Photographs of cognitive representations will also be taken for use with focus groups.

ATLAS.ti will be used to assist in coding data and finding meaningful themes (Creswell, 2013). ATLAS.ti is Computer Aided Qualitative Data Analysis Software (CAQDAS) that is designed to help qualitative researchers code and organize data (Friese, 2013). This software will be used to identify themes that emerge from data collected during interviews, focus groups, writing prompts, descriptions of cognitive representations, and researcher journaling or memoing.

Journaling or memoing is defined as the researcher's process of note taking during the research process that "display the (researcher's) mind processes, philosophical position, and biases about the inquiry" (Lincoln & Guba, 1984, p. 109). Memoing is used to help the researcher exclude presuppositions from the process of examining the data collected during field research. These notes are used for reflection throughout the research process (Moustakas, 1994).

Trustworthiness

Trustworthiness is the quality of validation, credibility, reliability, and confirmability (Lincoln & Guba, 1984). These qualities guide research toward results that are replicable and transferable. The terms are often viewed interchangeably; however, for the purpose of this study the ideas of credibility, dependability and confirmability, and transferability will align with Moustakas' (1994) notions of the terms. The result of the application of these concepts is a study that produces results that are replicable.

Credibility

Credibility is defined as the "criteria for judging the quality, or goodness of qualitative inquiry" (Lincoln & Guba, 1985, p. 301). Further, a number of activities are thought to increase credibility. For this study these include: prolonged engagement (Lincoln & Guba, 1985, p. 303), triangulation (Lincoln & Guba, 1985, p. 305), and the use of multiple theories (Lincoln & Guba, 1985, p. 307)

Following Moustakas' (1994) procedures, I plan to closely examine the culture of the school in the study. This will take place prior to and during contact with the site principal. The use of schools within ACSI will aid in this process as they have a similar worldview.

Triangulation is defined as the use of multiple data collection methods (Moustakas, 1994) This will be generated through the use of timelines, interviews, focus groups, cognitive representations and writing prompts for data collection. Each of these data collection methods allows for reinforcement and elaboration of participant experience with the phenomenon. The time that each data collection point requires satisfies Lincoln & Guba's (1985, p. 303) suggestion for prolonged engagement. For this study, the engagement will not be so long as to cause the researcher to "go native" (Lincoln & Guba, 1985, p. 305).

Member checks will also be used to build credibility in this study. This is defined as the use of participants to confirm the credibility of the findings within the study (Lincoln & Guba, 1985; Moustakas, 1994). This will be accomplished during the interviews in regard to the timelines and during focus groups.

Finally, the researcher will use peer examination to ensure credibility by engaging at least two peers who are disinterested parties to review themes and interpretations within the study and give feedback on their determination of veracity (Creswell, 2013; Lincoln & Guba, 1985). This

will entail the recruitment of colleagues willing to examine results in stages to provide a dispassionate perspective on the quality of findings.

Dependability and Confirmability

Memoing and journaling will be used to incorporate reflection on data collection procedures and (Creswell, 2013; Moustakas, 1994; Shenton, 2004). Throughout the data collection process I will create audio recordings of all participant interactions during discussions about cognitive representations, interviews, and focus groups. This recording will be done on two devices. The researcher will carefully document all visual or graphical representations offered by the participants to include non-verbal communication (from journaling and memoing) and cognitive representations. Gestures, facial expressions, and pauses can add needed depth to the data collection process. Confirmability will be established through bracketing / epoche (Moustakas, 1994).

Transferability

Because this is a transcendental phenomenology, the researcher in interested in accurately conveying the experiences of participants in terms of the phenomenon. Lincoln and Guba (1985) warn that it is the responsibility of the researcher to ensure accurate transmission of the findings of the study. Satisfying this standard means supplying ample descriptive data in terms of accurate transcripts and other descriptive data (Creswell, 2013; Patton, 2015). Providing a thick, rich account of the phenomenon and participants' descriptions of their experiences to allow others to relate them to their own context (Shenton, 2004).

Ethical Considerations

In order to protect those taking part in the study, the researcher will take precautions throughout the research process (Lincoln & Guba, 1985; Patton, 2015). These include obtaining

IRB approval prior to conducting any research, obtaining signed releases from site administrators and participants prior to gathering data, the use of memoing and journaling to avoid bias (Creswell, 2013), coding names of participants and sites, the use of pseudonyms for participants and sites, protecting coded data by keeping storing code lists and code keys in separate locked cabinets, using a password protected computer for storing data and masking names in the data (Creswell, 2013). Clear and continual communication with site administrators and participants concerning the expectations, scope and duration of the study will help deepen the understanding of the study for all involved.

As a local educator and researcher I have no personal relationship with any of the sites or participants involved in this study. Participants will receive nominal compensation for their time and participation in the study. This will be in the form of a $20 gift card. Compensation will be distributed at the close of the focus group meetings.

Summary

This chapter has reviewed the design, research questions, setting, participants, procedures, researcher's role, data collection, data analysis, trustworthiness, ethical considerations Provide a chapter summary. I am committed to gathering data from participants at multiple sites using three methods of data collection. These data collection techniques will include participant interviews, cognitive representations, and focus groups. Throughout the process I will use journaling and epoche to bracket my own perspective and experience with the phenomenon. Consideration of participants' privacy and confidentiality will move the research practices toward measures that protect the identity and responses of each participant. The resulting data will be reduced to a handful of themes that will describe the essence of the lived experience of parents in the technology-rich middle school learning environment. The next

chapter will present the results of data analysis and recurring themes. Discussion of the implications of the data and themes revealed through the interviews, cognitive representations and focus groups will follow, as well as suggestions for future research.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this transcendental phenomenology was to understand the lived experiences of parents of middle school students enrolled in technology-rich learning environments in South Florida. This chapter initially discusses the demographic information and backgrounds of the study's four schools and thirteen participants. After outlining the background of the sample, the results are presented through the study's six research sub-questions, which are aligned to the theoretical framework and central question of the study: What are the lived experiences of parents of middle school students engaged in technology-rich ACSI schools in South Florida? The common themes identified across data points are discussed in the context of the research questions.

Following the identification and discussion of initial themes that emerged from interviews, discussion of cognitive representations, and focus groups, a textural description ("what") and structural description ("how") is presented. The concluding findings section combines the two descriptions into a summary of the "essence" of the parents' overall experience.

Participants

Purposeful sampling was used to identify schools and recruit parents of ninth grade students who had completed their school's technology-rich middle school in South Florida Association of Christian Schools International (ACSI) accredited schools (see Table 1.). Schools presented different application of technology and varying socioeconomic (SES) groups: low SES (Bayside Christian School) (pseudonym), middle SES (Far Point Academy and Conestoga Christian Academy) (pseudonyms), and high SES (Oceanside Christian Academy) (pseudonym).

Site administrators were contacted for participation in the study resulting in three-to-four participants from each school. Signed consent forms were collected from all participants (see Appendix O), and site administrators. The sample included parents of students who had completed the middle school program at each ACSI-identified technology-rich middle school. Pseudonyms were attributed to the school and participants. These pseudonyms were referred to during data collection in order to protect the confidentiality of the participants and that of the participating schools. Gender, race, employment status, marital status, and educational attainment were self-reported both in a short survey and in semi-structured interviews. School technology policy and SES were provided by school administration. Levels of SES were identified by demographic data provided by site administrators at each school.

Table 1 provides an overview of the demographic data for the sample used for this study. Schools ranged from high SES to low SES with the largest schools at the upper end of enrollment for this study and the lowest SES school with the lowest enrollment. Ages for participants were similar with the exception of Charles, Charlene, and Carrie from Bayside Christian School who represented the upper end of participant ages. Of the participants, all but two were employed; those were Carrie who was retired and Erin who was a homemaker. As a group Bayside Christian Academy represented the lowest level of educational attainment which included one with a bachelor's degree, one with trade school, and two with some undergraduate study. Far Point Academy represented the highest degree of educational attainment with a master's degree and three bachelor's degrees among them. All participants from Oceanside Christian Academy held bachelor's degrees and Cindy from Conestoga Christian Academy held a master's degree.

While preparing for semi-structured interviews a noteworthy event occurred. To arrange for participants generally schools made initial contact with their parents about participation in the study. Administrators from Oceanside Christian Academy made all contacts with participants from their school prior to semi-structured interviews and to arrange for the focus group. Bayside Christian School and Conestoga Christian Academy administrators made initial contacts with their own parents to recruit for the study, but sent a list of those who elected to take part to the researcher for scheduling. Far Point Academy presented to the researcher a list of candidates to contact for recruitment into the study. Participants were contacted by email welcoming them to the study, and, in all cases except for participants from Oceanside Christian Academy, coordination for interviews was established.

Participants from Bayside Christian School did not reply to multiple emails, but each of them answered their phones on the first ring. When asked about their communication preference during the phone call, each expressed a mistrust of email. Focus group arrangements were coordinated through school administration.

Participants from Far Point Academy used a combination of telephone and email communication to arrange for semi-structured interviews and focus groups. Snowball sampling through Far Point Academy provided the participant from Conestoga Christian Academy as Far Point and Conestoga share a close community connection. All schools provided administrative consent to participate prior to any communication with participants.

Participant (pseudonym)	Gender	School (pseudonym)	School Size	School SES	Educational Attainment	Occupation / Employment Status	Age	Ethnicity
May	Female	Oceanside	1,100	High	BS/BA	Teacher	35-44	White
Sue	Female	Oceanside	1,100	High	BS/BA	Teacher	45-54	White
Erin	Female	Oceanside	1,100	High	BS/BA	Homemaker	35-44	White
Pete	Male	Bayside	400	Low	BS/BA	Self-Employed	45-54	African American
Carrie	Female	Bayside	400	Low	Trade School	Retired	55-64	African American
Charlene	Female	Bayside	400	Low	Undergad No degree	Self-employed	55-64	African American
Charles	Male	Bayside	400	Low	Undergrad No degree	Self-employed	65-74	African American
Jo	Female	Far Point	2000	High	BS/BA	Therapist	45-54	White
Noelle	Female	Far Point	2000	High	BS/BA	Education	45-54	White
Kim	Female	Far Point	2000	High	Masters	Education	45-54	White
Barbara	Female	Far Point	2000	High	BS/BA	Self- employed	45-54	White
Diane	Female	Far Point	2000	High	BS/BA	Corporate	45-54	White
Cindy	Female	Conestoga	350	Middle	Masters	Self-Employed	45-54	White

Table 1. Participant Demographic Information

Participating Schools

A list of schools that matched the study's participation criteria was provided by ACSI. Five schools were contacted by ACSI to take part in this study, four agreed to take part. They represented a wide swath of the socioeconomic spectrum. Schools each provided what demographic information they collect on their enrolled families. All provided household income and race data except for Conestoga Christian Academy. While data is shown for Conestoga Christian Academy, the data for this school was incomplete and required estimation and confirmation by their head of school. Data for student race and household income were not provided for middle school populations.

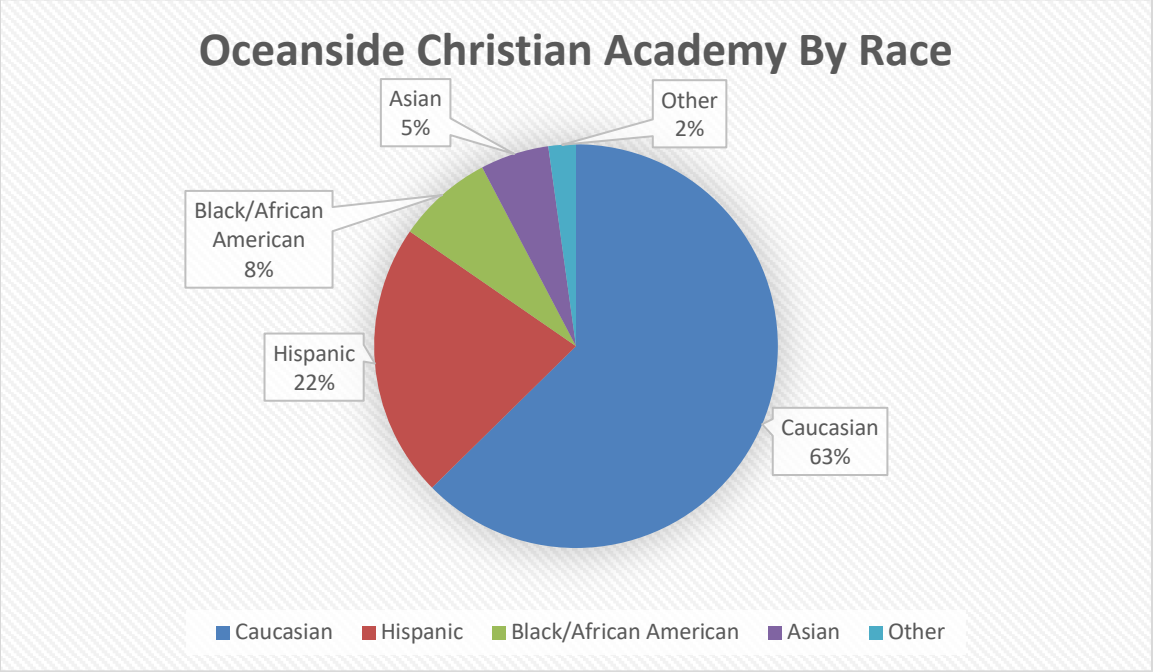

Figure 1. Oceanside Christian Academy by Race

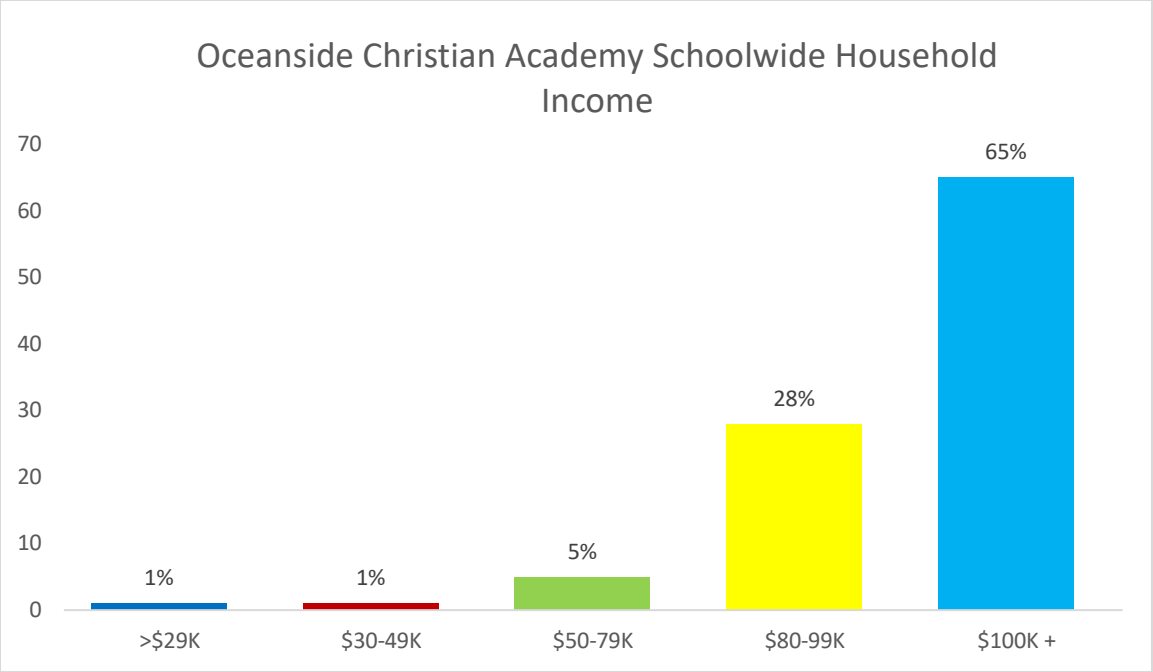

Figure 2. Oceanside Christian Academy Household Income

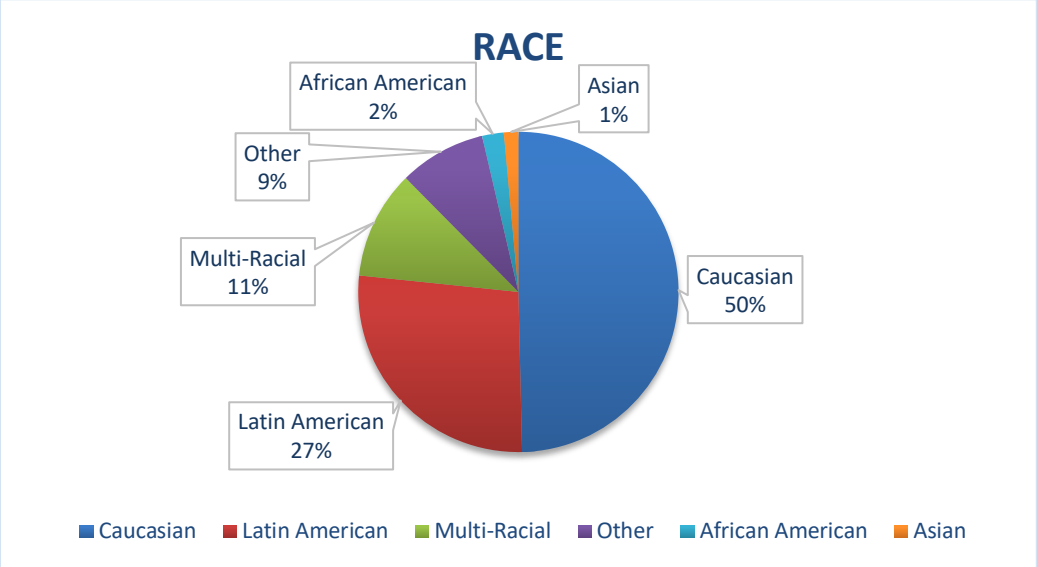

Figure 3. Conestoga Christian Academy by Race

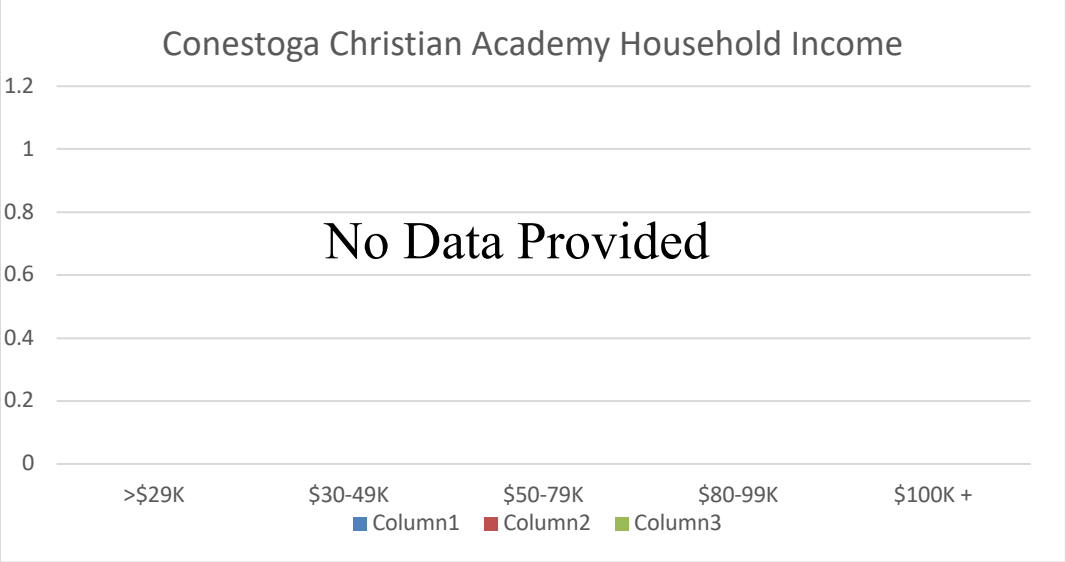

Figure 4. Conestoga Christian Academy Household Income

Socioeconomic data was also collected on the three counties represented by the participating schools. Comparisons of the school data and county data showed disparity in racial composition of Bayside Christian School which had a schoolwide African American/Black population that exceeded 87% (see Figure 7) despite representing only 18.2% of the Morgan County population (see Table 2). Similarly, the Caucasian/White population at Bayside comprised 2% (see Figure 7) while countywide that group represents 13.2% of the population (see Table 2). Hispanic populations were disparate as well 6% at Bayside (see Figure 7) compared to 68.6% countywide (see Table 2). All of these populations stand in stark contrast to the South Florida population averages (see Figure 5).

Far Point Academy drew a closer comparison to county demographics than any other school included in this study. Far Point families compared closely to the Bennett County income average (see Table 3). Conestoga Christian Academy drew a better alignment to the racial composition of its surrounding community, Pope County (see Table 2), but provided no household income data on its school community.

County	White	Black / African American	Hispanic	Asian	Native American / Pacific Islander	Multi-Cultural
Bennett	36.5	29.9	29.7	3.9	.5	2.2
Morgan	13.2	18.2	68.6	1.6	.3	1.2
Pope	54.8	19.6	22.3	2.9	.7	1.8
South Florida Avg	34.8	22.6	40.2	2.8	.5	1.7

Table 2. South Florida by Race

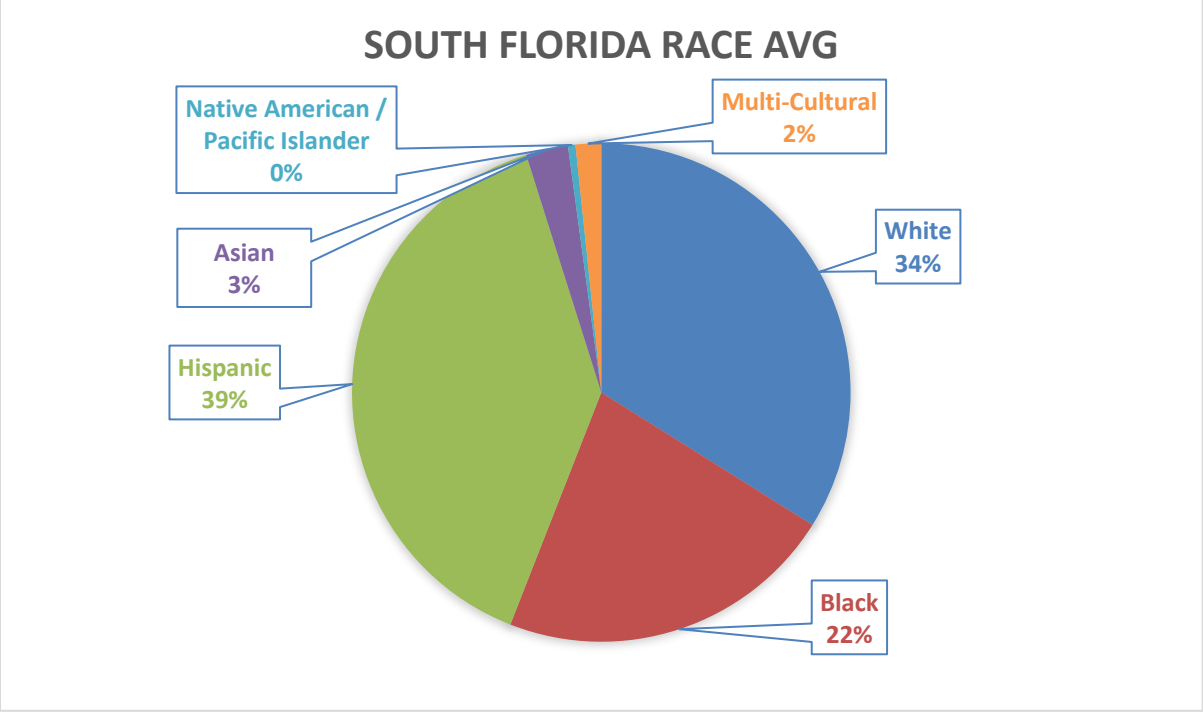

Figure 5. South Florida Race Average

County	Median Household Income
Bennett	$54,895
Morgan	$46,338
Pope	$57,256
South Florida Avg	$52,830

Table 3. South Florida Household Income Average

(United States Census Bureau, 2018)

Research Question	Interview Question	Cognitive Representation	Focus Group Question/
What are the expectations of parents regarding instructional technology prior to student enrollment in a technology-rich middle school?	What do you identify as essential to your school culture? As it pertains to technology? What were your biggest concerns from the onset? How does your student's middle school education compare to yours? How do you think your experience compares with that of other parents?	Identification Badge Basketball Cross	How does all of this technology use impact your parenting?
In what ways are parents' expectations of instructional technology met or not met?	How does your student's middle school education compare to yours? How did the use of technology in your students' middle school meet your expectations? What are some of the challenges you have seen your student encounter in middle school?	Combination Lock Basketball Novelty Lipstick Pen Power cord	What can the school do to help parents better navigate the ever-changing technology landscape? How isolated are you as a parent dealing with the technology-rich learning environment?
What do parents view as essential skills necessary for success in the technology-rich learning environment?	How do you typically communicate with school? How have you changed or adjusted what you do as a parent as a result of having your student in this program? What adjustments did you have to make to better assist your student through this technology-rich program?	Combination Lock Basketball	How do we find and teach balance with instructional technology?

	What did you do to help your student through these challenges?		
What are the expectations of parents in technology-rich schools as their student prepares for high school and beyond?	Tell me how your middle school experience helped prepare you for future academic and career success. Talk to me about the technology you use at home and on the job. What role does the school website play in your communication with school? Email? Text? The school learning management system (digital gradebook, class announcements, etc)? Looking at your student's middle school experience at (School A, School B, School C), what were your expectations concerning the use of instructional technology prior to beginning the program? Looking at your student's middle school experience at (School A, School B, School C), what are your expectations concerning the use of instructional technology tools and techniques following the middle school program? Tell me about an expected event (something that happened that you were prepared for) that did not occur during enrollment in the middle school.	Basketball	This all sound like it is still emerging. What does "normal" look like for parents in the technology-rich middle school learning environment? Is there a parenting style or technique that does not match well with a technology-rich middle school learning environment? Have you seen these in action? How does all of this technology use impact your parenting?
What do parents view as problems associated	Imagine you have the opportunity to address a gathering of middle school teachers. What	Power Cord	What role does "winging it" play in your parenting experience with the

with instructional technology/ technology-rich education?	might you tell them about instructional technology? What do teachers *not* understand about the use of technology tools and techniques that you would like to tell them? During middle school (over the last few years), how did you address problems that arose as a result of a particular challenging assignment? What about your school's use of new technology tools and instructional techniques makes you skeptical about their impact on your student's education? How did the use of technology in your students' middle school miss the mark?		technology-rich learning environment? This all sound like it is still emerging. What does "normal" look like for parents in the technology-rich middle school learning environment? How has the technology-rich middle school learning environment changed how we parent? How do penalties drive your decision-making in the area of technology? What are the pitfalls for parents in the area of middle school technology use? Fear and anxiety are strong motivators for change. How have they motivated you in the area of educational technology with your middle school?
What do parents view as benefits of technology-rich education in middle school?	What about your school's use of new technology tools and instructional techniques makes you optimistic about their impact on your student's education?	Lock	Is there a difference between your experience with middle school technology and other parents' experiences with it?

Table 4. Research Question Alignment with Data Points: Technology Change & Strategic Consideration / Winging it, Student autonomy, Parent isolation, and Parent pacing

Individual Participants

The participants for this study were drawn from four ACSI schools located in Bennett (pseudonym), Morgan (pseudonym), and Pope (pseudonym) Counties of Florida that engage their middle school students in a technology-rich learning environment. Individuals represented a wide spectrum of socioeconomic characteristics aligned with the school in which their student was enrolled. While this alignment can accentuate differences between schools and individuals that took part in this study, the data shows some interesting commonalities among and across these socioeconomic lines. Tuition for each participating school aligns closely with the socioeconomic composition of each school: Oceanside Christian Academy $21,725, Far Point Academy $12,840, Conestoga Christian Academy $11,319, Bayside Christian School $7,300. Table 1 presents an overview of all participants in this study.

The following provides a description of each school that participated in the study along with individual participants' background and relevant comments about instructional technology drawn from interviews and focus group activities. Also included with each participant is a brief discussion of the cognitive representation they provided along with a few comments about that item and how they saw it connected to middle school instructional technology.

Oceanside Christian Academy

Founded in 1970, Oceanside Christian Academy (pseudonym) had a student population of 1,300 and was located in Pope County, Florida. According to school statistics, the student population is 57% Caucasian, 20% Hispanic, and 7% Black/African American. This compares to Pope County residents' 55% Caucasian, 28% Hispanic, and 20% Black/ African American (see Figure 1). This means the Caucasian student population is overrepresented by 2%, and the Hispanic and Black/ African American student populations were underrepresented by 8% and

13% respectively when compared to Pope County statistics (see Table 2) and South Florida race averages (see Figure 5).

In the area of household incomes, in 2019 Oceanside Christian Academy exceeded the average county average household income of $57,256. Oceanside Christian does not officially collect data on family income but reported that the vast majority of those within their school community earned in the upper end of the county demographics (see Figure 2).

In 2015 Oceanside Christian Academy implemented a Bring Your Own Device (BYOD) technology initiative. While students were free to use the device of their choosing, iPads and Chromebooks were prohibited. This left parents and students to find durable, reliable laptops for daily use at school. Providing general and minimum recommendations for student devices, the school eventually offered Office 365 accounts for all students. According to the Oceanside Christian Academy technology handbook (2019), students were expected to bring their laptop to school each day while the school recognizes that course and instructor discretion drives the use of these devices:

> "…use of the laptop in class will depend on the content area and the appropriateness of technology for the lesson being taught. It is expected that the type and frequency of use will vary according to the curriculum. Laptops in the classroom can help to improve students' writing as well as allow for spontaneous, student directed learning through Internet research, data collection and analysis, and multimedia presentations." (p.49)

This approach to the use of instructional technology has impacted the teacher, student, and the parent experience with technology tools and techniques, and may provide an insight into the variation of parent experience with instructional technology at Oceanside Christian Academy.

Three participants took part in interviews, cognitive representations, and a focus group from Oceanside. Each of the participants replied to their administrator's email request for participants and coordinated their involvement through the same site administrator. These participants were May (pseudonym), Sue (pseudonym), and Erin (pseudonym). Participants from this school brought and discussed cognitive representations of their middle school experience in the technology-rich learning environment. These cognitive representations were: a combination lock, a lipstick pen, and a device power cable.

May

May (pseudonym) was an early middle aged married white female with a bachelor's degree. She had a son and a daughter attending Oceanside Christian Academy. She was homeschooled through middle school and attended a private school for high school. Her perception of instructional technology was tied to the use of devices in the classroom:

> "…instructional technology, would be along the lines more of using Promethean Boards, Smart boards… you're using even tablets to a degree. You have a set for the class. That would be more instructional. Maybe like a Kahoot game. Something they can follow along with as you teach that lesson. We have something (in my classroom), where they can play Kahoot, or they can answer on the Promethean Board with a little device – clickers."

May's personal experience in middle school provided little in the way of instructional technology beyond typing and basic coding classes. This personal experience may have added to her lack of strategic consideration of technology in the classroom. She described her interaction with her student's technology-rich middle school learning environment as "winging it." As new tools and techniques emerged in the academic life of her student, May found herself at a

disadvantage. This sentiment was not uncommon among participants. All but two of those taking part in this study described their technology strategy this way.

As a teacher, she saw herself as a fairly adept technology user, but recognized the gaps that remain in her abilities with technology. These gaps, according to May were primarily due to the evolving nature of the technology used in the 21st century classroom. At one point in the interview May revealed that she did not know how to access her student's gradebook through the school's learning management system. May has enrolled her child at Oceanside Christian Academy for 10 years.

May's cognitive representation was a combination lock which she explained served the purpose of protecting items and keeping things secret. She went on to explain that the lock requires the user to follow specific instructions to make it function properly. Use of the lock, like technology, can become routine, however, sometimes, as with technology, the lock can get "wonky," requiring a tug or push at just the right time to get it to open or close.

Erin

Erin (pseudonym) was a married white female homemaker with a bachelor's degree. She and her husband had concerns with the use of instructional technology, most notably its perceived detrimental effects on the developing adolescent brain. Their primary concern was with Electro-Magnetic Frequencies (EMF's) emitted from modern computer equipment:

> "So, in our house we unplug the wifi at night, we have the kids try to put their device on airplane mode, and keep it away from them. Now my husband, husband was a big proponent of this and I just pat him on the head and I just went... Oh, okay, whatever you know what I... in obeying him, Let's unplug the Wi-Fi. But I wasn't sure about the effects on a was... So I started keeping my cell phone, and maybe five feet away from me at

> night, charging, so on the ground, I used to have it on my night stand, my sleep has been so much better. I could not believe it. Because the Fitbit cycles your sleep."

Erin had strong feelings about this threat. She came to the interview with articles from two blogs addressing the dangers of exposure to Wi-Fi, particularly in children. This concern did not limit her enthusiasm for the application of technology in middle school. Her strongest criticism of the use of technology at Oceanside Christian centered on the school's need for norms across the middle school. She noted that, "One teacher wants one thing, the next wants something completely different" in terms of how the students used devices in their classes.

As an educator, Erin viewed instructional technology in a more pedagogical manner, noting that technology offers an opportunity for enhancement of the curriculum:

> "Well, it would be technology that helps instruction, my definition, something that would make the... 'cause I worked with kindergarten, and we used instructional technology but I would think it's something that incorporates learning to make it stick in the head of the kids… meaning you're just not feeding them, you're helping their brain in order to synthesize it…and the same could be said about a technology-rich learning environment that they incorporate… they use the technology to get the kids interacting with the knowledge."

Her joint roles as an educator and a parent may have accounted for her diminished interest in the technical proficiency of her middle school child, and her elevated interest in seeing evidence of understanding of the instructional content. Erin was results oriented, and the means of achieving those results was a lesser concern for her.

Erin's cognitive representation was a power cord for a digital device. She explained that without it the device itself was useless. She explained her frustration with her school penalizing

her student for not having his device fully charged and operational during the school day. In this way, the device became a source of frustration and tension between Erin and the school staff and administration.

Sue

Sue (pseudonym) was a middle aged married white mother of a freshman at Oceanside Christian Academy. The second educator/parent to be interviewed for this study from Oceanside Christian, Sue used technology in her classroom. Her view on technology differed from that of the other educator/parent from Oceanside Christian. Where Erin was concerned about the impact of technology on student outcomes, Sue's view of technology was more focused on the use of tools than on the outcomes:

> "To me it means using technology to communicate information or to deliver information on it, could be for research projects, it could be to listen to an online lecture, it could be to use to type a research paper that you have to submit to your teacher."

She reflected on her own experience in middle school and the value of technology tools, particularly in the area of conducting research:

> "I think of it as a learning tool to sort of a replacement for what we used books for days. If we had to do a research paper, we had to use so many sources from the library and usually those were books, magazines, things that were on paper whereas now, students are going to their computer to access information, rather than going to a library and getting a physical book."

Her comparison between how she submitted work and how her student did so reveals her understanding of how things have changed. The simple act of producing and submitting an academic paper had changed significantly:

> "And then also we turned in papers, that were typed on either a typewriter or hand written and we turn submitted papers to the teacher that way, whereas now they're submitting papers online, through some sort of medium, on the computer, and in addition, sometimes they need a hard copy, but, but that's their mode of gaining information and knowledge and research and also delivering it to other people."

For her cognitive representation, Sue presented a toy lipstick that concealed a pen. She explained that technology can look one way on the outside while concealing a different purpose or function underneath. Depending on the school culture and individual user's digital stewardship, this hidden function could be either positive or negative.

Far Point Academy

Founded in 2001, Far Point Academy (pseudonym) was the youngest and the largest school included in this study. Located in Bennett County, Florida, in 2019 Far Point Academy reported an enrollment of 2,000. This student body was comprised of 46% Caucasian, 27% Hispanic, and 18% Black/African American students (see Figure 6). This compared to Bennett County's 37% Caucasian, 30% Hispanic, and 18% Black/African American population (see Table 2). This means that the Caucasian population was overrepresented by 9% while the Hispanic and Black/African American populations were underrepresented by 3% and 12% respectively. In the area of household incomes, 86% of Far Point Academy's households exceed the county average income of $54, 895 (see Table 3), with 73% of Far Point households earning in excess of $81,000 per year. Just 2% of Far Point's families earn less than $20,000 per year (see Table 5).

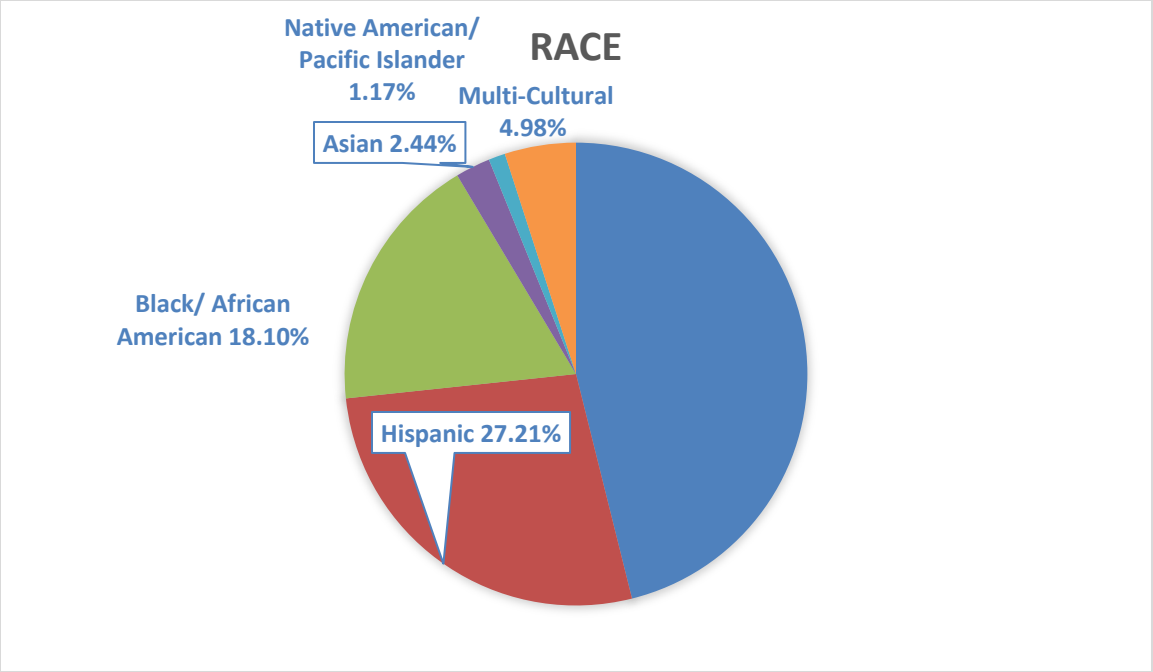

Figure 6. Far Point Academy by Race

Household Income	Percentage of the School Population
>$20K	1.69%
$21-60K	12.71%
$61-80K	12.71%
$81-100K	15.25%
$101K<	57.63%

Table 5. Far Point Academy Household Income

While they had committed to school-centered 1:1 by 2012, school administration was slow to decide on a path forward with technology for students, testing the iPad, Macbook Air, and Chromebook for student use. Classroom sets were made available to teachers and usage was tracked and reviewed. Issuing a device to every student would represent a sizable expense for the school, but the increased security and controls made this option more attractive to IT and academic leaders at the school. At the time of this study, classroom sets of Chromebooks were in use throughout the elementary and issued to 1,100 middle and high school students. The school published within their upper school Acceptable Use Policy for technology:

> "(Far Point) Academy recognizes that in-school access to technology affords students wider learning opportunities and a means to engage, communicate, and develop skills essential to prepare them for work, life, and citizenship. We place a priority on assisting students in developing 21st century communication skills. By God's provision, as well as through the stewardship of our leaders, we are blessed with access to varied technologies for our school body."

Thus, the use and application of technology tools and techniques was left to the discretion of the individual teacher. Parents and students were responsible for devices after school hours, on weekends, and breaks. In the event of a hardware malfunction or damage the school offered an equipment insurance plan:

> "Accidental Damage to issued Chromebook: The first incidence of accidental damage for a calendar year is covered under the Chromebook warranty. Each additional damage incident in the same calendar year would result in a $75 repair fee.
>
> Damage to someone else's Chromebook: If a student damages a Chromebook other than the one issued to them, a $75 repair fee will be assessed to cover repairs. This applies to

> other student's Chromebooks or Chromebooks checked out from the Help Desk. The accidental damage warranty only applies to damage incurred by the student whom it was issued to."

This policy helped establish a clear distinction in the participants' attitudes between two schools (Oceanside and Far Point) that on all other metrics compare favorably. The helpdesk program has reduced parent frustration with the technology adoption program and the accompanying school policies mandating student care and use of school-issued devices.

During its technology roll-out and for the two years that followed the initial1:1 technology adoption program, Far Point Academy enjoyed a good deal of parental support for the technology program throughout the school. The program was not without its detractors nor negative effects. Students demonstrated resourcefulness at finding back doors and soft spots in even the best policies and protections.

Far Point Academy provided five participants for this study; Kim, Noelle, Barbara, Jo, and Diane. All of them were female with at least a bachelor's degree. One held a Master's degree. All but one were married. All were within the ages of 45 and 54 at the time of their interviews. Each of the participants reported a positive experience with the middle school technology-rich learning environment.

Diane

Diane (pseudonym) was a corporate executive that found her children's experience with middle school technology was beneficial. Her experience in the business world proved to her that her student needed access to technology throughout his education. She was a divorced middle-aged mother of a male student at Far Point Academy. Diane's personal experience with

technology used in middle school mirrored that of other participants in this study. Concerning her own experience with technology in middle school she recalled:

> "No computers, yeah, so no computers okay, I, I did not even get exposed to (them) when I was in college. We had computer labs, very few people even had computers in their houses, yet laptops weren't really even around yet. And even when I had my first corporate job out of college, our laptops, they were more just portable computers."

This lack of exposure to technology may have played a role in her own perspective on instructional technology as an adult as opposed to that of her teenaged son. Although she described herself as an avid technology user for both business and social connections, Diane, did divulge that she was at a disadvantage in the technology arena. She pointed to her son's ability to spend time "playing" with new devices in order to learn how to become more proficient in their use. Her comments also revealed her understanding of the interconnection between the social, emotional, and academic aspects of technology used at her son's school:

> "I've gotten to the point though, I do believe my son knows more than I do. But the other thing too is, with the younger generation, they have more time to sit and play with it all because it's both for them, it's technology that they're using in school but it's their entertainment at the same time, so they're playing on the phone when we're driving in the car they're checking out new apps. 'How do I do this, how do I do that?' It's something that's so mainstream in their entertainment life. It's a part of their social life. It's a part of their educational life. It's so ingrained in what they do, or as more of my generation, it's become entertainment where at first it was something that made my job easier."

Diane recalled that for her learning technology was not part of her education until college, and even so, her college experience was less effective than her son's middle school technology

experience. The contrast between these two generation's educational technology paradigms could not have been more stark:

> "Gosh, I only took even one computer class in college, and it wasn't even so much that you were learning things that were hands-on, it was just more of learning what programming is…what code is."

A vice president at a local corporation, Diane has not been impeded by her lack of early exposure to technology, rather she observed the use of new tools and techniques around her and adopted these new tools as her position required.

For her cognitive representation, Diane presented a pair of boxing gloves. She explained that she trained as a boxer as part of her fitness routine. That is where the inspiration came to her. Like boxing, technology requires a refined set of skills. She pointed out that when you first use the boxing gloves you take a few hard punches, and,

> "over time you become more adept at using them for offense and defense. The same is the case with technology. At first, you are unsure how to use the tools you are given. You make mistakes. You fail. As you practice and use the devices, you become more proficient and eventually learn how to avoid all those rookie mistakes. You also have to keep at it to stay sharp. If you stop exploring the boundaries of either, you end up losing your edge."

Kim

Kim (Pseudonym) was a media center specialist at a local school who had some experience with the use of instructional technology in her workplace. She was the mother of two daughters, one who had limited interaction with technology tools in middle school and her younger daughter who found her middle school experience more enhanced by the use of

technology tools and techniques. Kim was a middle aged married white librarian with a master's degree. She approached instructional technology differently than almost all other participants in this study. Her primary idea of effective use of instructional technology revolved around the ideas of variety and choice:

> "technology… means variety, not just that every (teacher) has a projector. For me, "technology-rich" means they have a variety and choice. Like when you walk into the classroom, it should be obvious that, okay, there's not just a projector and a screen but that the kids have a device or the teacher is giving them choice as far as what they can use. And I think also obviously to be in a year, you're not to be comfortable, but when I think of that too, I think of a comfort level when you walk in that the kids know what to do and what to use."

Having seen two of her daughters move through the middle school program at Far Point, Kim had a rare opportunity to witness changes in the program over time. She had recently graduated one daughter and moved another daughter from middle school to high school. Having two students complete the middle school program at Far Point, Kim saw a few differences in the way technology was used in the middle school program:

> "…mostly it's the teachers getting familiar with the tools and applications. They always had those teachers that were good at all of this stuff. The biggest change that I noticed between my two daughters was the increase in the number of teachers that used the technology that was available to them. Now, once (Far Point) rolled out the Chromebooks, that was a different story. Where we used to have to share a cart of computers, now each student had one… the access to the tools helped move things along."

For her cognitive representation, Kim presented a Chromebook. For Kim, this device represented the evolution of technology in the classroom as well as the increased access provided by inexpensive devices.

Noelle

Noelle (pseudonym) has seen one of her children complete the technology-rich learning environment at Far Point and another recently complete the middle school program as well. She was a high school media specialist in a Broward County school. Prior to taking this job, she worked as a middle school teacher in Broward County. She was an adept technology user in both her professional and personal life. Her concept of what a technology-rich learning environment was a bit more comprehensive than that of other participants:

> "For me, "technology-rich" applies to a lot more than what happens in the classroom. Getting the students to engage the course material outside of the bounds of the four walls and 50 minutes is what brings value to the technology (Far Point) uses. Learning is a lifelong pursuit. The tools that our kids use will always be a part of that."

Her definition continued to include an affective component:

> "And I think also obviously…you're not to be comfortable, but when I think of that too, I think of a comfort level when you walk in (to the classroom) that the kids know what to do and what to use."

Noelle presented a Twitter bird as her cognitive representation. For her, this symbol was a reminder that educational technology stretches beyond the initial boundaries set by the traditional view of education.

> "The idea that certain platforms will be off limits forever is disappearing. Just a couple of years ago who would have thought to use Youtube in class? Now teachers use

> it all the time. Parents need to be prepared to change as the norms shift. I mean… social media used to be forbidden in the classroom and last my son used Twitter for class. It's not just the hardware that changes."

Barbara

Barbara (pseudonym) was a middle-aged mother of four students at Far Point Academy, her oldest was a freshman, the others were in the 7th, 5th, and 3rd grades. She described herself as a former-stay-at-home mom, but noted that she had recently taken a part-time job as an accountant at a local firm. Barbara was enthusiastic about the technology used in the middle school classroom.

Though she described herself as tech-savvy, Barbara acknowledged that the technology-rich middle school learning environment at Far Point offered some challenges to her technical abilities. Again, she expressed some common thoughts that conveyed the feeling of detachment from the tools and techniques used in these new instructional environments:

> "I don't think I have a whole lot of negative to say with technology. I don't think (my experience in middle school technology) was necessarily negative. I'm educated as far as it comes to technology, how to use it, how to interact with it. I think the hardest part was just not being able to navigate in that world as well with (my son) through the textbooks through homework, but he transitioned very easily, so it didn't become something we had to step in to."

As for the benefits of technology, Barbara put it into simple terms, "(technology) allows me to more hands off, if used appropriately." This sentiment was the only one of its kind expressed by participants from Far Point. This idea was far more at home among participants from Oceanside.

For her cognitive representation, Barbara presented a pair of bifocals, explaining that they "allow the user to have a close up view of whatever they are looking at." She saw middle school technology as a way to help parents look into their students' progress. According to Barbara, like so many of the cognitive representations, "this one has to be used properly to get an accurate assessment of student progress." Even with technology acting as bifocals, she explained,

> "if the teacher does not keep up with assignments or the parent does not fully understand what they are looking at in terms of student assignments, grades and the like… the parent fails to get an accurate idea of their student's progress."

In essence, when either the parent or teacher failed to maintain digital tools by monitoring student submissions and grades, or by posting student scores with timely and informative feedback, parent frustration may increase. This represents a sensitive balancing act between parents and teachers.

Jo

Jo (pseudonym) was a mother of a current middle schooler and a freshman at Far Point Academy. Even though Far Point has been recognized for its academic and extracurricular excellence, Jo was more enthusiastic about the discipleship model at work at the school, stating,

> "not only did this happen through discipline, classroom discussions, chapel, and extracurricular activities, but it was also occurring in and through the use of technology."

Jo, like other participants in this study clearly identified the way technology has transformed into an academic, social, emotional, and spiritual influence both at school and at home:

> "Oh there's a digital component now, yeah, alright. And we need to make sure that we're discipling our students in that or say discipleship... It's all spiritual… but it's not, it's not a social initiator. Social, academic, and spiritual. Oh, and now it's digital."

Jo clearly associated the use of technology with spiritual development. Her discussion of discipleship was evidence of the depth of the school culture at home. What's more, it wasn't just the official structures that appeared to drive this discipleship model at Far Point, but according to parents like Jo, this discipleship occurred in less formal settings as well. Jo related how this took place between her freshman and a student math tutor:

> "I feel like his tutor in his... Who's the high school student has helped disciple him not only just with Math, but as an example to him as a good high school student. So I think, in general, making disciples is important and the overarching essential for me having my kids here is a spiritual component, and it doesn't mean at FPCA, that we don't have some of the same things happen that happened at public schools, they still happen in (and) among our kids... but how Far Point, and the school leadership deals with those is the difference."

For Jo, this added dimension provided a real opportunity for close coordination between the home and school. This concept was reiterated by others in the Far Point and Bayside focus groups, and to a lesser degree at the Oceanside focus group. Jo summarized the general sentiment of the participants in this study:

> "Okay, so, so, so essential to this school culture is the discipleship model where students and I guess one teacher, administrator, our staff work with students to help develop them. Yeah, that was just one example. Spiritually, academically, yeah."

Jo presented an empty bottle of Advil for her cognitive representation. Laughing as she pulled it from her purse that "it isn't necessary all of the time, but particularly in the beginning, there can be some stress and a few headaches." This item attracted much attention at focus groups in the form of laughter.

Bayside Christian School

Located in Morgan County, Bayside Christian School (pseudonym) was founded in 1960. Situated in a lower socioeconomic community, the student population represented the smallest and least diverse student population of the schools included in this study. The school reported 400 students enrolled in 2019 with 1% Caucasian, 8% Hispanic, and 89% Black/African American (see Figure 7). Compared with the county's population of 13% Caucasian, 69% Hispanic, and 18% Black/African American, this means the Caucasian and Hispanic student populations were underrepresented by 12% and 61% respectively, while the Black/African American student population was overrepresented by 71% (see Table 2). Compared to the South Florida population, (see Figure 5) Bayside overrepresents Black/African American students by 67%.

Household incomes reflected a similar imbalance. In 2019, the average household income for residents of Morgan County was $46,338 (see Table 3). Bayside Christian School reported that in 2019 fully 66% of enrolled families earned $49,000 or less while 12% of households earned $80,000 or more (see Figure 8). Compared to South Florida average household incomes (see Table 3), Bayside households earned $3,830 less.

Bayside Christian School offered four participants: Pete, Charles, Charlene, and Carrie. Each represented a unique point of view with regard to technology in education. None of these participants provided cues to the researcher that they were in the upper reaches of the household incomes. The participants at Bayside Christian School reflected the lowest educational attainment in the study with one holding a bachelor's degree and all others having some undergraduate credit or trade school certifications. All participants from Bayside were Black/African American.

Students at Bayside Christian School used Google applications for classes and had some access to class sets of laptop computers to work on class assignments. Not all classes offered students the use of tablets or laptop computers during class. Even with this limited access to technology, participants from this school were very optimistic about their students' ability to use technology effectively. These participants all self-identified as tech savvy except for Pete, who relied on his daughter and wife for assistance using devices and applications.

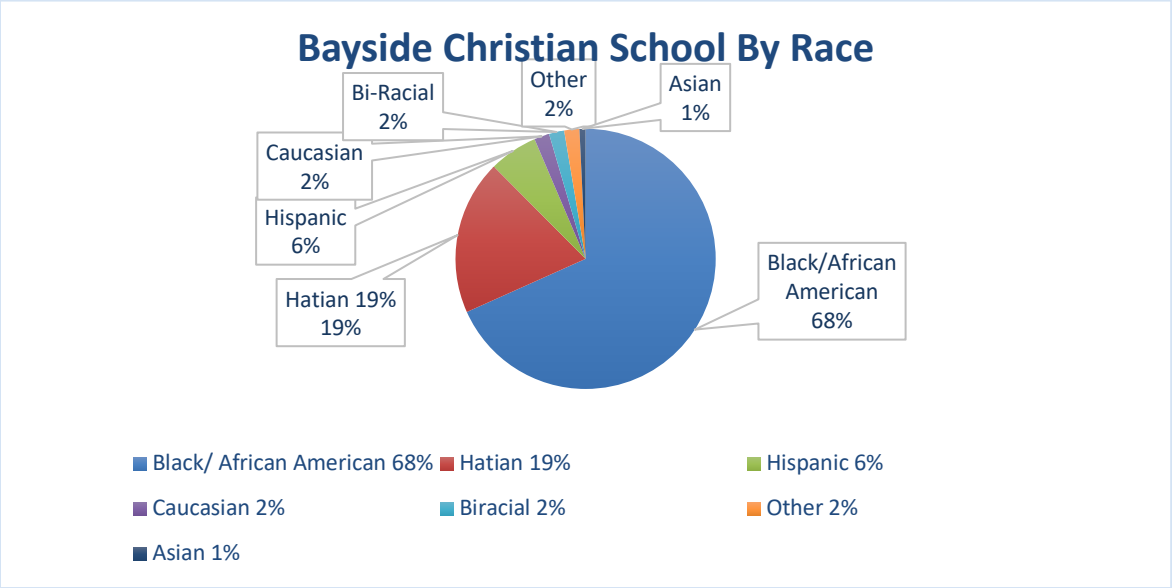

Figure 7. Bayside Christian School by Race

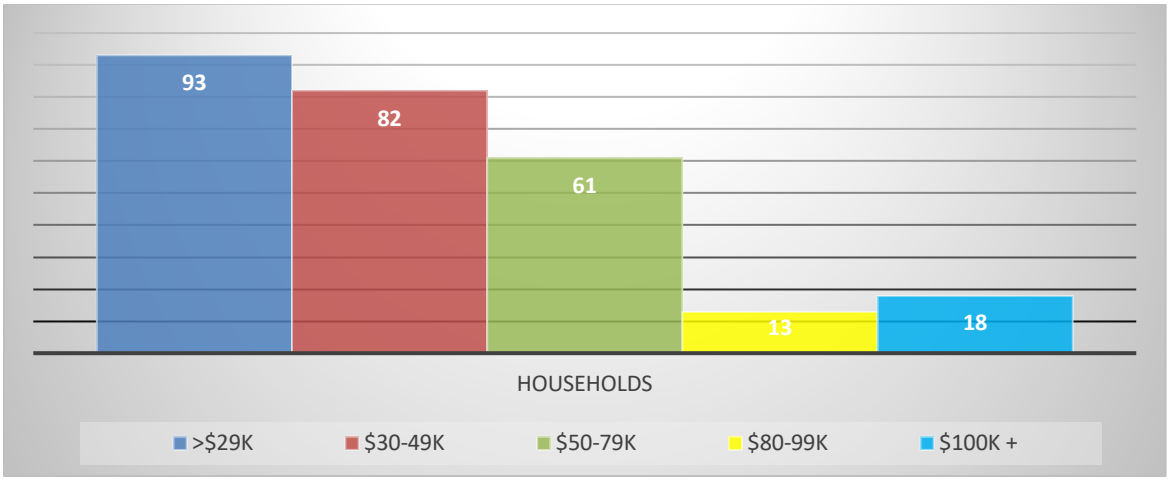

Figure 8. Bayside Christian School Schoolwide Household Income

Charles and Charlene

Charles (pseudonym) and Charlene (pseudonym) were husband and wife, raising their granddaughter. They were the oldest participants in the study. They, like other parents at Bayside were closely connected to the community at Bayside. Even though they were both semi-retired, they invested their limited resources to provide technology tools for their granddaughter. They chose a Christian school environment for their student as a reflection of their own experience in Miami-Dade public schools as children. For them faith is of central importance to the education of children. Active seniors, they declared that they were no less obligated than other parents at their school:

> "(we are) busy people… we're not ready to go feed the pigeons. We spend our days…we are probably more active than our son who wanted us to consider a retirement community. He thinks he needs to protect the old people in the family. We are raising his 14 year-old daughter. We took on a new life (in doing so). We had to become the kids because our kids feel the need to parent us."

Charlene and Charles were a tech-savvy couple. Both discussed their expectations concerning the use of instructional technology in the middle school at Bayside. Charles and Charlene framed the sentiments shared by other participants at all focus groups:

> "Because of the Internet access, now people can broaden their horizons because of the computer. It is a great tool for learning and just advancing your knowledge. All my kids love the computer because we brought it into our home when they were very young." Super kids can be super, super kids because opportunities are so great primarily with the Internet."

Charlene describes instructional technology as beneficial to students both academically and vocationally. She, like other participants, identified the changing nature of technology. Charlene presented this change as more inevitable as opposed to a challenge:

> "In touch. These machines give you instruments to allow you to type notes instead of handwriting them. Technology is a super, super opportunity. Like Cell phones. When we were kids we had beepers. Now they have these cell phones."

Charlene and Charles brought in one item as their cognitive representation, a cross. This item, taken from their car's rear-view mirror, expressed something of the faith that they both exuded. They explained:

> "It's so crucial, especially in the critical time we are living in, it's so important that our children learn about a relationship with Jesus Christ. I remember growing up in Miami, in the public schools having a teacher share Scripture and praying at the start of school. Unfortunately, due the change in times, there were a group of folks that protested that and got it taken out of school… you can see a big difference in a kid who has been exposed (to faith) as opposed to those who have no knowledge of it at all. It is a very important component that is sometimes neglected by society."

In this way, Charlene and Charles expressed the same sentiment about the connection between technology and faith as other participants like Jo and Kim.

Carrie

Carrie was a volunteer coordinator for Bayside Christian School. She was heavily involved in many aspects of the school's operation for a number of years and was well known by students, parents, and faculty alike. She viewed her generation as a bridge generation between

the days of junior high and middle school – a shift from strong community support to seeing that strong community atrophy:

> "Junior high for us was just 7th and 8th grades. For us it was like the Wonder Years. We were kind of free spirited. Rap was coming onto the scene. We were the generation after civil rights. We never saw signs for Whites and Coloreds. It was still there, just hush-hush. We had a strong community. There was a fear that someone would see me doing something and get word back to my Mom and Dad. That idea is gone these days. There is no fear that anyone will tell anyone what you are up to, unless you create that village. We, as parents have to create that village… "This is my child; if you see them doing anything, you let me know." You have to give permission for other parents to be another set of eyes, whereas back in my day there was no need to give that permission. It just happened."

This attitude was found throughout the community at Bayside. The participants all recognized the changes in school as previously mentioned by Carrie, who was the most direct about it. Her attitude toward the use of instructional technology was no less direct. All of the participants from Bayside aligned with the participants from other schools both individually and in their focus group discussions in recognizing the evolution of technology in education. Carrie's point of view on technology change in middle school was best characterized by her statement in her individual interview:

> "(Instructional technology is) Access. Meaning access to the world. That's pretty much what the Internet gives us. You may not be able to travel to France, but, with the Internet, you can explore France and put it on your bucket list. It enriches us to see beyond our world."

Here she recognizes that technology has the power to extend the classroom beyond the four walls. Within focus group discussions there was broad agreement on this idea. Unlike most of the study's participants, Carrie admitted that, although enthusiastic about technology, she admitted that she was not the most adept user, but she always loved using it. Her family has recognized this: "I love technology, I'm always enjoying it, I don't involve myself too much in the computer and when I do my family all think I'm crazy." For Carrie, Technology needs to serve its function alongside human interaction.

> "Compassion, empathy and human interaction are important for children to become functioning adults. Technology is a good tool, but it should not be the primary focus. I'm all for using online tools, but at some point, you need human interaction."

For her cognitive representation, Carrie provided a miniature Thor's Hammer. For her, this symbolized the front-loaded aspects of technology. Before a student can work effectively within a digital environment, the user needs to invest significant time and effort in learning about how that system works. Teachers had the same challenge, according to Carrie. She addressed these concerns, stating,

> "You have to worthy to wield Thor's hammer. By the same token, you cannot just pick up technology and think you are going to be effectively using it. It takes discipline. It takes instruction to get it right. There is also a lot of power in Thor's hammer as with technology. You have to be careful how you use it."

Pete

Pete was a grandfather with a student who had recently completed the middle school program at Bayside Christian School. Pete had high academic expectations for his daughter noting, "The only 'F' I want to see coming home is the one at the beginning of your name." His

experience with the school's academic and social training for students fueled Pete's trust in their use of new technology tools and techniques in the classroom.

> "I like the culture that (the school) has instilled here, because for one thing he made us as parents, part of the school. We try to make sure whatever we see that it doesn't go contrary to the rules of the school … you understand? … because it's a Christian awareness. Then you want excellence, from the students... You want learning from the students."

Pete's sentiments about the school culture at Bayside and its connection to the success of the middle school technology rollout were shared by others at Bayside and at the focus group at Far Point. Regarding expectations prior to beginning the middle school program, Pete was optimistic about the technology-rich learning environment and its ability to prepare his daughter for future academic and vocational success.

> "I think it's advanced enough. Whereas it could prepare these kids for high school, it is advanced enough, whereas to prepare them and get them with the right mindset, that you can use it to get to where you wanna go."

Specifically, beyond high school, Pete believed that the technology that was used in middle school will help his daughter achieve her academic, social and career goals:

> "Well, I hope it (technology) advances her to the point where she'd be able to take care of herself and get... Go to college because she wants to go to college and it'll help her through that college experience because she wants him to be OB-GYN she wants to be an actress at the same time, every one of those work out, when I, I hope whatever expression she uses with technology, it helped her advanced her to the point where she could take care of herself and to accomplish what she sets out to do."

Pete reflected the experience of the other Bayside participants when he described how he provided the devices his student needed to succeed. For Pete and other Bayside parents waiting for somebody else to hand them a computer was not the best way to advance their students' abilities with technology. Even with modest means, Pete and his wife supplied their daughter with the tools they believed would help her in her middle school academics:

> "That's why I said my wife has an office with all this different stuff in it, and every time something comes out, technical-wise, my wife gets it to make sure that she has all that she needs in order to get our education in. We don't lack anything as far as technical-wise. And what the school demands of the students you understand we're trying to make sure to... Everything is hand-in-hand."

A retiree, Pete served as the girls basketball coach at Bayside. He invested time with students and educators in both his role as parent and coach. The connections he established among the students and with school faculty and staff allowed Pete to develop truest among stakeholders across Bayside. All other participants from Bayside reported similar relationships across stakeholder groups within the school community.

For his cognitive representation, Pete provided a basketball. The ball was heavily decorated with crowns, stars and graffiti printed all over its blue and yellow surface. This connection to his coaching service, he explained reflected the evolving nature of technology in school:

> "Every time you dribble the ball it comes back to you showing you a new side. It never looks the same way twice. Keeping up with all of the changes in the technology we use on a regular basis is a full-time job. Like basketball it (technology) requires you to keep your eye on the ball."

This item drew some of the strongest associations for participants across focus groups, SES groups, and degree attainment levels. Participants at all schools reported strong relations with the imagery of the ball as it related to the ever-changing nature of technology in general and instructional technology in particular. The Peek-a-boo character of the dribbling basketball reveals another sentiment that speaks to all of the participants' lack of real strategic thinking in the area of instructional technology. It would appear that parents are more concerned with keeping up with the pace of technology change than exploring technology adoption horizons with school officials.

Conestoga Christian School

Conestoga Christian School (Pseudonym) was located in Pope County. It comprised a student population that was 50% Caucasian, 27% Latin American, 2% African American, 1% Asian, and 20% other (see Figure 3). Compared to the Pope County population, the Conestoga student population underrepresented Caucasians by 4.8%, Latin Americans were overrepresented by 5%, African Americans were underrepresented by 17.6%, and the Asian population was underrepresented by 1.9% (see Table 2). Similar disparities appeared as Conestoga's population was compared to the South Florida race averages. Conestoga administration provided no data on household income for its student population (see Figure 4), thus inference as to the SES of its student population may be drawn from the previously mentioned tuition. This data point placed Conestoga in the middle range of the schools taking part in this study

Conestoga was perhaps the least expansive in its use of technology in the middle school. According to school administration, the school provided technology devices for student use within a controlled classroom environment where student use the tools to explore basic computer skills:

> "Middle school students receive formal instruction in the computer center. They are introduced to application software such as Word, Excel, Google Docs, Google Sheets, Scratch, and coding; they create multimedia presentations using PowerPoint and are trained in the safe and responsible use of the Internet."

Thus, for Conestoga students technology class was the venue for the use of technology by students. Whereas teachers were permitted to use technology for instruction in the classroom, students are provided no devices or internet access to work within digital environments to accomplish tasks in class.

The participant from Conestoga Christian School was identified by snowball sampling following the sight administrator's unfruitful attempts at recruiting participants, a participant at Far Point Christian Academy offered Cindy as a possible participant for the study. This participant reported the most negative experience with the school technology program. As it would turn out, the parent's bad experience with middle school technology was rooted in both instructor issues and in an apparent failure for the school to develop a program that parents actually valued.

Cindy

Cindy (Pseudonym) was the only participant to take part in the study from Conestoga Christian. She was a professional counsellor who was not as enthusiastic about her children's experience with middle school technology. She viewed technology from a more pragmatic perspective that leaned more on instructional technology to replace older modalities and provide new efficiencies:

> "I think you access technology now is a database to access any information that you want to get it also as a way to organize a... Back when I was in school and I did report I did

> them on type writers. So if you made a mistake and you did your footnotes at the bottom you have to re-type the whole paper. So, it was cumbersome and labor intensive. So I would say that technology really has made things easier, easier to access information, easier to do any of your reports. It's easier to do group (work) with other friends. You can use technology to access the people in your group for like a group project, even to access your teacher to email as a student and even as a parent to monitor grades."

Thus, for Cindy, productivity, efficiency and collaborative opportunities were real benefits of the technology-rich learning environment. Technology, for this participant, had the potential to provide efficiency to many aspects of her student's life. At Conestoga, she had clear expectations for her daughter and he technical and academic abilities following middle school. Some of these, based on her experience in middle school would need to be supplemented and developed in high school.

> "I want her to be able to use computers to access any information and to be able to do a PowerPoint to be able to do a program to use the internet to use any way, any means of technology to help her strive in school and through college and to keep up with the technology. So not to be held back with old I guess, operating systems or old ways is the technology each year changes a little bit so I and the learning curve changes along with it, that whole evolutionary concept of technology"

Her experience with technology at Conestoga was not as positive as others in the study. Her experience resulted in broad, weak expectations. Again, this participant aimed her future expectations for all of the technology used at Conestoga as being "able to use computers to find information," and, "making a PowerPoint." Both of these goals targeted regressive skills.

She noted that the small staff at her school meant the teacher for technology may not have been as proficient as she was expected to be. "She was an old library lady. The school had an IT guy, who they eventually brought in, but she was not much help when I had problems. That was frustrating." Eventually, as the result of parent communication, administration made a change in the instructor.

This situation reflected a strong connection to the theme of strategic connections. In this school seemed to he hampered even in this area by a teacher that was unable to "wing it" as even she encountered challenges or was contacted by parents who had questions.

This was a source of frustration for Cindy, who spent time after school talking with her son's teacher to try to help her son with his assignments. Cindy noted that "technology" was a class at Conestoga Christian School and not heavily integrated into other academic courses at the school. Within this course students learned how to use computers to produce typed documents, spreadsheets, PowerPoint presentations.

When her daughter came through the same technology class she changed her role as a parent-advocate to parent-facilitator. Her daughter eventually moved from the strategy of her brother, namely going to the teacher for help, to self-advocacy and peer assistance to find help.

> "So watching (my daughter) going through the computer process, wasn't enough for me, so then I struggled, it was hard for me, but she ended up just talking to other teachers and getting help from other students."

Cindy resolved this situation by collaborating with her student to identify another, more technology savvy faculty member at school. This turn of events forced Cindy to become a hands-off parent in the area of her daughter's school technology. An avid Apple user, Cindy was

optimistic that as a result of her involvement in the technology-rich learning environment, her daughter would surpass her technological abilities.

> "I guess I could just say I was hopeful that she would learn more than what I know and that she'd be able to do Power Point and it would prepare her for high school. (That she would learn how to use) different operating systems, that kind of thing and learn beyond just the Apple. So that I was hopeful about because I know that the Apple is easy in a lot of ways, and it's limiting as well."

Cognitive Representations

Each participant provided an item that symbolized their experience with the technology-rich middle school learning environment. Participants began their semi-structured interviews with a discussion of the significance of the cognitive representation they brought to the study. A photograph of each item was taken for presentation to focus groups later. Each focus group started with a presentation of images of the items presented at each interview and a brief description of each item. Participants were given self-adhesive posters and a felt tip marker for them to reflect on as many or as few of the items as they chose. Participants were encouraged to draw images and/or write as little or as much as they wanted to in order to express their connection to the item(s). Each focus group began with a discussion of the ideas expressed on each of the participants' posters with each participant describing and narrating their own poster for the group.

Results

Before analyzing participant data, the first step in phenomenological analysis is for the researcher to bracket their own experience with the phenomenon to avoid any unintentional influence. Thus, in the Epoche, I outlined my personal, professional, and academic experience

with instructional technology in order to identify and address any preconceptions about the use of technology in the classroom. In so doing, I presented to the reader an objective, open description of my experiences that might allow them to arrive at their own determination about my research objectivity. This process also allowed me, as a researcher, to identify any biases that would otherwise have entered into the data analysis process. Finally, I was able to better identify the imitations of my study and the approach to this research which would include more schools, public schools, and increased participation from lower SES schools.

The results of this phenomenological study were analyzed using multiple data points to triangulate data from semi-structured interviews, cognitive representations, and focus groups. These three data sources were coded using ATLAS.ti qualitative software. This software helped organize 13 semi-structured interviews, discussions of 12 cognitive representations, and three focus groups. ATLAS.ti provided an efficient means of identifying codes between participants and data collection points, and more efficient coding than manual coding. Following the coding process, clusters of meaning were developed to connect data points and participants. The coding process began after revised transcriptions of semi-structured interviews were uploaded into ATLAS.ti and each transcription was coded for general experiences.

Theme Development

Thirteen parents of middle school student enrolled in South Florida ACSI schools using technology-rich learning environments were interviewed for this study. During each interview, participants provided cognitive representations that symbolized their experience with middle school instructional technology. Following the interviews three focus groups were organized to allow for greater participation by those living in disparate or lower SES communities. During these focus groups, participants provided feedback on as many or as few of the cognitive

representations as they chose to represent some aspect of their experience with the technology-rich middle school learning environment. Through the process of data collection using these three data collection techniques, working with the codes created during early stages of data analysis, four themes emerged: technology change & strategic consideration or "winging it," student autonomy, parent isolation, and parent pacing.

These themes emerged as a series of new focus in the study through the use of phenomenological reduction through horizonalization and imaginative variation (Moustakas, 1994). As I examined and re-examined statements by participants, new horizons of understanding appeared and directed the study more deeply into the parent experience with the technology-rich middle school learning environment. The result of this shift from pre-formed sub-questions into new themes helped develop a richer understanding of the phenomenon. These themes loosely paired with the original sub-questions established for this study as shown in Table 4. These themes then combine to present the essence of the parent experience with the technology-rich middle school learning environment. Data point alignment included the study's research questions, questions from the semi-structured interviews, cognitive representations, and focus group questions.

Cognitive representations and research questions were also aligned with themes (see Table 6) to further reinforce the validity of the themes that emerged through the data analysis process. Among the cognitive representations, the basketball appears most frequently in the Data Point Alignment table (see Table 4). The basketball aligned with four research questions (1, 2, 3, and 4). Other significant cognitive representations in terms of alignment with other data points were the combination lock and the power cord which aligned with questions 2, 4, & 6 and 2 & 5 respectively. The strength of the alignment with the basketball is due to the frequency of

participant comments and speaks to the clear power of the item to convey key elements of the essence of participants' experiences with the technology-rich middle school learning environment. Clustering of cognitive representations occurred with research questions 1 and 2. The identification badge, the basketball, and the cross all aligned with research question 1. The combination lock, the basketball, the novelty lipstick pen, and the power cord all aligned with research question 2.

Cognitive Representation	Positive References	Negative References	Thematic connection
Basketball	9	3	1, 4
Cross	8		5
Thor Hammer	4	2	5
Lock	5	5	1, 2, 3
Power cord		2	2
Student ID		4	1, 2, 3
Lipstick Pen	3	1	1, 2, 5
Chromebook	4	2	1, 2, 3, 4, 5
Boxing Gloves	6	3	1, 4, 5
Twitter bird	2	5	5
Divided dish	5	3	1, 2, 3, 4, 5
Reading Glasses	6		1, 3
Advil		6	1, 2, 3, 4, 5

Table 6. Cognitive Representations and Thematic Connections

Table 6 key

1. Technology Change and Strategic consideration / Winging it
2. Parent Control
3. Parent Isolation
4. Parent Pacing
5. Social Skills

Technology Change & Strategic Consideration

Technology change & strategic consideration theme emerged as the result of clustering five codes: technical competency, evolving technology, frustration, values, and expectations. These codes represented 585 individual codes or 35% of the codes used for this study. All of the

codes appeared in each school except one, frustration, which appeared in Oceanside and Conestoga interviews.

The lack of strategic consideration was a common theme across SES groups, degree attainment levels, and schools. This theme was displayed both overtly and covertly. The overt demonstration of this theme was demonstrated through participant statements about "winging it" in the area of new technology and problem solving with their student. The convert demonstration of this theme can be inferred by what parents left out of their discussions of technology change. While participants at each site, both in individual semi-structured interviews and in focus groups, addressed the challenge of technology change, none of them offered a futuristic perspective of technology. All discussion of technology change was retrospective. This inability to present prospective ideas on technology may have driven their lack of strategic consideration on the topic.

Participants across all SES groups, degree attainment levels, and school groupings presented a limited grasp of the direction that instructional technology is headed. Instead, parents addressed new technology tools and techniques as they came. The middle school's adoption of new technologies in the form of devices and applications generated a degree of frustration that appeared in participants from each school. Parents at each school expressed that they coped with their feelings of frustration in working with instructional technology by "winging it" – using trial and error to find what works in the realm of technology. This theme is closely tied to that of parent isolation and, thus, withdrawal discussed later. Technology change was universally identified by participants as a central component to their own technology adoption. Participants' approaches to emerging technologies was heavily driven by their values.

Parents noted that the rate of change within the technology tools they routinely use for work and leisure was a challenge with which to keep up, and that the unfamiliar school related technology tools and techniques added additional complexity to their process of adoption. While responding to focus group discussion about parental strategies on keeping up with new tools and techniques, Carrie, from Bayside was direct about her approach to new technology: "I Wing it every day." Agreement in the focus group was universal. In her interview Sue discussed her views on the changing technology landscape:

> "I expect that the technology is gonna be continually, based on how it's evolved, that's gonna continue to evolve and become more and more prevalent and... have more uses in the future and be ever-changing, so... The use is only gonna increase is what I would expect based on the past and how rapidly everything changes. It seems that once you learn one program there's another program that trumps that program, and you're consistently having to keep up with the fast pace of new developments in technology."

The cognitive representations that most directly connected to this theme were the basketball, the lock, and boxing gloves. The basketball was described by Pete as "showing you another side every time you bounce it. It never comes back to you the same way twice." Kim added that the basketball represented an "ever-changing perspective. Technology is constantly changing. If you are not as good at adapting or changing due to age or knowledge level, you are at a disadvantage."

While, the lock, according to May, often requires subtle adjustments for proper function as the lock ages, "Sometimes as they get older, you need to jiggle the dial as you pull on the hasp to get it to work." Finally the boxing gloves, according to Diane represent a change in strategy.

> "When you first put them on, you take a few shots to the head. It's tough for the beginner because they have to learn how to use the gloves… how to block. Defense is important. Getting ahead of yourself can hurt you. Once you learn how to properly defend, then you learn how to deliver a punch. In the process you grow. The same kind of thing can be said of technology. You have to take things in steps. You can't expect to just know it all. Sometimes you have to learn about technology the hard way…through difficulties."

Cindy's experience at Conestoga Christian School demonstrates the changes that have occurred over time. As she and her daughter have adopted these new strategies, Cindy's frustration with the shortcomings of the program decreased.

Parental Control

Within the theme of parental control, parent experience was split with groups of parents. The first group of participants actively worked to support their student in an almost us-against-the-machine approach to addressing challenges associated with technology used at school. This concept appeared across SES groups, degree attainment levels, and school groups. It is important to note that not all participants at each school expressed this idea as an operating principle. Parents at each SES levels demonstrated this approach differently. Some parents at lower SES schools bought their student laptops, network printers and other devices to give them some familiarity with these tools and to allow them access from home. Parents at higher SES schools acted as advocates for their students, actively engaged school faculty and administration to solve problems their student encountered. Supportive parents at all SES levels worked beside their student to figure out how to address issues that arose early in the middle school program, particularly with big projects that had tight deadlines, or those days when the technology

presented the student with what appeared to the parent to be too much homework. These parents also identified social media as the source of conflicts that have arisen between their children. Carrie from Bayside Christian School received robust support from her focus group by stating:

> "When it comes to (social media), you have to sleep with one eye open."

Participants also identified school technology policy and the implications for their student as flash points between parents and school. It was a significant point of contention that produced frustration among participants. This group of parents drew tight connection between their students' inability to understand tasks, complete technical assignments, or comply with technical requirements of the technology-rich learning environment like arriving to class with a functioning, charged device. These parents internalized much of the frustration their students did in these situations. Erin, a participant from Oceanside Christian School presented a student identification card as her cognitive representation. Her frustration with the card stemmed from the requirement,

> "It's a headache. The kids are not used to (having to have these ID cards all the time) and they're like... It's a technology. And when they forget it it's a $10.00 fine if a teacher catches them. So, it's very arbitrary. (The student) is not supposed to be allowed on campus without it, but it happens. That's my point. I'm all about policy. I think it's a great thing, but it needs to be incorporated better for the mindset of the kids, 'cause it's not useful for them. It doesn't give them building access or classroom access. It has a barcode, but it doesn't really do anything. It's an elementary form of technology."

Later in her interview Erin noted a similar discipline structure for middle school students that forgot their device at home,

> "in the 7th grade you got a tally or reprimand for not having your device with you. That's how they were trying to get you in the (habit) of bringing (your device) in."

Clearly some battles are worth fighting, while others, are not. There are conflicts that occurred under the surface of all of the technology used at Oceanside. For Erin, loose parental control revealed an internal parental conflict and one in which she pointed to an instructional flaw.

> "I will say it's a quiz, so my daughter will find in science last year, because that Ms. Jones (pseudonym) uses and she'll study, from... So did the answers aren't there, But she'll find the quiz, and she realizes that that's the quiz Ms. Jones (pseudonym) used and she'll use that to study from and so she hasn't said anything to the school, a no I haven't said anything to the school. So that's because I don't always know if that's the one she's gonna going to use."

In the focus group at Far Point, Barbara reflected on her approach to new technology that her student encountered in middle school. She gave a glimpse into the experience of parents facing the challenge of a new technology tool or technique:

> "Is my kid gonna be able to get this in as you're gonna figure it out, it's gonna actually use it correctly or "Oh my gosh, it's a new thing." We're gonna bond the first semester as we learn this stuff."

Clearly, this group of parents experienced a degree of anxiety about how technology is applied and concern about whether their student, or they themselves, for that matter, would be able to function well within the constraints of the new tools and techniques in the classroom.

The second group of parents adopted a kind of hands-off approach to the problems encountered in the technology-rich middle school environment. This group of parents described themselves as less involved with their students' instructional technology. Here the parents would

provide little-to-no assistance for their student facing challenges with technology, insisting this was "their problem," and that they needed to "figure it out."

Some of these participants adopted this approach by design. These parents were unwilling to learn the new systems being adopted by their students' middle school. Typical of this group was Sue who described herself as "fairly hands-off" with her student's technology.

> "I tend to be fairly hands-off with with my student…with my kids in their technology, so I basically I tell them, 'don't come to me for help with the technology that you're supposed to be using in school 'cause I don't know what it is and I don't wanna learn it, and I shouldn't…' I feel that if I do it for them, it's just gonna enable them to rely on me."

Some parents expressed strong support for the student, offering to help them however they were able. Although it appeared in the individual semi-structured interviews at each school, focus groups at Bayside and Far Point expressed a need for parent oversight and close interaction with their students in terms of their technology use. In the Focus group at Bayside, Carrie offered her parental advice on supporting technology through active parenting:

> "I think that the adults have to be the center exactly, and as long as (the parent) keeps an eye on it and managing it, then I think it will be very, very good for the kids, especially when they're home."

This idea also arose at the Far Point focus group where Kim reflected on her own parenting advice concerning technology. She recognized that, even as the student matures, the need for parent intervention in the area of technology remains necessary:

> "obviously they're a lot older now, so you have to kind of start to trust them, but that doesn't mean you don't stop at the conversations. There are still a lot of very bad things within their reach."

Parent Isolation

In every school parents expressed that, while they may have reservations, frustrations, or anxiety about some aspect of the technology-rich learning environment, very little discussion occurred between the parents and school officials or even among themselves. This isolation did nothing to promote parent understanding and pacing. This isolation appeared to do little to reduce parent enthusiasm about the school or the technology-rich learning environment. Parents appeared to take their own lack of understanding as a personal limitation or a private concern. Barbara expressed her understanding of this,

> "(my son) is way ahead of me. He spends so much time just playing around with the technology and apps. That's how this generation learns all the tricks. They just get on there and mess around with it and talk to their friends about what they are doing. I just don't have the time to do all that."

This kind of self-imposed isolation appeared to be the result of an avoidance or withdrawal response to the anxieties and frustrations expressed. Participants at all schools confessed that they do not talk about technology with other parents, teachers, or administrators. Instead, parents chose to charge the student with finding a solution or "winging it" to get through the situation. This parent coping strategy ultimately does more harm as it not only impacts the parent's understanding of current technology, but also puts them off pace for adopting new tools and techniques as they emerge.

Parent Pacing

In every school parents expressed the perception that they were behind in the process of adopting new instructional technology devices and techniques. While some of this was due to the rapid rate of change within technology itself, some was due to unfamiliarity, even with tools and techniques their student and school had been using for years. For some participants this lag in adoption appeared to be self-inflicted. Almost all of the schools use one learning management system, Renweb, to track student progress, post student assignments, and accept student submissions. All of the parents in schools that used Renweb (8 in total) raved about it. At least two admitted not really knowing how to use the software, even after years of enrollment in their school. Regardless of the technology used at home or at school, parents expressed a common sense of striving to keep pace with their student and the middle school learning environment.

Concerning what advice she would give herself as the parents of a new middle school student, May noted,

> "I would definitely educate myself a little bit more as far as where technology had gone and the ability just effect. I didn't even realize that Google Chrome had a blind screen where you could click on it and it would be a screen that you can't track with history. And I did not know that going into... And a lot of parents don't know that where ... It's simply a click of a button and it takes an Act of Congress almost to disable it where we here, it's very hard. And even if your kids are just playing games instead of doing their work and they know that you're gonna look at that, it's very important that there is an accountability there for your kids, and to assume that a 12 year old isn't going to be off task. It's a big assumption."

While Sue added,

> "The thing I can think is if they're too dependent on it, or you become set in your ways, once you learn a particular program or way to do something, then you tend to be more close-minded with learning something new sometimes."

In discussing the cognitive representation items, Charles likened spiritual and technological pursuits:

> "I know anything about what's going on spiritually and the same thing with technology, if you don't know what's going on with technology, you do not wanna be aware of what's happening. Keeping connected, like the plug, is important."

Social Skills

Parents in each school noted a concern for the loss of social skills among their middle school students. This was closely connected to the students' use of social media and the parents' perceived distortion of student norms. Carrie at Bayside noted,

> "I think that is what our challenges is. Their normal fighting against their normal and resisting against the normalization of the abnormal."

While, as stated, all of the schools addressed the use of social media among their students, it was the focus group participants at Bayside that focused the most time and attention to this area of parent concern.

Carrie voiced concerns for the normalization of "abnormal" behavior that social media seemed to encourage:

> "I'm saying where my parents were like... No, it may be normal to you all as This is something that is now occurring on a regular basis. We're here to let you know it's not normal and we're gonna put boundaries around that and that's pretty much the way that I think those of us who are involved in our children's day-to-day lives, I think that is what

> we try to accomplish. Like I understand this is your normal, that if you take a picture of your plate of food and you post it on the internet, who cares, right? But we're here to let you know that's not normal."

Pete reflected on his childhood and the advice his parents gave him as he faced social challenges. The advice had a familiar ring to him as he guided his own children through their technology-driven social problems.

> "when I look at the generation after me, I'm just like what happened when the wheels fall off, almost... And it's like you see the results, it's like I can see the results of the generation after me of what... Or my parents were telling me as I was growing up. You don't wanna do that, you don't wanna do that because you'll end up like this, you end up like that or Do this, can follow you, and that could follow you, blah blah blah."

Carrie reinforced Pete's perception,

> "And when you go for a job interview, when you go for your college applications, these are things that are going to be looked at and you're gonna be judged on that right or wrong and different or different. This is what you're putting out, that's what people are gonna judge you on."

Participants at Far Point discussed possible opportunities for beneficial instructional use of applications like Twitter, Instagram, and Facebook.

Cognitive Representations

Participants were asked to present an item that represented their experience with the technology-rich middle school learning environment. Each participant brought an item to their interview and described how that item symbolized their parental experience with technology in their child's middle school. The items presented were: a basketball, a cross, a small Thor's

hammer, a combination lock, a computer power cord, a student identification card, a novelty pen in the form of a lipstick, a student Chromebook, a pair of boxing gloves, a Twitter bird, a ceramic divided dish, a pair of reading glasses, and an empty bottle of Advil (see Figure 9).

Later, at focus groups, participants were presented photographs of each cognitive representation and asked to create written comments in the form of words and images on as many or as few of the items as they wished on large butcher paper posted on the walls. As participants wrote their thoughts using colored felt-tip markers, the researcher took note of which participant used which color, thus providing a coded listing for each participant poster created. A gallery walk and group discussion about each participants' thoughts followed. Discussion of these items began the focus group.

Each cognitive representation was tied to one or more themes that emerged during data analysis from the semi-structured interviews. Comments written by individuals were categorized as either a positive reference or a negative reference and through the discussion, each was tied to one or more themes (see Table 6).

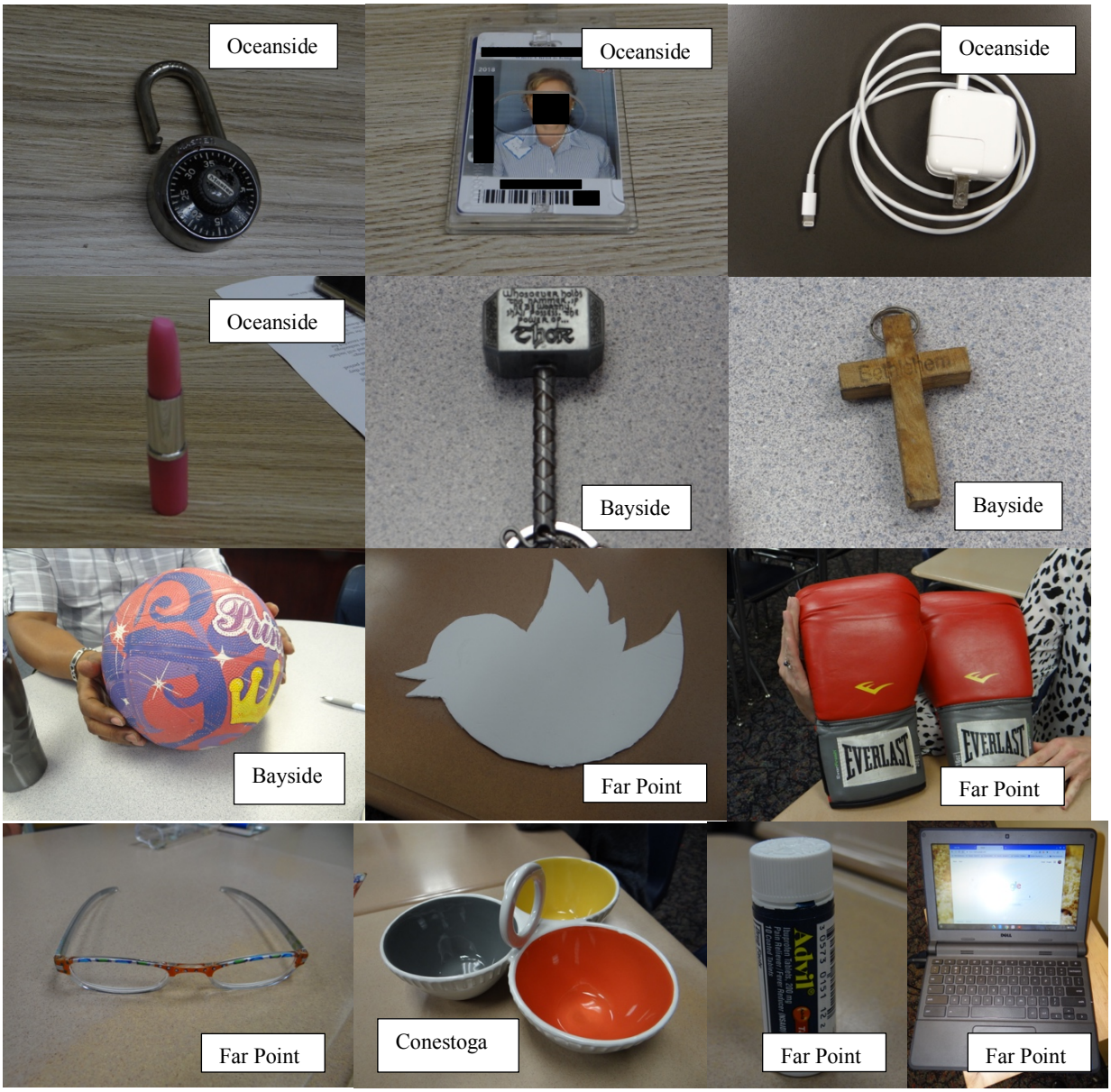

Figure 9. Cognitive Representations

Of the 13 items, five elicited more comments than the others, they were: the Basketball with 12 participant comments, the Combination lock with 10 participant comments, the boxing gloves with 9 participant comments, the Cross with 8 participant comments, and the divided dish with 8 participant comments (see Table 7).

The Basketball

The basketball was presented by Pete. As he described it, the ball represented the ever-changing nature of technology and the need to keep up with the evolving nature of the technology that is all around parents today. According to Pete, parents may think they have a grasp on the technology being used, but it is not long before they find that they are not on pace with the pace of technology adoption of their student or the school. Parents quickly found themselves in unfamiliar territory. Pete held the basketball and slowly rotated it as he described it:

> "Well, the technology part, that's why I brought this Basketball... Because technology is like... you get fixated on this part right here, then you bounce around …and you think you've accomplished something when it gets to this part right here. Okay, so you're where the king is at and you think you've accomplished something. Next thing you know, you bounce around, and bounce around, then you are somewhere else, you understand? … that technology has us bouncing around so much 'cause once you accomplish one thing something else is spread with the students."

Kim and Diane at Far Point Academy expressed similar sentiments. Kim noted that the basketball represented an environment that "…is constantly changing," it demonstrates "an ever-changing perspective." Kim went on to note:

> "If you are not good at adapting or changing due to age or knowledge level, you are at a disadvantage."

This idea was continued by Diane who wrote:

> "Technology is always changing. Sometimes it can be hard to keep up with depending on your skill."

At Oceanside Christian Academy, May and Sue continued the connection to parent experience at other schools in the study. May observed:

> "Technology changes position and need each time we use it. The purpose for technology – how we apply it in different school-related circumstances -- changes like the bounce of the ball."

Sue added, "Technology is continually changing, so there is always something new to learn. There is always a new use for an application with which we have become familiar."

At Bayside Christian School, Charles and Charlene agreed with participants from other schools. The pace of change in technology in general and in instructional technology represented a significant, persistent challenge to parents. On his poster, concerning the basketball, Charles wrote, "technology changes rapidly, just like a bouncing basketball. It may come to you in one form, but eventually you find that it has changed course." Additionally Charlene noted the concern many of participants across SES levels, education attainment levels, and schools in this study,

> "the basketball represents the various aspects of technology and how it changes. You need to keep up with it or you get left behind."

The Combination Lock

Erin brought the lock and described it and its significance in the greatest detail of any cognitive representation offered. Erin gave three points surrounding her item, they were 1) technical proficiency, 2) practice with technology, and 3) technology reliability.

> "the symbolism behind the lock and middle school technology I had three ideas behind that and the first one was with the area with a lock similar with to technology, you must know the combination and not only the combination of the lock, but you must know how

to operate the lock, which ways to turn it, how many times to turn it, and you have to follow the exact steps of the lock in order to open it and gain access to things that this lock is protecting.

So, maybe valuables or books or anything that you put in the locker or it could be a bike that you're keeping locked up somewhere to keep someone from stealing it. So, to gain the benefits from the lock, you have to know how to operate it.

And with technology the similarity is if you don't know the exact steps to take and how to take them, then you cannot benefit from the technology that you're instructed to use. So that was my first reason or symbolism for the lock.

And my second one is, if you don't use it frequently, you can learn a combination of a lock, but if you're not using it on a regular basis, you'll forget that combination. So I find the same with technology. If you're not using it regularly then the chances of you remembering exactly how to work through different steps to... So, you won't remember it unless you're doing it frequently, so... So I've found that with my own self and use of computers because you don't have a manual sitting next to you at all times, and there's so many different prompts and ways to use a computer or technology that if it’s not a step that… if it's not a series of steps you're using on a regular basis, you will not remember what to do. And yeah, I think those two are the main reasons that the lock was reminded me of use of computers and technology. And it's important to say that this is not a shiny new lock either. I say it's that's been through a ton.

And the add a third one, I think I did up three ideas to begin with. But the third one is too, that the lock is not always 100% fool-proof, so you may have to... For example, when you hit the number, you may have to push in slightly for the number to register a you

> may have to do it a couple times to get it just perfect if you take it slightly past the number and try to back track, it probably won't work. And with computers, the same thing, you can have, they're not 100% fool-proof. There's times when the connection is poor or the computer for some reason, crashes out of nowhere, so I find that they're not 100% reliable, 100% of the time."

Where these three ideas were well developed and presented by Erin, other participants' comments aligned with them and helped tie this item to the themes of technology change & winging it, parental control, and parent isolation (see Table 6). Conestoga parent Cindy reflected on her own experience with combination locks and stated:

> "Combination locks are not always reliable. They can provide a false sense of security and safety. You don't always have the right access. Combinations can be changed. In the area of protecting data, the lock and technology doesn't always keep others out. Kids do not always respect security measures parents or schools put into place."

Charlene and Pete note other aspects of Erin's rationale by noting that the lock can open or close items to the user. Charlene said, "If the lock is closed, then there are no ins or outs. There is a power to holding things in. Locked technology does not allow for information to flow from them. If you don't know how to properly operate a device, you are essentially locked out."

While for Pete, "technology can sometimes cause you to either get locked out or locked in…" If the device fails or the software experiences a glitch, the user can be effectively locked out of the tool. Similarly, if the user gets trapped into a certain way of using a device or software, this can limit the scope of their thinking, reducing their capacity to innovate and express themselves fully using the tool or software.

The Boxing Gloves

The boxing gloves presented a nuanced approach to technology. Diane brought the gloves as a representation of her experience with the technology-rich middle school learning environment. She expressed the core of the meaning behind the gloves: "for the most part technology in our house is something that is more of a battle."

Having used them as part of her fitness regimen, she conveys that to be effective with them you have to learn how to use them. To use them effectively the boxer needs time and experience. Sometimes that experience is not pleasant.

> "…you have to think a couple of punches before you learn how to deliver them up exactly, so my delivery the punches are now just healthy boundaries and it has taken a while for those boundaries to now also be honored by the 14-year-old."

A surprising number of participants related to the concept behind the boxing gloves. Like the Advil, this item caught the attention of participants almost immediately and required little in the way of clarification for focus groups to understand.

The Cross

The Cross brings with it deep connection to personal and corporate belief. This item shifted the focus from the school as a source of solutions to perceived parent concerns to the home as the source of solutions for these technology related issues. Charles brought the Cross to the study. He saw faith as a strong motivator for his decision to bring his granddaughter to Bayside. For him faith was a central aspect of the middle school experience. Although this item saw comments from participants from each school, the strongest comments came from the participants at Bayside.

Carrie saw the cross as a symbol of parent obligation to teach her daughters how to be responsible in their use of technology.

> "I just consistently and I tell them all the time. I'm sure you think I'm crazy, but later on down the line, everything I'm saying to you is gonna come into your head at some point in time and you're gonna be faced with the decision on what you need to do.
>
> And I tell them, these are just nuggets that I'm giving you now because later I probably won't be there for whatever reason, maybe out of state or out of country or whatever the case may be. And I'm not present with you at that moment. These words will come back to you."

Clearly, Carrie saw parental influence as essential in all areas of the student's life. She expressed the necessity of parents to convey durable guidance in such a way as the student will recall it when they need it. Like the Cross, parental guidance in technology should include heavy doses of principle as opposed to specific prohibitions. For all of the participants in this study Biblical principle and spiritual guidance was central to their concept of parenting.

The Divided Dish

The divided dish represented the dichotomous nature of technology for parents. Barbara noted as she presented her item that,

> "technology both divides and connects us. It divides us by keeping us from meaningful face-to-face interaction, like with social media. It allows us to communicate through email and gives the opportunity to express sentiments that would not be conveyed in person. At the same time technology makes our world smaller, joining people together that are separated by miles."

She went on to say,

> "Chromebooks and phones both help us to be independent. We can look anything up and get information from a vast array of sources. These devices also tend to build a sense of dependency in users. Just try to take a cell phone away from a teenager."

Parents expressed strong connection to this item. Eight participants provided feedback on this item during focus group discussions. Kim from Far Point was typical of the reflections on this item: "Division generated by technology is very real. Parents and teachers need to work together to overcome the divides that technology encourages."

Barbara reflected upon the more positive aspects of the technology-rich learning environment,

> "So, I can go on (the school LMS) and I can look (at the gradebook)… and what I like to do is the day before or the day --like while they're still School-- and then … I can have a conversation with them, they know I've already checked into what's going on."

It is unclear what impact this kind of proactive digital parenting will have on the overall progress of the student. At this point in educational technology development, parents are divided in their approach to using technology and helping their student navigate the pitfalls of social media and the like.

			Codes used by school			
Code	Frequency	Rate	Oceanside	Far Point	Conestoga	Bayside
Technical Competency	180	10.8%	*	*	*	*
Expectations	138	8.3%	*	*	*	*
Values	132	7.9%	*	*	*	*
Social Interaction	99	5.9%	*	*	*	*
Satisfaction	90	5.4%	*			
Parent advocacy	87	5.2%	*	*	*	*
Conflict	81	4.9%	*	*	*	*
Evolving Technology	78	4.7%	*	*	*	*
Balance	63	3.8%	*	*	*	*
Effectiveness	60	3.6%	*	*		
Anxiety	60	3.6%	*		*	
Frustration	57	3.4%	*		*	
Academic Enhancement	54	3.3%	*	*	*	
Compliance	54	3.3%	*			*
Independent learning	54	3.3%	*	*	*	
Flexibility	51	3.1%	*	*	*	*
Valued	48	2.9%	*			*
Safety	48	2.9%	*	*	*	*
Distraction	39	2.3%	*	*	*	
Security	33	2.0%	*			
Fear	33	2.0%	*	*	*	
Enthusiasm	30	1.8%	*	*	*	
Efficiency	24	1.4%	*			
Confusion	18	1.1%	*			*
Optimism	18	1.1%	*			*
Connectivity	15	0.9%	*			
Replacement	12	0.7%	*			*
Futility	6	0.04%	*			
	1662		29	16	17	15

Table 7. Codes Used

Research Question Responses

In order to explore the lived experience of parents in technology-rich middle school learning environments interviews, cognitive representations, and focus groups were conducted with participants. During these events, six questions were explored, they were: What are the expectations of parents regarding instructional technology prior to student enrollment in a technology-rich middle school?; In what ways are parents' expectations of instructional technology met or not met?; What do parents view as essential skills necessary for success in the technology-rich learning environment?; What are the expectations of parents in technology-rich schools as their student prepares for high school and beyond?; What do parents view as problems associated with instructional technology/ technology-rich education?; and, What do parents view as benefits of technology-rich education in middle school?

Research Question One

The first question, "What are the expectations of parents regarding instructional technology prior to student enrollment in a technology-rich middle school?" was intended to capture parent attitudes to the use of instructional technology prior to enrollment in their school's middle school program. Triangulation in participant responses came through cognitive representations, semi-structured interviews, and focus groups.

Within semi-structured interviews and focus groups, participants revealed they had no expectations or preconceived ideas of the benefits or drawbacks of technology use in the middle school. Participants stated at every opportunity that they had no expectations regarding the use of technology in their child's school. In the absence of overt participant expressions of expectations in these first two data collection methods, inferences could be made via the comments concerning cognitive representations.

While participant expressed no expectations concerning the use of technology in the classroom prior to enrollment, this does not mean they were devoid of expectations. To Participant responses to the presentation of the basketball and the combination lock addressed, in part their expectations prior to beginning enrollment in the technology-rich middle school learning environment. The basketball was addressed by most participants as continually presenting surprising and unexpected changes. The combination lock, too, was described by participants as requiring adjustments by the user over time. Both of these were required items in their own rights, and each served a purpose for the user.

The basketball could be passes, dribbled, or shot. For Pete, it was guaranteed that every time a player touches a basketball, it presented a different side to the player. This is a reflection of participants' grasp of the nature of technology change. According to Pete, "it's not the same twice." This sentiment was reflected in participants at every school.

Participants at Bayside provided the strongest support for the Cross as a symbol of their expectations. Both Charles and Charlene expressed that the faith component of their school was an important reason for enrolling their children at Bayside. They also expressed the desire for that faith component to impact their family's use of technology. Carrie reiterated this need for a connection between deeply-held convictions and technology. While the cross was not addressed by many of the participants outside of Bayside, the majority of participants at each school described "values," "beliefs," "Christianity," or "faith" as significant components of their motivations for choosing their school. The expectation for each of them was that faith would continue to impact all aspects of their students' lives both analog and digital.

The identification badge was presented as a negative association for Sue. She explained while holding her child's badge, "it's basically useless. It serves no purpose… but if you get

caught without it, you get punished." Sue's frustration resided in the idea that the purpose of the item was poorly defined and not well explained to the parents. This, in the parents' mind rendered the item useless. Sue's item reminded us of the need for clear communication concerning the purpose and use of new tools and techniques in the technology-rich middle school learning environment.

Three expectations emerged through the cognitive representations: constant change, the desire for schools to engage problems within technology use with shared values, and that communication would be unambiguous about the purpose and application of new technology tools and techniques. Discussion with participants about the difficulties encountered with the adoption and implementation of instructional technology revealed that none of them were surprised when problems arose. Thus, participants expected constant change, but that they would be surprised by just how these changes in technology occurred as the school year went along. As with the response to question one, these attitudes persisted across SES levels, degree attainment levels, and schools taking part in this study.

Research Question Two

The second question, "In what ways are parents' expectations of instructional technology met or not met?" builds upon the foundation of expectations established in the first question. This question extends into participant attitudes about the actual application of the technology used in their child's middle school. The question also delves into the second phase of Schlossberg's (2011) transition theory *Moving Through*.

Responses by participants were generally positive. Only one participant reflected a completely negative view of their school's use of technology. Cindy at Conestoga decried her school's slow pace of adoption saying, "they aren't going to win any awards for the pace in

which they add new things to their technology program." and their chosen instructor for the middle school technology course, describing her as "just a librarian." Others, while generally positive in their review of their school's use of technology, still expressed reservations with some aspect of the school technology plan. Sue at Oceanside lamented the lack of standardization of teacher expectations from class to class. May also expressed frustration with the punitive nature of school policy toward devices. Notably, she was concerned about penalties issued for students who arrived at school with devices that were not fully charged. For May, this situation occurred often "because these kids are busy. It just doesn't seem right to penalize a kid for having a soccer game the night before, so they were unable to chare their computer."

All other participants expressed a positive view of their middle school's use of technology. These positive accounts touched on all aspects of each school's technology plan. Participants from Oceanside extolled the BYOD program that allowed them to use devices with which they were familiar. This allowed them to more closely relate to their child and help them overcome technical problems that might arise during the completion of school assignments. On the other end of the SES spectrum, participants from Bayside commended their school for offering students access to Google Applications. These parents also applauded teachers' approachability in the face of technical problems.

The novelty lipstick pen reflected the opinion of a number of participants in this study. Presented by Sue, she explained that the lipstick pen, "looked like one thing on the outside, but functioned differently once you open it." Other participants like Carrie noted, "technology often has hidden benefits."

Parents across the groupings found in this study voiced their pleasure with the progress their child was making toward academic and vocational goals. For them, the technology being used in class was a key component to this progress.

Research Question Three

The third question, "What do parents view as essential skills necessary for success in the technology-rich learning environment?" was answered through triangulation of the cognitive representations, semi-structured interviews, and focus groups. Flexibility in the face of an ever-changing digital learning environment was identified as a critical skill by participants.

Among the cognitive representations that best addressed this concept were the basketball and the combination lock. Both of these items, as described by participants, symbolized the complexities of the evolving technological environment that has emerged in their middle school. For participants, the basketball demonstrated the dynamic, often surprising qualities of technology change. According to Pete, "You bounce the ball and bounce the ball… then you hold it and you see a side of the ball you never considered before." With technology, as with dribbling the basketball change is evitable.

The lock continued the focus on flexibility as an essential skill in the experience of participants. May, from Oceanside described the lock as requiring a specific process to open. "You can't just spin that dial and use any numbers you want to. The lock has a series of numbers that allow it to open." It was clear that participants understood that their role was to apply a given set of rules to the operation of the lock in order to get it to fulfill its purpose. Across all groups in this study there was agreement. In the Far Point focus group Kim agreed with Noelle's assertion that, "the lock serves the purpose of either locking others out or locking

(information) in." It's what happens over time that adds the real dimension of flexibility to this item. In her individual semi-structured interview May explained,

> "As the lock ages, parts inside begin to change very subtly. You can't really see it on the outside, but those changes are happening… requiring the user to maybe go past a number or stop just short of a number… at any rate, you have to change what you are doing to get the same result."

May described some additional ways a lock might change, "Sometimes you have to press the hasp, or pull on it to get it to open." Sue added, "Sometimes they become glitchy." Essentially, the lock like technology in school changes and requires the user to adapt to these changes in order to achieve the same results to which they have become accustomed.

Research Question Four

Question four asked "What are the expectations of parents in technology-rich schools as their student prepares for high school and beyond?" This question was answered through triangulation between the cognitive representation of the basketball, individual semi-structured interviews, and focus group discussions.

Within semi-structured interviews and focus groups, change was expressed as the most significant expectation regarding the technology-rich learning environment as it pertained to preparing their student for high school and beyond. Thus, participants saw their students' middle school technology program as an opportunity to prepare them for additional technology changes both academically and vocationally.

The theme of strategic consideration was developed through parents' expressions of "winging it" in the face of waves of new technology tools and techniques in their child's learning environment. In none of the interviews or focus groups did any of the participants discuss the

types of technology they expected to see as their student progressed. Participants did, however, acknowledge that changes would continue to occur.

In light of continual change, parents fell into two camps: those that showed sympathy for their child and stood with their student through the challenges and those who expressed a more stoic response insisting that the student "figure it out." The former providing a more constructive approach and the latter represented a more laissez-faire approach to technology challenges. Either approach required the participant to consider the depth of the technical challenge facing their student and choose an approach to address it.

Parents expected middle school technology to help their student both academically and vocationally. They found it difficult to articulate exactly how this benefit would be seen beyond discussions of helping students better understand how to use technology.

Research Question Five

In question five, participants were asked, "What do parents view as problems associated with instructional technology/ technology-rich education?" Participants provided the least amount of data on this question. Even so, that data appeared in cognitive representations, semi-structured interviews, and focus groups.

The cognitive representation that best associated with this question in the perception of participants was the power cord. The power cord represented a necessary component of technology without which the devices in the instructional program would not function. According to May, "without this cord, the laptop is a paperweight." Participants also identified punitive aspects of this item in their child's school. Erin added, "If the kid comes to school with a low charge, there will be consequences, because without power, the student can't function in this new learning environment."

Parents were not shy about expressing how this technology has changed the way they parent. This was most evident among two groups of participants: those from Bayfront and those from Far Point. Both of these groups of participants focused heavily on the impact of social media on their students and their families. They also expressed concerns that the schools take measures to intervene where possible. This intervention, for Kim was best in the form of developing strong digital culture:

> "students, particularly at this age, need guidance about what is acceptable and what is not. (Middle school students) are at a critical age developmentally that requires teachers and parents to work together for the best results."

Kim received strong approval from her focus group by adding, "In the end, good parenting is good parenting." Clearly most participants agreed that schools cannot take the place of good parenting. Thus, according to these participants, the significant challenges in the face of new technology tools and techniques remain in the area of requirements required by schools and cultural norms.

Research Question Six

The sixth question asked, "What do parents view as benefits of technology-rich education in middle school?" Participants in this study identified replacement characteristics, efficiencies, and research capabilities provided by the technology as significant benefits of their school's technology-rich middle school learning environment.

The combination lock figured as the cognitive representation most connected to the benefits of technology in middle school. Here, parents reflected on the utilitarian aspects of the lock as a tool. Carrie commented,

> "the lock serves a specific purpose that has a few different applications. A student can use it to keep their things secure during the school day… so it protects. A student can also use it to keep things away from prying eyes… so it hides. Technology does the same things."

Participants concurred with this idea at each focus group. Discussions about the ability of technology to keep things concealed became an interesting focus of discussion at all of the focus groups. Participants from both high SES and low SES schools addressed their concerns about security in the use of new technology and highlighted its benefit in this capacity. They also voiced concern that their students knew how to use features of the devices used for school for concealment purposes. "You know these kids go to secret pages," Sue noted. Kim elaborated on the difference between security and subterfuge. Parents need to exercise a degree of awareness and vigilance in the area of student computer use,

> "It's something that parents and teachers need to be aware of. It's not an either-or proposition. It's definitely both. Because keeping identity items secure is one thing. Hiding activity is completely different."

Barbara added, "you need to be aware of what you kid is up to." Pete noted that,

> "when both my daughter and the computer are in the bedroom, the door is always open. This helps her understand that what she does has to be transparent to us."

The ability for technology to replace traditional classroom tools and techniques arose frequently. Both Erin and Sue noted in their focus group that where they used to spend time in a library to do research, their children can use their computers to conduct research for school. This portability worked as an efficiency provided by technology. This concept was supported by participants at all other schools in this study.

Additionally, participants noted that their students' teachers used laptops and tablets in place of textbooks. This allowed more flexibility for the student. Jo reflected the replacement characteristics and efficiencies as benefits in her interview, "My son is on his devices all the time, even in the car. We can be driving across the state and he can be reading his textbook and doing class work."

Summary

This chapter discussed the demographic information and backgrounds of the study's four schools and thirteen participants. Themes developed within the study were presented through six research sub-questions aligned to both the theoretical framework and central question of the study: What are the lived experiences of the parents of middle school students engaged in technology-rich ACSI schools in South Florida. Common themes identified across data points were discussed in the context of the research questions. Cognitive representations were described and linked to both semi-structured interviews and focus group discussions.

Interpreting the experiences of parents of middle school students enrolled in technology-rich middle school learning environments involves both textural and structural components. The textual description in qualitative research explores the "what" of the phenomenon. In this study the researcher was interested in examining "what" parents experienced as they transitioned through the technology-rich middle school program. The structural description explains "how" the participants experienced the technology-rich middle school learning environment (Moustakas, 1994). A synthesis of these two descriptions, then, presents the "essence" of the participants' experience.

The textual description for the parental experience with the technology-rich learning environment incorporated an examination of the technology adoption program at each school and

parents' experiences within in the confines of those systems. Each of the four schools that took part in this study engaged a different strategy for implementing technology in their middle school. Those strategies involved a BYOD initiative, a school-wide 1:1 initiative, the adoption of Google Applications for Education, and the implantation of a basic computer skills course for their middle school students. Participants represented a wide variety of backgrounds and experience with technology. Socioeconomic levels ranged from low SES with schoolwide household income nearly half that of the county household income to high SES where household incomes more than doubled the county household income. This component of the study was of interest due to the volume of academic research that has been published in the area or digital equity.

Degree attainment was another key component impacting the textual description. Participants reported holding two master's degrees and 8 bachelor's degrees, while two others reported having some college without a degree, and one participant completed trade school. Participant familiarity with technology appeared to have little impact on the textual description as all participants reported similar experiences and abilities with technology prior to enrolling their student into the technology-rich middle school.

Finally, participants' expressed aspirations for their students appeared to play a role in developing and maintaining aspirations for future academic and vocational opportunities. These attitudes were important as they may have provided an opportunity for their own bias to skew their testimony about the school's technology program.

The structural analysis of this study involves participant perceptions and attitudes concerning the implementation of new technology tools and techniques in the middle school. Within the study participants were asked to reflect upon past experiences and convey their

thoughts about their meaning and impact. Individual interviews and cognitive representations presentations were conducted contemporaneously while focus groups were conducted no more than two weeks following interview sessions. Participants across SES levels experiences the technology-rich middle school learning environment similarly. SES level appeared to have little bearing on how parents experience technology in their child's school. Technological ability and experience with technology was not differentiating factor among participants. The variables that appeared to have the greatest potential impact on parents' experience with the technology-rich middle school learning environment were the schools' technology adoption plan and each school's policies concerning the use of technology. Parents voiced the most frustration in the area of how schools implement aspects of their technology plan. Discussions touched on various aspects of this theme. Among participants at the Oceanside focus group touched on penalties incurred for not having a device or not keeping a device charged. Later in the focus group, participants touched on the lack of consistency in application of technology form teacher to teacher. Cindy at Conestoga voiced disappointment at the weak technical abilities of her daughter's technology instructor. Barbara at Far Point pointed out that parent standards varied wildly. While these discussions occurred at the middle and high SES schools, participants at Bayside expressed only positive attitudes concerning the adoption and implementation of technology at their middle school.

The combination of these two descriptions produces the "essence" of the parent experience with the technology-rich learning environment. In general, parent experience is similar regardless of SES level, degree attainment, or technology experience. All parents, regardless of these impactors, experience technology in a similar way. Parents enter the technology-rich learning environment with little or no expectations. They feel left behind

technologically, and thus, they become isolated. This isolation and withdrawal may function as a defense mechanism when parents feel they are unprepared because they lack the training to keep up or they have the ability to function, but are unfamiliar with the new tools and techniques.

Parents have no perception of the technology that is on the horizon. While schools have some understanding of the next steps in technological evolution in the classroom, they must begin to share this information with parents. Resources like Horizon Reports may prove to help all stakeholders achieve parity in understanding technological trends.

Finally, it is clear that a more granular approach to technology is required. For schools to adopt and implement new technology tools and techniques in middle school, educators must begin by developing a good understanding of who their parents are, their aspirations for their students, and their perceptions about technology. Simply applying generally accepted conventions to any school population will not yield the desired results.

In the concluding chapter five, the findings of this study will be summarized, followed by a discussion of key themes and central elements. Next the implications are discussed in terms of the empirical, theoretical, and practical viewpoints. Finally, limitations of the study are addressed followed by a number of recommendations for future research.

CHAPTER FIVE: CONCLUSION

Overview

The purpose of this transcendental phenomenological study is to understand the lived experiences of parents of middle school students enrolled in private, twenty-first century learning model ACSI schools in South Florida. The four schools represented a variety of socioeconomic levels including low SES (Bayside Christian School), middle SES (Conestoga Christian Academy), and high SES (Far Point Academy and Oceanside Christian Academy).All 13 participants in this study were parents of recent middle school students that were enrolled in technology-rich middle schools as identified by ACSI. Semi-structured interviews, cognitive representations, and focus group interviews were the three data collection tools used in this study. All three data sources were used to triangulate data for findings. Data analysis followed Moustakas' (1994) transcendental phenomenology model seeking common themes in the shared experiences for the phenomenon of the middle school technology-rich learning environment. The ATLAS.ti was used to organize study documents, identify codes within documents, and develop clusters of meaning from the identified codes to develop themes. The chapter begins with summarizing the findings in the context of the six research questions answered, and continues with a discussion of the findings of study as they relate to the themes identified in the study documents, relevant literature, and the study's guiding theoretical framework. The chapter continues with a discussion of the implications of the study, the limitations of the study, and recommendations for future research. Chapter 5 concludes with a summary.

Summary of Findings

Research Questions and Themes

This transcendental phenomenological study illuminates the need for improved communication between middle school parents and practitioners. Participants from four South Florida schools that were labeled "technology-rich" by ACSI took part in this study. Data was collected through the use of semi-structured interviews, cognitive representations, and focus groups. Through data analysis five themes emerged as central to the parent experience in the technology-rich middle school learning environment, they were: technology change & strategic consideration, parental control, parental isolation, and parent pacing. These themes proved to converge to convey the essence of the parent experience. To address these themes, participants in this study expressed the need for increased communication about new technology tools and techniques, their desire and ability regardless of SES to provide the necessary support to their students, and their desire to see new technology tools and techniques continue to develop as a resource to benefit their students academically and vocationally. In order to examine the lived experience with the technology-rich middle school learning environment, 6 research questions were explored.

Question One

What are the expectations of parents regarding instructional technology prior to student enrollment in a technology-rich middle school?

Prior to enrollment in the technology-rich middle school learning environment, parental expectations appear to have been driven by two factors: Socioeconomic status and experience with the students' older siblings. The more apparent of the two influences, SES, appeared to present a direct relationship between the SES level of the parents and their expectations in terms

of academic outcomes for their students. While each of the participants in this study expressed a positive outlook associated with the use of technology in the middle school learning environment, parental expectations could be divided between the development of greater social and career opportunities, and greater potential for academic advancement at the high school level and beyond.

Participants from Bayside, the lowest SES school in this study, held that the use of technology in their middle school program would help provide more opportunities for their student in the future. This expectation was more closely tied to career and social prospects than academics. Having no recollection of the use of technology in their own middle school experience, these parents' daily use of technology drove their concepts of how technology could be used in the classroom.

Expectations from the middle SES school, Conestoga Christian School, were clouded due to the experience of their students' older siblings. Prior negative experiences created an environment of lowered expectations for their student. Whereas they expressed an appreciation of the benefit of using technology in middle school, the absence of transferable skills diminished their expectation that any of their students' technology exposure would translate into beneficial outcomes in future academic or professional pursuits.

The study found that participants from the two highest SES schools, Oceanside Christian Academy and Far Point Academy, held the highest academic and professional expectations for their middle school students. Participants from these two schools viewed the development of collaborative and research skills as central to the technology-rich middle school learning environment. Participants were divided in their concept of parental roles within this environment. Between these two schools participants differed in their opinion of what role they

should play in their students' use of instructional technology when problems arise. The majority of participants from Oceanside expressed a laissez-faire approach to their students' use of new technology tools and techniques, reflecting that their student would be on their own when facing difficulties with new technology tools and techniques. Conversely, Far Point parents presented a more balanced approach to their students' technology use. These parents recognized that their role as parents extended into all aspects of their students educational experience, thus tied their expectations to their students' effective application of new technology tools and techniques.

Question Two

In what ways are parents' expectations of instructional technology met or not met?

Participants from Oceanside and Far Point presented the most positive attitude toward the fulfillment of expectations in the area of instructional technology. Oceanside participants voiced more frustration with the pace of their school's intervention as they expected the school to play a more active role in resolving issues with their students' use of new technology. These frustrations ranged from problems with their students' ability to effectively use school software to hardware compatibility issues, and the school's use of discipline methods to enforce compliance with technology use guidelines.

Far Point participants, while recognizing that problems with the use of technology tools and techniques arose during their students' middle school years, presented a more positive outlook on these issues as a component of the educational experience. These parents viewed their role as central to the process of developing positive outcomes and helping their student establish beneficial technology habits.

Participants from both Oceanside and Far Point expressed an appreciation of the benefits of the use of technology tools and techniques in their students' high school courses. This

optimism applied to their expectations into the future as well. Parents at both schools connected their students' ability to function well in the technology-rich middle school learning environment with their success in current high school courses and saw a decline in problems with these new tools and techniques as their student advances. The cause of this decline was unclear in all schools except Conestoga. Here, participants reported that instructor improvement resulted in more beneficial outcomes. Participants reported that the school had replaced the librarian who taught the school's technology skills course with a computer teacher. As with any experience, the negative often outweighs the positive. In the case of Conestoga the negative impression remains even though participants relate that their student is now enrolled in what they report as a much more effective technology-rich high school learning environment.

Bayside participants reported no expectations as to the use of technology in middle school but reported positive outcomes. Parents at Bayside were enthusiastic in their outlook of instructional technology at their school. Although Bayside provided the least in terms of the technology used in the classroom, parents expressed their expectation that any use of technology in school would provide their students future academic and vocational benefits. Even with these positive attitudes and perceptions about the benefits of technology use in the middle school classroom, participants in this study still voiced no awareness of the next steps in their student's technological evolution.

All groups of participants reflected on the potential for the loss of social skills as a result of interaction through technology. The wide use of social media platforms for communication among students remains a concern for parents. Parents view these tools as a distraction for their students. All participants voiced concern that their student was not learning how to resolve conflict, but that these platforms reinforce bad behavior in users. Parents differed in their

expectations regarding interventions in this problem. Generally, participants from upper SES communities expressed the need for more school intervention while those from lower SES communities presented the need for more home-based solutions. In this area, lower SES participants' expectations were met while upper SES participants' expectations were not met.

Question Three

What do parents view as essential skills necessary for success in the technology-rich learning environment?

All parents viewed the need for flexibility in the use of new technology tools and techniques as essential to their students' future success. Participants from each school recognized their own tendency to "wing it" in the area of technology in an effort to simply keep up with the rate of technology change in the classroom. Keeping pace with change becomes a new skill for parents. To succeed, parents must recognize the importance of engaging new tools and techniques while conceding that technology will continue to change.

Question Four

What are the expectations of parents in technology-rich schools as their student prepares for high school and beyond?

Expectations for parents revolve around academic and vocational objectives. Participants expressed interest in student academic success and preparation for the work force. While academic change may represent an area of frustration for parents, parents expect schools to continue to adopt new technology tools and techniques while improving teacher skills in the use of technology in instruction. Parents recognize the benefit of the use of technology hardware and applications to help students develop collaboration and problem-solving skills. Teachers are expected to foster more collaborative learning opportunities while helping students expand their

own problem-solving skills as they continue to engage new challenges within the technology-rich learning environment. Parents also expect the use of technology is instruction to benefit their student's vocational development as employers' expectations of employee technological abilities continue to escalate.

Question Five

What do parents view as problems associated with instructional technology/ technology-rich education?

Parents identified a number of problems they experienced with the use of technology tools and techniques in the technology-rich middle school learning environment. These problems fell in to three categories: Social interaction and social media, Student and parent interaction with technology, and educator use and interaction with technology.

In this study, parents at each school expressed their concerns about how students express themselves and interact with one another through social media. The anxiety conveyed about technology used both in the classroom and outside of the classroom focused on concern that their student and their friends were losing the ability to interact effectively due to the immediate gratification and clickbait culture fostered by social media platforms like Instagram, Twitter, and Snapchat. Parents were clear about the need for close interaction with their students about the hazards involved in social media use. While parents were unified in their concern about the impact of social media, there was a clear division in where the discussion should initiate. The two focal points of discussion, here, were the home and the school. The greatest call for parent involvement in this area came from participants with students enrolled in the lowest SES school in the study. Each participant discussed in clear detail how social media have impacted their family and those with whom they associated. Conversely, perhaps the weakest call for family

interaction and parent intervention with their student in this area came from the highest SES school community, preferring for the school to drive the digital culture discussion with their student.

Student and parent interaction with technology was also identified as a potential problem within the technology-rich middle school learning environment. As the most significant stakeholder in the life of the student, the parent maintains a substantial influence in the life of the student. Parents in all of the schools involved in this study expressed an understanding of this concept, but still polarized into two camps when it came to their own involvement in their students' educational technology. This revealed itself in discussion about how they, as parents, intervened when their student came across a particularly challenging situation related to technology in middle school. Parents either partnered with their student in a collectivist approach, helping them find a path forward through the challenge presented by some aspect of technology, or they disengaged the problem in a more individualistic approach, reminding their student that academic challenges to include the technology used in their education was a challenge for the student to resolve.

The divide in these two approaches is along SES lines. Participants from the highest SES school reflected the individualistic approach to resolving problems and conflicts that arose from the use of technology in the middle school program at their school. Participants from the lowest SES school community reported a more collectivist approach to resolving the problems and conflicts that arose from the use of technology in the middle school program at their school. As these two schools represented polar opposite approaches, they also expressed a sense of isolation as parents as none of the participants reported discussing challenges or problems they encountered in the technology-rich middle school learning environment with other parents. This

isolation crossed all SES groups and every school. Parents either viewed their inability as a personal insufficiency that they did not want to reveal to others or as a personal challenge that they could overcome on their own. Again, these sentiments crossed SES groups and school communities.

Parent and student competency in the use of new technology tools and techniques would benefit the student in lower SES communities as the collectivist approach employed there would aim at assisting the student in their academic, social, emotional, and vocational pursuits. The parent experience in high SES learning communities was more likely to exhibit an individualist approach to problem resolution, leaving the student to develop their own strategies to overcome challenges they encounter along the way to include academic, social, emotional, and vocational pursuits.

Parents saw the erosion of interpersonal communication skills as a significant challenge. The problems identified by participants centered on social media and students' inability to relate to others face-to-face.

> "It does seem like the technology, It's … it breaks down the interpersonal skills needed among people. I mean that was a lot with adults as well, but especially when you see the younger generation, their inability to resolve conflict. A one-on-one or with another person. So I think as a parent, I find the challenge of saying, to everyone in the house. Okay... Everybody put the phones in the middle, and we're going to sit and watch this program together and discuss it or sit and play a game or sit at the table and have dinner, and have conversation. It just seems like it's a constant battle to try to do that. And so I think the technology basically creates the isolation and you have to pretty much …teenagers are already isolated. ..We all agree with that. And middle schoolers are even

> more isolated. So it's like you add the technology into it and it's literally you feel like you have to break down the walls of Jericho almost … because it's like, that's just how many layers are there that you have to... Now try to get through so I feel like the technology just adds another solid complicated layer. If you wanna talk about walls, it adds another complicated wall to get through …to get through to the children. And I feel like as a result they suffer because they lose inter-personal skills and conflict or oration skills."

Carrie saw the parents as having the more critical role. "So I would say yes, along the same lines of what is partly said that to continue doing what they're doing as far as the technology, I wouldn't necessarily say it's so much more that the school can do I think is more so what the parents can do." Consistency was seen as a critical element to parent success in the technology-rich learning environment:

> "I just consistently and I tell them all the time. I'm sure you think I'm crazy, but later on down the line, everything I'm saying to you is gonna come into your head at some point in time and you're gonna be faced with the decision on what you need to do."

She reminded her children,

> "And I tell them, these are just nuggets that I'm giving you now because later I probably won't be there for whatever reason, maybe art of state or out of country or whatever the case may be. And I'm not present with you at that moment. These words will come back to you."

To counter some of what she has identified as negative aspects of technology use, Carrie adopted a strategy of more thoughtful substitution for devices when she, as a parent, runs into bad behavior with her children and their use of technology.

Educator use of new technology tools and techniques was a significant area of discussion among participants in this study both in individual semi-structured interviews and focus group discussions. Parent experiences with the technology-rich middle school learning environment were impacted by teacher competency with the tools and techniques. This competency ranged from a high degree of effectiveness driven by their technological competence functioning within the devices and applications used in that course to a low degree of effectiveness driven by the teachers' lack of ability within the devices and applications being used in that course. According to participants, teacher technical competency related throughout the learning community. Students first feel the impact of teacher ability using the tools and techniques prescribed for their course, gaining a richer understanding or perspective in the subject as a result. A technologically adept teacher is able to use technology to expand student understanding of how academic concepts interrelate. This increases student understanding as they learn to approach new content from novel points of view. In this scenario, frustration for the student is reduced, and therefore, anxiety and frustration are reduced for the engaged parent as well.

Question Six

What do parents view as benefits of technology-rich education in middle school?

Parents identified numerous benefits associated with the technology-rich middle school learning environment. Far from being tied to success in the classroom, parents recognized these new technology tools and techniques as essential new life skills. They reported benefits ranging from academic, social, and vocational advantages.

Academically, these new tools and techniques guide the development of collaborative and problem-solving skills that support a better grasp of the content in middle school and beyond. The majority of participants reported beneficial enduring effects of new student skills

associated with the use of technology in middle school. Participants at high SES schools associated the academic benefits of new technology tools and techniques with the ability to replace hard copies of textbooks, while low SES participants identified their students' increased ability to conduct research and express deep understanding of concepts as motivations for support of their schools' instructional technology program. Additionally, parents expected their students to continue to use and develop the technology skills initiated in middle school.

Socially, parents provided mixed results when discussing the impact of technology on their students' education. Participants in this study identified the collaborative aspects of new technology tools being used in the classroom as a benefit to their student. Applications like Google's G Suite for education allow students to work collectively from remote locations. For some participants, the effective use of tools like these in their students' middle school learning environment represented a change over the experience they had with older siblings who completed the middle school program at their school just a few years prior. The other aspect of social impact on their experience with the technology-rich middle school learning environment involved the use of social media both as a component of the classroom and among their students' peers. While schools have begun using social media platforms for instruction, participants in this study expressed concern over the impact of social media on their families.

Across SES groups, participants joined their students' proficiency in the use of new technology tools and techniques to increased employability later in life. As parents have associated the development of technology skills with academic benefits, participants in this study also voiced concern that their student keep up with trends in technology as a means of enhancing their employment opportunities.

For parents engaged in technology-rich middle school learning environments, none of these three benefits stands alone. The academic, social, and vocational benefits are interconnected

Discussion

The discussion aligns the research findings with the theoretical framework and empirical research that are the foundation of this transcendental phenomenological study. The five identified themes from this study were technology change and strategic considerations/ winging it, parental control, parent isolation, parent pacing, and social skills. These themes structure the discussion to draw attention to the interaction between the theoretical framework and the lived experience of participants, notably parent interaction with Schlossberg's (Anderson, 2011) four Ss (situation, self, support, and strategies).

Theoretical

Socioeconomic impacts. Research provides volumes of work that drives conventional wisdom on the impact of socioeconomic status on student achievement and the use of technology in the classroom (Benade, 2015; Bray, & Tangney, 2016; Camacho-Thompson, Gillen-O'Neel, Gonzales, & Fuligni, 2016). Research also shows that family SES can be related to problems associated with questions of educational equity. This is particularly clear in discussions of instructional technology.

Parent experience in education, and, their experience in the use of new technology tools and techniques have some bearing on their students' experience in the technology-rich middle school learning environment. Participants in this study demonstrated a socioeconomic divide in their attitudes concerning their own role in problem-solving with their students. This was demonstrated in the way parents approached technical and technological problems that arose

throughout the school year. Parents from higher SES schools expressed less desire to learn the systems in which their student was functioning, while parents from the lower SES schools expressed the desire to delve into the systems that caused their student the most problems in order to help them resolve these issues. Parents that espoused a more communal attitude toward school in general, were the most enthusiastic about their desire to share the responsibility of understanding new technology tools and techniques at use in the technology-rich middle school learning environment. Parents of upper SES schools were more inclined toward a more individualist approach to their student as they encountered. These parents cited their own technology challenges, associated with their career, as reason for this approach.

Finally two divisions appeared among participants: those who practiced withdrawal as a coping mechanism for what they did not understand, and those who addressed their concerns to teachers and administration. The former supports the work of Barsky (2014) in the area of conflict resolution, and the latter confirms Baumrind's (1966) notions of parent authority. Neither of these approaches to problem resolution appeared to be tied to SES as both the upper and lower SES participants responded by withdrawal.

Degree attainment. Participants in this study represented degree attainment from some college without a degree to the master's degree (see Table 1). The most frequent degree attained by participants was the bachelor's degree. Eight participants from three schools held bachelor's degrees. Two participants at two schools held master's degrees, and three participants at one school completed some college without a degree (2) and trade school (1). While this diversity in degree attainment provided expectations of a robust environment for exploration into parent experiences, degree attainment appeared to have little or no impact on parent experience with the

technology-rich middle school learning environment. Parents with trade school reported similar experiences as those holding master's degrees.

Empirical

Technical abilities. Participants in this study provided good insight into the parity that existed among parents at various socioeconomic and education attainment levels in the area of technical abilities. Schools involved in this study represented three distinct technology adoption strategies: 1) BYOD, 2) Comparing school technology adoption strategies.

Advocates for Bring Your Own Device technology adoption (BYOD) have long espoused the virtues of a common device in the classroom (Burns-Sardone, 2014). Participants in this study approached this concept from different points of view. Where prior research provided evidence for the need for BYOD programs in lower SES schools, this study demonstrated the benefits of implementing any technology adoption strategy. This is highlighted by the balance found in technical abilities across SES groupings and schools. As parents described their technical abilities similarly, no school or SES level appeared to provide an advantage.

Implementing a technology policy, particularly for middle school students and parents, is not as simple as publishing a technology policy for parents and calling it a day. Care must be given to address the factors that impact the whole learning community in both drafting a technology policy and implementing it. While Bayside chose not to adopt a BYOD program, parents at the school have recognized the value of providing devices to their students and have moved in that direction as the school provided class sets of devices with what limited resources it had. This served to provide a more robust technology-rich learning environment for its students.

Where they identified weaknesses in the school technology plan, all parents at Bayside taking part in this study provided their student with devices and software.

Even with exceptional technical abilities participants in this study expressed feelings of inability using the tools and techniques required of their students. While there could be numerous explanations for this response the bifurcated nature of parent coping strategies point to a simpler solution. All participants in this study reported experience with and support for technology for entertainment, work, and education. When facing technical obstacles, almost all participants reported either tasking the student to resolve the issue on their own, or applying their knowledge to help the student resolve the problem. Neither of these strategies engages Schlossberg's (2011) four Ss. In fact, both appear to be two sides of the same coin: withdrawal.

Implications

The findings of this transcendental phenomenological study provide insight into the overall experience of parents of middle school students enrolled in schools that provide technology-rich learning environments. The results of this study appear to reaffirm and refute a number of concepts presented in the literature. Among the ideas supported by this study concerned the evolution of technology, communication about technology, and the impact of technology change on the parent experience. The data in this study appeared to challenge generally accepted assumptions about socioeconomic impact on parent experience with the technology-rich middle school learning environment. The implications of these ideas will be addressed through the lenses of the empirical, theoretical, and practical perspectives.

Empirical

Based on a review of the literature, a gap existed in the research of middle school parents with students enrolled in technology-rich learning environment schools. Most, if not all of the

existing literature concerning the technology-rich learning environment focused on the parent experience and contributions in the areas of elementary, high school, and higher education. Little research had investigated the middle school technology-rich learning environment, and no research considered the parent experience with this area of student academic development. This gap in the research left unaddressed questions about parent contributions to the academic, social, and emotional development of their students through the middle school years.

Socioeconomic status, technological ability, degree attainment level could each contribute to parent experiences within the technology-rich learning environment. Despite the narrow focus of this study of private Christian ACSI schools in South Florida, this study provides a wide spectrum of technology adoption and parent experiences. Schools such as Oceanview Christian Academy and Far Point Christian Academy provided feedback from upper socioeconomic levels while Bayside Christian School gave the point of view of parents in lower socioeconomic families.

Educational attainment proved to be another delineation between schools with Bayside Christian School providing one participant with a bachelor's degree, while all other schools' participants held bachelor's degrees and both Conestoga Christian School and Far Point Academy provided at least one participant with a master's degree. All participants provided evidence of similar technical abilities. With these differences and commonalities identified, the similarity in parent experiences underlines the need for a better understanding of the parent experience with the middle school technology-rich learning environment.

Data from this study also revealed the impact of strong family bonds on education, particularly in the area of technology adoption. Conventional wisdom informs educators that families in the lower SES levels require more support from the school and district. Digital equity

and access have long been the subject of research for at-risk students. However, participants in this study provided evidence that, at least for a segment of this population, school and district support may not be as critical to student access to and success with technology as previously thought. Parents of students enrolled at Bayside Christian School each provided devices in the form of laptops and smartphones to their students and reported that other parents did the same while noting student use of smart watches and tablets among the school population. This puts the student population of Bayside at technological parity with students at Oceanside.

Parents at Bayside compared favorably in their technical ability with the devices and techniques used in the technology-rich middle school learning environment. While none of the parents voiced such a mindset towards assisting their student through challenging aspects of the use of devices and techniques in middle school, two of the participants from Oceanside, the highest SES school community taking part in this study expressed a refusal to assist their student.

Data from this study may reveal the need to review longstanding dogma about digital equity and Socioeconomic impact on technology adoption and implementation, particularly in middle school. Participants in all of the schools involved in this study voiced support for continued use of new technology devices and techniques in their students' education. The division arose in the upper SES participants expressing a more laissez faire approach to their students' educational technology. One participant went so far as to confess, through nervous laughter, that they didn't even know how to log on to check their student's academic progress. Participants in lower SES school expressed a desire to absorb as much of their students' experience as they could as a means of supporting their student's education.

Theoretical

The use of Schlossberg's (Anderson, 2011) Transition Theory for this study provided a good framework for understanding parents' experiences with the technology-rich middle school learning environment. The existing research gap in this area exposes what could prove to be a critical weakness in our understanding of the parent experience in K-12 education. Schlossberg's (Anderson, 2011) is meant to be applied as a complete unit: moving in, moving through, moving out. Educators that attempt to overlook or bypass any of the three stages, miss the opportunity to really understand the complete experience. This oversight could have deep impacts on later stages. Missing the critical middle stage, moving through, of K-12 educational technology means educators and parents neglect the critical development that happens in the middle school years.

As discussed in the literature review, within Schlossberg's (2011) transition theory are four devices that are used to help individuals cope with change as them move through the three phases of transition. Identified as situation, self, support, and strategies, each of these devices was evident within groups of participants in this study.

Situation involves the circumstances that brought about the change in the first place. Parents involved in this study articulated a number of motivations in choosing a technology-rich middle school in which to enroll their student. For some the decision was made by default; their student was already enrolled in the elementary program at their school and would simply advance into the new technological environment. Other parents made conscious decisions to move their student into the technology-rich learning environment program in hopes of providing a more robust education for their child. Participants from all schools expressed strong spiritual and religious motivations for enrolling their students in their chosen school. Additionally,

participants from Bayside most strongly identified vocational benefits of the technology-rich middle school learning environment while others pointed to the perceived academic benefits associated with enrollment in a school that uses technology in the classroom.

The next device is Self. Schlossberg (Anderson, 2011) describes this device as focusing on personal demographic and psychological resources. Socioeconomic status may provide either a benefit or limitation to the individual. It is within this device that this study demonstrated a deviation from Schlossberg (2011), who suggested that lower socioeconomic status (SES) would represent an encumbrance to the individual in transition. A preliminary observation of the SES of the schools taking part in this study would lead the researcher to believe that schools and their participants could easily be placed on a continuum from lowest to highest SES as a means of determining which might best access this device. The suggestion being that lower SES individuals would encounter more difficulties in the transition process than high SES individuals. This study found Participants from the lowest SES school involved in this study demonstrated that their SES did not appear to impede their transition toward a technology-rich learning environment. In fact, participants from Bayside demonstrated a remarkable level of parental support and engagement with the technology being used at their child's school. Conversely, many of the participants at the highest SES school involved in this study expressed a desire to disengage when problems arising from the adoption of new technology tools and techniques arose. This disengagement potential served to hamper the technology adoption process for those individuals.

Support is the next device discussed by Schlossberg (2011). Here, the individual engages the resources and personnel that might help them make their way through the transition. The best example of this from participants in this study was Cindy from Conestoga Christian

Academy. She described a situation she found herself in at her school where her student's technology teacher may have created additional difficulties in the technology transition. In Cindy's estimation her students technology teacher did not demonstrate the aptitude to adequately serve in her position. In order to address the situation in a way that best served both her purposes and benefitted her student, Cindy reached out to another teacher at school to assist with problems that arose with technology.

Unfortunately, in this study, a significant theme that connected all of the participants was parent isolation and withdrawal strategies. In interviews and focus group discussions all participants reported that none of them discussed technology problems with other parents. All but Cindy reported that they did not discuss technology issues with faculty and staff. This isolation could represent a significant impediment to the transition into the technology-rich learning environment at any level.

The final device described by Schlossberg (2011) is Strategies. This device focuses on the ability of the individual to interact with others as a means of addressing problems during the transition. Here, again, the problem of parent isolation presents a significant barrier to participant engagement with the technology-rich middle school learning environment. This concept is reflected in the literature review with Barsky (2011) notes that avoidance is a strategy employed by those facing uncomfortable situations. The participant responses in this study represent a clear demonstration of the convergence of Schlossberg's (2011) and Barsky's (2011) theories.

These devices, situation, self, support, and strategies, provide the best support when applied synergistically. In reviewing the results of this study, at best, parents accessed 75% of the available coping devices at their disposal. Twelve of thirteen of the participants in this study

accessed 50% of the devices or less. It is clear that parents need assistance in accessing all of these devices as they move through the technology-rich middle school learning environment. The school is the obvious facilitator to break the cycle of isolation and avoidance that parents experience as they encounter new technology tools and techniques.

Two significant elements emerge from this study. First, Schlossberg's (2011) transition theory can effectively be applied to K-12 parents. Second, The four Ss that Schlossberg (2011) details may be counter-acted by parents who practice avoidance and/or withdrawal as a coping mechanism. Through her semi-structured interview and focus group discussions, Cindy demonstrated use of at least three of Schlossberg's (2011) four Ss. All others, who complained less to faculty and administration about technical problems they encountered gave evidence of functioning within no more than two of Schlossberg's (2011) four Ss.

Practical

The practical implications of this study are aligned with educators' best practices and fostering the kind of rich relationships and partnerships within the learning community that benefit all segments of that community. The practical implications of this study extend beyond the boundaries of the middle school years.

The results of this study identify tree significant areas of agreement with the current body of literature concerning k-12 parents in general -- and by extension, middle school parents — and their experience with the technology-rich learning environment. These agreements are found in the areas of communication, the impact of on-going technology change, and parent pacing during the technology adoption process.

The importance of effective communication between schools and parents (Blau & Hameiri, 2017) both in terms of the use of a common vocabulary and the platform used for

communication (Jacobson, Spence & Pan-Wei, 2017; Manigo & Allison, 2017) are a clear needs expressed in the literature. Failure in the area of communication among stakeholders creates separations between them, and as appears to be the case with the participants in this study, a ripple effect that impacted parent understanding of the next step in technology adoption (strategic thinking), parent isolation, and parent pacing. Parent control and social skills appeared to have suffered secondary effects of poor communication as schools, which can exert influence on parents in the area of best practices in technology, may have missed significant opportunities to do so.

The problem of a lack of common vocabulary persisted across SES levels, degree attainment groups, and schools that took part in this study. This was evident by focus group discussions that touched on private browsing features during which parents described private browsing as "secret pages" and "hidden pages;" terms that could cause a break or delay in communication.

Participants in this study provided clear confirmation of the importance of using multiple platforms of communication as a principle that is critical to all stages of technology adoption and implementation in the middle school. When asked, participants in this study expressed little preference for any mode of communication in particular, rather suggesting that multiple means of communication on the same topic was helpful. Participants from the lowest SES school in this study expressed a unanimous preference for direct communication with teachers and administrators. This direct communication took the form of phone calls and face-to-face meetings to discuss concerns. Participants at all other schools voiced their support for email and the school website as primary modes of communication with their child's school.

While communication among educators in the form of effective professional development programs addressing technology adoption and implementation produces favorable results, participants in this study suggested that the same could be the case for parents (Admiraal, van Vugt, Kranenburg, Koster, Smit, Weijers & Lockhorst, 2017; Buss, Wetzel, Foulger & Lindsey, 2015; Carver, 2016; Chiu, 2016). Also confirmed is the necessity for this communication extend beyond administrators and teachers to reach parents (Blau & Hameiri, 2017).

Findings in this study suggest that effective communication with parents recognizes parents as individuals who may present a wide variety of preferences in their communication with schools. Some of these differences may be tied to socioeconomic status. Participants across the study initially engaged the researcher through email except for those from Bayside, the lowest SES school taking part in this study. Bayside participants ignored email from the researcher, but answered phone calls often on the first two rings. While the reason for this difference is unclear, this distinction among participants suggests that educators must be prepared to adapt their communication styles to the individual parent needs.

Throughout the literature it is noted that schools and parents could benefit from an increased focus on the needs of parents by organizations like the International Society for Technology in Education (ISTE) (Bourrie, Jones-Farmer, & Sankar, 2016; Gokpinar & Reiss, 2016; Vandeyar & Swart, 2016). ISTE provides educational technology standards for educators to use in the implementation of technology tools and techniques. These standards include National Educational Technology Standards for Students (NETS-S), National Educational Technology Standards for Educators (NETS-E), and National Educational Technology Standards for Educational Leaders (NETS-EL) among others (See APPENDIX K & L). To date there are

no educational technology standards designed to help educators relate to parents. This study suggests that a common set of standards that center on the needs of parents could provide unambiguous guidance to both educators and parents. While this sentiment was strongest at higher SES schools, the idea of standardization in the adoption and use of technology was supported even at the lowest SES schools.

Finally, schools need to better tie the new technology tools and techniques to beneficial outcomes for students. Parents across this study expressed general acceptance of the benefits of the technology-rich middle school learning environment, but only two could articulate specific elements that were beneficial to their student. Communication from the school showcasing specific examples of the benefits of technology among middle school students could reduce parent feelings of isolation and close the divide that exists between the stakeholders in terms of pacing. Again, this communication should be conducted across platforms and persistent when parents appear disinterested. Parents are listening even when schools don't think they are.

The literature is crowded with research discussing the continual evolution of instructional technology (Sanders, & George, 2017). Technology change in school has become "the new normal" (Durak & Saritepeci, 2017). Participants expressed both lack of familiarity with and acceptance of many of the new tools and techniques being used in the technology-rich middle school learning environment. Across SES levels, degree attainment levels, and schools parents conveyed their own acceptance of the transformations that they witnessed in their students' middle school learning environment.

To this end, participants confirmed the importance of a strong connection between stakeholders and success in implementation of instructional technology (Charania & Davis, 2017). Participants across SES levels, degree attainment levels, and schools expressed an interest

in both the academic and vocational benefits of the technology-rich middle school learning environment (Staton, 2016: Ullrich, 2017; Ursavas, Kabakçi, et al., 2016). The tendency for educators to focus on preparing teachers and students for new technology tools and techniques leaves parents behind in the process (Mitchell, Wohleb & Skinner, 2015; Orhan Goksun, Filiz & Kurt, 2018). This top-down approach to technology adoption (46) leaves parents playing catch-up (Chiu, 2016).

Participants in this study found themselves playing catch up in the area of instructional technology adoption and implementation. Parents experiences a wide array of expectations for technology both within their students' school and between schools (Bhargava &Witherspoon, 2015; Keengwe, 2013; Ozdamli & Yildiz, 2017; Sanders & George, 2017; Yamamoto, Chang, Wu-Yuin, Ming-Puu & Muller, 2011). One place where parity regarding technology seems to have developed is in the area of social media use in the technology-rich middle school learning environment. Parents aligned themselves with middle school administrators who felt unprepared to address the problems arising from social media use (Herald, 2018). The clear exception in this study were the participants from Bayside and Far Point who demonstrated the most active engagement with their student in the area of social media use. Even so, only two participants from Far Point expressed an understanding of how social media could be effectively used as a component of the technology-rich middle school learning environment. All participants from Bayside expressed concern for the negative impact of social media on their student and the learning environment.

Parent expectations prior to entering the technology-rich middle school learning environment often did not match reality. In fact, most of the participants involved in this study could not articulate their own expectations prior to entering the technology-rich middle school

learning environment. This appeared to feed some of the frustration and isolation expressed by participants. Clearly educators need to do more to open the lines of communication at the onset of the middle school years in order to address the problem of expectations as it relates to parent pacing. Here, the goal of educators must be parity among stakeholders in the area of technology needs throughout the adoption and implementation process (Charania & Davis, 2016; Lih-Juan, 2017).

Interestingly, participants appeared to confirm the minimal impact of school technology adoption strategies on parents' experience or attitude toward the school technology program (Harper & Milman, 2016; Nelson, 2013). While each type of technology program presented participants with its own set of benefits and challenges, participant attitudes toward their school's technology program were unaffected by the implementation of 1:1, BYOD, or other technology implementation program.

Responses of participants appeared to confirm the notion that instructional technology has transitioned from a marketing tool to a necessity that is used throughout the middle school curriculum (Admiraal, van Vugt, et al., 2017). Participants also appeared to confirm a general acceptance of the inclusion of unorthodox and new tools into their students' middle school learning environment. This was evidenced by responses from Far Point participants' identification of virtual reality and augmented reality technology used in their students' classrooms. The use of other tools like social media platforms for academic purposes may surprise parents but reflects the problems in parent pacing and isolation (Asian, 2015, Koh, Chai, et al., 2017).

This study appears to provide an interesting divergence from conventional wisdom concerning the relationship between socioeconomic status and questions of digital equity. None

of the participants in this study expressed concern for their own ability to provide adequate devices or access to their student. In fact participants from the lowest SES school, expressed enthusiasm for the opportunities afforded by the use of technology in their child's education. All participants from Bayside expressed great pride in what they were able to provide their students in the way of tools and access at home.

Where some parents and educators may see the middle school years as "throw-away" years, the essential academic, social, and emotional development that occurs during this period of a student's life necessitates a renewed focus by all stakeholders. It also requires educators and parents to more closely coordinate as they both work to support the student. This is especially true in schools that are engaged in the adoption of new technology tools and techniques with these middle school families. Here, Technology adds another variable to the challenges faced by parents and their students in transition.

The data in this study reveals the power behind strong family relationships and exposes the misconception that parents in high SES learning communities are less vulnerable to the threats that emerge during the technology adoption and implementation processes in middle school. Additionally, as parents engage the new technology their individual degree attainment becomes less significant. As with any aspect of their child's education, parents need to actively engage the technology being used in their students' learning environment. Failure to do so may actually be causing greater isolation of parents in the process. Educators need to be aware of this and provide avenues of outreach to parents. This will work to solidify feeling of confidence in the new technology and techniques their student is engaging.

Teachers and administrators need to avoid snap judgements when it comes to their parents' technological abilities. Educators need to be aware that no matter what the

socioeconomic level of the parent, they may prove to be quite capable of providing much, if not all of the tools their student needs. Even so, practitioners need to keep the lines of communication active and open and be prepared to respond appropriately when help is needed. This is particularly important with parents who often remain out of the loop in discussions of technology. This, then, pushes them away from those who could provide them with the insights they need to become more effective.

Summary of Implications

A comparison of the literature review and the findings of this study appears to show alignment on technology adoption and implementation concerns in the areas of parent socioeconomic status, degree attainment, and individual technical abilities. However, within these three general areas of concern there appear to be mitigating factors that balance the impacts of socioeconomics and degree attainment. The most significant factor that seems to be at work within these two areas is strong family involvement (Yin, Li, Yuan, & Wang, 2019). The connection between a positive outlook on the use of new technology tools and techniques in their students' middle school and strong parental support are both evident in both the lower SES and lower degree attainment participants' experiences.

Previous studies reinforce the connection between strong family involvement and the mitigation of socioeconomic influences. Strong family involvement and active parenting appear to elevate the experiences of participants in lower SES and lower degree attainment groups, while passive parenting and less family involvement may have led higher SES and higher degree attainment participants to report more negatively on their overall experience with the technology-rich middle school learning environment. As twenty-first century tools and techniques continue

to gain a stronger foothold in the lives of parents, the final area of concern, technical abilities, may be finding parity across socioeconomic and degree attainment levels.

This study reveals that the more instructional technology evolves, the further behind parents will tend to fall in their grasp of these tools in the middle school learning environment. Conditioned to minimize complaining to school personnel due to their own experiences and pressures from their teenagers drives parents into a cycle of new technology introduction and withdrawal and avoidance. Thus, each successive technology innovation applied in the classroom threatens to send parents deeper into the abyss.

The strong interconnection between the themes identified in this study suggests that improvements in the parents' experience could come about through the introduction of a few well-coordinated strategies. Simply by increasing communication about the technology used in class educators could ameliorate the negative aspects of the parent experience with technology change and strategic considerations, parent isolation, and parent pacing. Consider that by more effectively informing parents about the technology tools and techniques being used in their students middle school classroom, all of these themes would be addressed, thus improving the parent experience with these devices and techniques. Schools should also consider how they might work with parents to provide guidance in the area of parenting in the twenty-first century as well as working with students on social skills as related to technology use.

Many schools and districts still do not have the expertise to generate the type of standards that will improve the parental experience in these three critical areas. Ironically, technology may have provided a way forward for even for schools that are the most cash-strapped. It comes in the form of outside organizations. These improvements could be better supported by organizations like the International Society for Technology in Education (ISTE). Periodically,

ISTE reviews, refines, and publishes technology standards for educators. These standards are directed at educators in an effort to provide clear guidance on the use of instructional technology. ISTE has published standards for Educators, Educational Leaders, and for Students among others, all designed to help teachers relate technology to their content area and effectively connect students to the process of technology adoption and implementation. Notably missing is a set of standards designed to help educators relate to parents. A clear set of instructional technology standards could help guide educators on needs of parents in the area better understanding the tools and techniques being used at their child's school. These standards could also provide schools with the resources they need to improve the parent experience. Whether it is generated at the school, district level, or by an outside organization, this communication is likely to produce beneficial outcomes for all stakeholders.

Limitations

Delimitations

The primary delimiting factor in this study was the inclusion only of ACSI member technology-rich middle schools. Since the objective of this study was to explore the experience of parents with children that had enrolled in technology-rich middle school learning environments, it was important to identify with some certainty, schools that fit that criteria. ACSI, an international school accreditation organization evaluates its member schools and includes the integration of technology in its accreditation process. Using recommendations from ACSI provided a more reliable neutral assessment of each school and their use of technology. ACSI provided an objective standard for identifying technology-rich middle schools from among their member schools. Simply asking school administrators about the technology integration

within their middle school program may have allowed bias to enter the sample pool, thus skewing the results of the study.

Limitations

The sample pool for study was limited. In total four schools took part in the study. A fifth school was contacted early in the study, but administrators failed to respond to repeated requests for participation. Participants were drawn from a handful of private Christian schools in South Florida. This limitation is not as critical as the gap in the literature is so wide that the results of this study will provide a launching point for additional studies regardless of the number of schools that qualified for participation. So few ACSI schools are identified as technology-rich learning environments. This limitation cost the study in terms of time waiting for site administrators to agree to take part in the study or even having schools drop out of the study altogether.

Next, participants from Bayside, the lowest SES school in this study, exhibited a surprising ability to provide their students with devices and access. This divergence form conventional wisdom may be explained by their enrollment in a private school. These participants ostensibly pay tuition, and thus, are more fully vested and willing to make sacrifices to continue their educational investment in their child. Others in the same SES in Miami-Dade County may not have the means to buy their student a computer, much less enroll in a private school.

Distances between participating schools required me to conduct three focus groups. Collecting focus group data at one large focus group, may have allowed data analysis to proceed more rapidly as the process of examining transcriptions and recordings for common themes from

one source would likely have been more efficient than processing the data from three separate focus groups.

Finally, school site administrators, who had a hand in selecting participants, may have produced candidates for this study that may have been more inclined to produce flattering results. Biased participant selection may also introduce more homogenous responses to questions, providing the researcher a less robust understanding of the phenomenon under investigation. Analysis of the data collected provided no evidence of biased participant selection for this study. Although many of the themes developed in this study were evident in multiple participants' responses, these responses occurred across schools, thereby representing data saturation in those areas of inquire as opposed to a sampling error.

Recommendations for Future Research

The scale of the gap in the available research addressed by this study provides ample opportunity to explore numerous questions associated with the technology-rich middle school learning environment. Three areas may provide a clearer picture of the benefit and impact of technology integration within middle school learning environments; Conducting a similar study among Title I schools across the state of Florida, exploring the lived experience of middle school parents in a Title I laboratory school, and examining the long-term impact of the technology-rich learning environment on middle school students.

The gap in available research makes it clear that more attention needs to be focused on parents of middle school students enrolled in schools that use technology. Each of these suggested areas for future research would help build the body of research in this area of critical emotional, social, and academic development for students and their families. Since so little exploration has been conducted on this phenomenon among this population, a qualitative

approach for each of these studies is recommended as we are just beginning to define the experience of these parents. The more qualitative research that is conducted the better educators should understand how to relate to the parents of their middle school students with the aim of improving student outcomes through increased support of parents.

The first area of future inquiry involves conducting this study among Title I schools across the state of Florida. The data collected among the low SES participants in this study provided some interesting results. An examination of the lived experience of parents of middle school students enrolled in technology-rich Title I middle schools might provide support for many of the findings contained in this study. Furthermore, a study of parents in public Title I schools could provide important data on the motivations of parents in schools like Bayside. It could also help identify variables that contributed to this particular finding of this study.

This study may also be conducted within the population of a laboratory Title I school. Florida State University School (FSUS) located in Tallahassee, Florida would make a good site for study. This school provides two significant advantages: 1) FSUS is a Title I school with an artificially constructed student population that is maintained to reflect the population of the state of Florida, thereby providing a more reliable result. This also means FSUS may provide strong results from one site; and, 2) FSUS is a charter school allowing for the possibility of outside researchers to have access to the learning community without many of the encumbrances encountered by researchers working with larger districts. Again, as with the first suggested recommendation for future research, results from this study could prove beneficial to supporting the findings of this study or providing additional guidance in this area of inquiry.

Finally, Educators and parents could benefit from an examination of the long-term impact of the technology-rich learning environment on middle school students. A longitudinal study of

parent attitudes and experiences related to the technology-rich middle school learning environment might help close the gaps in existing research by exploring this phenomenon both at the students' freshman year of high school and after the same students' freshman year in college.

A longitudinal qualitative phenomenological study in this area would help establish Schlossberg's (Anderson, 2011) transition theory as applicable to K-12 education and provide data that could offer additional guidance to both educators and parents as to the impact of instructional technology both in the classroom and at home. This examination would likely also extend educators' understanding of the parent experience in the technology-rich middle school learning environment.

Summary

This transcendental phenomenological study illuminates the need for improved communication between middle school parents and practitioners. Participants from four South Florida schools that were labeled "technology-rich" by ACSI took part in this study. Data was collected through the use of semi-structured interviews, cognitive representations, and focus groups. Through data analysis five themes emerged as central to the parent experience in the technology-rich middle school learning environment, they were: Technology change & strategic consideration, parental control, parental isolation, and parent pacing. These themes proved to converge to convey the essence of the parent experience. It is incumbent upon schools that provide a technology-rich middle school learning environment to offer mechanisms of support for all of the stakeholders.

The strong interconnection between the themes identified in this study suggests that improved understanding of the parental experience with the middle school technology-rich learning environment could result in beneficial outcomes for all of the stakeholders. The themes

of technology change & strategic considerations, parent isolation, and parent pacing appear to be areas where educators can bring about the greatest area of improvement in parents' experience with technology in middle school. While it is clear that technology change impacts those who use devices and applications, precious little has been done to help parents relate to the changes that they face technologically at this critical time in their student's development. The better educators understand the experience of parents facing continued technology change in their students' education, the more effectively they will be able to address the needs of these critical stakeholders.

Furthermore, giving parents a view into the possibilities of future technology adoption could help reduce the incidents of "winging it" that is apparently so prevalent among middle school parents. Simply put, those with a good map seldom get lost. It is essential that educators help provide a "map" to parents so they have some idea where the next technology step is likely to take place. This may be easier than many might think. Educational technologists like those at the New Media Consortium produce a Horizon Report that projects the way forward in the area of instructional technology adoption. Educators need only present this information to parents in a format that addresses the realities within their school.

Interestingly, effectively addressing these first two items could ameliorate the negative facets of the remaining two themes found in this study. As parents are provided more information about the state of technology within their child's school, the sense of isolation may decline. This communication form the school may also naturally increase beneficial interactions from the parent, thus potentially eliminating parent isolation, commonly displayed as withdrawal by parents, as a significant aspect of the parent experience in the technology-rich middle school learning environment. By the same means parent pacing could be improved. The Slinky effect

experienced by parents who see their student and their school advance technologically as they are left behind, could be reduced through improved efforts to educate parents about the tools and techniques being used in their child's school.

While all parents are different, this study shows that parents across socioeconomic levels and at all levels of educational attainment are interested in helping their student succeed. This was clearly demonstrated in the way the lower SES participants provided devices to their students in order to help them succeed academically. This study also helped to clarify that though parents may have good intentions about being involved in their middle schooler's education, when it comes to technology, there are still many factors that keep them at a distance.

Technology may be acting as a catalyst for parent isolation, disaffection and withdrawal. Avoidance and withdrawal are not strategies reserved for parents. Educators fall into these same patterns of behavior when they encounter a parent complaint. Ironically, it appears that the parent that complains the most that is the most engaged in the process. We are left with dueling detachments: parents due to lack of information about the technology in the classroom; teachers due to the pressures on them to keep moving forward.

It is incumbent upon educational practitioners and professionals to actively seek out ways to assist parents through the difficult transition period of middle school. This means engaging all parents with strong, helpful content about instructional technology in an on-going basis. Effective innovation in instructional technology will reach the parents too.

REFERENCES

Aagaard, J. (2015). Drawn to distraction: a qualitative study of off-task use of educational technology. *Computers & Education*, *87*90-97. doi:10.1016/j.compedu.2015.03.010

Adhikari, J., Scogings, C., Mathrani, A., & Sofat, I. (2017). Evolving digital divides in information literacy and learning outcomes: A BYOD journey in a secondary school. *International Journal of Information & Learning Technology*, *34*(4), 290-306. doi:10.1108/IJILT-04-2017-0022

Admiraal, W., van Vugt, F., Kranenburg, F., Koster, B., Smit, B., Weijers, S., & Lockhorst, D. (2017). Preparing pre-service teachers to integrate technology into K-12 instruction: Evaluation of a technology-infused approach. *Technology, Pedagogy and Education*, *26*(1), 105-120.

Al-Emran, M., & Salloum, S. A. (2017). Students' attitudes towards the use of mobile technologies in e-evaluation. *International Journal of Interactive Mobile Technologies*, *11*(5), 195-202. doi:10.3991/ijim.v11i5.6879

Allen, K., Kern, M. L., Vella-Brodrick, D., & Waters, L. (2018). Understanding the Priorities of Australian Secondary Schools through an Analysis of Their Mission and Vision Statements. *Educational Administration Quarterly*, *54*(2), 249-274.

Anderson, M., Goodman, J. & Schlossberg, N. (2011). *Counseling adults in transition (fourth ed.): Linking Schlossberg's theory with practice in a diverse world*. New York, NY: Springer Publications.

Archambault, L., Kennedy, K., & Freidhoff, J. R. (2016). Accountability for students in K-12 online learning: Perspectives from Michigan stakeholders and beyond. *Online Learning*, *20*(3), 126-139.

Ardila, A. (2016). L.S. Vygotsky in the 21st century. *Psychology in Russia, 9*(4), 58. doi: 10.11621/pir.2016.0401

Arizona Christian School Tuition Organization v. Winn. 131 S.Ct. 1436. (2011).

Arpaci, I. (2015). A qualitative study on the adoption of Bring Your Own Device (BYOD) practice. *International Journal of E-Adoption*, *7*(2), 1-14. doi:10.4018/IJEA.2015070101

Asian, S. (2015). Is learning by teaching effective in gaining 21st century skills? The views of pre-service science teachers. *Educational Sciences: Theory & Practice*, *15*(6), 1441-1457. doi:10.12738/estp.2016.1.019

Awuah, L. J. (2015). Supporting 21st-century teaching and learning: The role of Google Apps for Education (GAFE). *Journal of Instructional Research*, *4*12-22.

Barsky, A. (2014). *Conflict resolution for the helping professions (second ed.).* New York, NY: Oxford University Press.

Baumrind, D. (2005). Patterns of parental authority and adolescent autonomy. *New Directions for Child & Adolescent Development*, *2005*(108), 61-69.

Baumrind, D. (1966). The effects of authoritative parental control on child behavior. *Child Development, 34* (4), 887-907.

Benade, L. (2015). Bits, bytes and dinosaurs: Using Levinas and Freire to address the concept of 'twenty-first century learning'. *Educational Philosophy & Theory*, *47*(9), 935-948. doi:10.1080/00131857.2015.1035159

Benade, L. (2015). Teachers' critical reflective practice in the context of twenty-first century learning. *Open Review of Educational Research*, *2*(1), 42-54.

Bartau-Rojas, I., Aierbe-Barandiaran, A., & Oregui-González, E. (2018). Parental mediation of the internet use of primary students: Beliefs, strategies and difficulties. *Comunicar: Media Education Research Journal*, *26*(54), 71-79.

Ben-Eliyahu, A., Linnenbrink-Garcia, L., & Putallaz, M. (2017). The intertwined nature of adolescents' social and academic lives. *Journal of Advanced Academics*, *28*(1), 66-93. doi:10.1177/1932202X16685307

Bhargava, S., & Witherspoon, D. (2015). Parental involvement across middle and high school: Exploring contributions of individual and neighborhood characteristics. *Journal of Youth & Adolescence*, *44*(9), 1702-1719. doi:10.1007/s10964-015-0334-9

Blau, I., & Hameiri, M. (2017). ubiquitous mobile educational data management by teachers, students and parents: Does technology change school-family communication and parental involvement?. *Education and Information Technologies*, *22*(3), 1231-1247.

Bodinet, C. (2016). Pedagogies of the futures: Shifting the educational paradigm. *European Journal of Futures Research, 4*(21), 1-11.

Boers, D. (2007). *The industrial revolution*: *History of American education primer* (pp. 47-87). Peter Lang Publishing, Inc.

Borup, J. (2016). Teacher perceptions of parent engagement at a cyber high school. *Journal of Research on Technology in Education*, *48*(2), 67-83.

Borup, J., & Stevens, M. A. (2016). Parents' perceptions of teacher support at a cyber charter high school. *Journal of Online Learning Research*, *2*(3), 227-246.

Bourrie, D. M., Jones-Farmer, L. A., & Sankar, C. S. (2016). Learning technologies: Bridging the gap between intention, adoption and routine use. *International Journal of Engineering Education*, *32*(5A), 2107-2120.

Boyaci, S. B., & Atalay, N. (2016). A scale development for 21st century skills of primary school students: A validity and reliability study. *International Journal of Instruction*, *9*(1), 133-148.

Bray, A., & Tangney, B. (2016). Enhancing student engagement through the affordances of mobile technology: A 21st century learning perspective on realistic mathematics education. *Mathematics Education Research Journal*, *28*(1), 173-197.

Breen, P. (2015). Letting go and letting the angels grow: Using Étienne Wenger's community of practice theory to facilitate teacher education. *International Journal of Web-Based Learning and Teaching Technologies (IJWLTT), 10*(1), 14-26. doi:10.4018/ijwltt.2015010102

Brenner, D., Matlen, B., Timms, M., Gorchyyey, P., Grillo-Hill, A., and Luttgen, K. (2017). Modeling student learning behavior patterns in an online science inquiry environment. *Technology, Knowledge and Learning, 22*(3), 405-425.

Bridgstock, R. (2016). Educating for digital futures: What the learning strategies of digital media professionals can teach higher education. *Innovations in Education and Teaching International 53*(3). 306-316.

Burden, K., Aubusson, P., Brindley, S., & Schuck, S. (2016). Changing knowledge, changing technology: Implications for teacher education futures. *Journal of Education for Teaching*, *42*(1), 4-16.

Burns-Sardone, N. (2014). Making the case for BYOD instruction in teacher education. *Journal of Issues in Informing Science and Information Technology*, *11*191-201.

Buss, R. R., Wetzel, K., Foulger, T. S., & Lindsey, L. (2015). Preparing teachers to integrate technology into K-12 instruction: Comparing a stand-alone technology course with a

technology-infused approach. *Journal of Digital Learning in Teacher Education*, *31*(4), 160-172.

Caldwell, C., Zeltmann, S., & Griffin, K. (2012). BYOD (Bring Your Own Device). *Competition Forum*, *10*(2), 117-121.

Camacho-Thompson, D., Gillen-O'Neel, C., Gonzales, N., & Fuligni, A. (2016). Financial strain, major family life events, and parental academic involvement during adolescence. *Journal of Youth & Adolescence*, *45*(6), 1065-1074. doi:10.1007/s10964-016-0443-0

Cantu, D. V. (2016). Exploring the nature of technology. *Children's Technology & Engineering*, *21*(1), 4.

Carver, L. B. (2016). Teacher perception of barriers and benefits in K-12 technology usage. *Turkish Online Journal of Educational Technology - TOJET*, *15*(1), 110-116.

Chai, C. S., Deng, F., Tsai, P., Koh, J. H., & Tsai, C. (2015). Assessing multidimensional students' perceptions of twenty-first-century learning practices. *Asia Pacific Education Review*, *16*(3), 389-398.

Charania, A., & Davis, N. (2016). A smart partnership: integrating educational technology for underserved children in India. *Journal of Educational Technology & Society*, *19*(3), 99-109.

Ching Sing, C., Lynde, T., Feng, D., & Joyce Hwee Ling, K. (2017). Examining pre-service teachers' design capacities for web-based 21st century new culture of learning. *Australasian Journal of Educational Technology*, *33*(2), 129-142.

Chiu, T. (2016). Introducing electronic textbooks as daily-use technology in schools: A top-down adoption process. *British Journal of Educational Technology*, 48(2), 524-537. Doi:10.1111/bjet.12432

Clay-Buck, H., & Tuberville, B. (2015). Going off the grid: Re-examining technology in the basic writing classroom. *Research & Teaching in Developmental Education*, *31*(2), 20-25.

Clinton, W. (1996). America's technology literacy challenge. Retrieved from https://clinton whitehouse4.archives.gov/WH/NEW/edtech/2pager.html

Creswell, J. (2013). *Qualitative inquiry and research design: Choosing among five approaches (third ed.).* Thousand Oaks, CA: Sage Publications.

Crichton, S. (2014). Leapfrogging pedagogy: A design approach to making change in challenging contexts. *The Electronic Journal of e-Learning, 12*(1), 3-13.

Damnik, G., Proske, A., & Körndle, H. (2017). Designing a constructive learning activity with interactive elements: The effects of perspective-shifting and the quality of source material. *Interactive Learning Environments, 25*(5), 634-639.

Davidsen, J., & Vanderlinde, R. (2016). 'You should collaborate, children': A study of teachers' design and facilitation of children's collaboration around touchscreens. *Technology, Pedagogy & Education*, *25*(5), 573-593. doi:10.1080/1475939X.2015.1127855

de Vocht, M., & Laherto, A. (2017). Profiling teachers based on their professional attitudes towards teaching responsible research and innovation. *European Journal of Science and Mathematics Education*, *5*(3), 271-284.

Delgado, A. J., Wardlow, L., McKnight, K., & O'Malley, K. (2015). Educational technology: A review of the integration, resources, and effectiveness of technology in K-12 classrooms. *Journal of Information Technology Education*, *14*397-416.

DeLuca, C., Shulha, J., Luhanga, U., Shulha, L. M., Christou, T. M., & Klinger, D. A. (2015). Collaborative inquiry as a professional learning structure for educators: A scoping review. *Professional Development in Education*, *41*(4), 640-670.

Douglass, A. (2011). Improving family engagement: The organizational context and its influence on partnering with parents in formal child care settings. *Early Childhood Research & Practice*, *13*(2),

Durak, H. Y., & Saritepeci, M. (2017). Investigating the effect of technology use in education on classroom management within the scope of the FATİH Project. *Cukurova University Faculty of Education Journal*, *46*(2), 441-457. doi:10.14812/cufej.303511

Ekici, F. Y. (2016). Parents' views on the use of technology in the early childhood period. *Journal of Education and Training Studies*, *4*(12), 58-70.

Ejsing-Duun, S., & Skovbjerg, H. M. (2016). Copycat or creative innovator? Reproduction as a pedagogical strategy in schools. *Electronic Journal of E-Learning, 14*(2), 83.

Eutsler, L. (2018). Parents' mobile technology adoption influences on elementary children's use. *International Journal of Information & Learning Technology*, *35*(1), 29-42. doi:10.1108/IJILT-05-2017-0035

Falkner, J., & Latham, G. (2016). Adventurous lives: Teacher qualities for 21st century learning. *Australian Journal of Teacher Education, 41*(4),137-150.

Farkas, M. (2012). Participatory technologies, pedagogy 2.0 and information literacy. *Library Hi Tech; 30*(1), 82-94.

Frache, G., Nistazakis, H., & Tombras, G. (2017). Reengineering engineering education: developing a constructively aligned learning-by-doing pedagogical model for 21st century education. doi:10.1109/EDUCON.2017.7942989

Fakomogbon, M. A., & Bolaji, H. O. (2017). Effects of collaborative learning styles on performance of students in a ubiquitous collaborative mobile learning environment. *Contemporary Educational Technology*, *8*(3), 268-279.

Foulger, T. S., Graziano, K. J., Slykhuis, D., Schmidt-Crawford, D., & Trust, T. (2016). Invited commentary the time is now! Creating technology competencies for teacher educators. *Journal of Technology & Teacher Education*, *24*(3), 249-256.

Friese, S. (2014). *Qualitative data analysis with ATLAS.ti* (second ed.). Thousand Oaks: CA, Sage Publications.

Fui-Theng, L., Mai, N., & Soon Hin, H. (2016). Investigating the key attributes to enhance students' learning experience in 21st century class environment. *Electronic Journal of E-Learning*, *14*(4), 244-256.

Gabriel, M., Campbell, B., Wiebe, S., MacDonald, R., & McAuley, A. (2012). The role of digital technologies in learning: Expectations of first year university students. *Canadian Journal of Learning & Technology*, *38*(1), 1-18.

Garba, S., Byabazaire, Y., & Busthami, A. (2015). Toward the use of 21st century teaching-learning approaches: The trend of development in Malaysian schools within the context of Asia Pacific. *International Journal of Emerging Technologies in Learning*, *10*(4), 72-79. doi:10.3991/ijet.v10i4.4717

Gatimu, M. W., & Reynolds, M. M. (2013). Constituting the identity of an elementary school teacher in the 21st century world of teaching and learning. *Journal of Education and Learning*, *2*(4), 154-165.

Geer, R., White, B., Zeegers, y., Au, W., & Barnes, A., (2015). Emerging pedagogies for the use of iPads in schools. *British Journal of Educational Technology, 48*(2), 490-498.

George Lucas Educational, F. (2012). *A parent's guide to 21st century learning*. George Lucas Educational Foundation.

Gezgin, D. M., Cakir, O., & Yildirim, S. (2018). The relationship between levels of nomophobia prevalence and internet addiction among high school students: The factors influencing nomophobia. *International Journal of Research in Education and Science*, *4*(1), 215-225.

Gilbert, A. D. (2016). The framework for 21st century learning: A first-rate foundation for music education assessment and teacher evaluation. *Arts Education Policy Review*, *117*(1), 13-18.

Giorgi, A. (2006). Difficulties encountered in the application of the phenomenological method in the social sciences. *Análise Psicológica, 24*(3), 353-361.

Gokpinar, T., & Reiss, M. (2016). The role of outside-school factors in science education: a two-stage theoretical model linking Bourdieu and Sen, with a case study, *International Journal of Science Education, 38*(8), 1278-1303. doi: 10.1080/09500693.2016.1188332

Gómez-Rey, P., Barbera, E., & Fernández-Navarro, F. (2017). Student voices on the roles of instructors in asynchronous learning environments in the 21st century. *International Review of Research in Open & Distance Learning*, *18*(2), 234-251.

Greene, K., & Hale, W. (2017). The state of 21st century learning in the k-12 world of the United States: Online and blended learning opportunities for American elementary and secondary students. *Journal of Educational Multimedia and Hypermedia*, *26*(2), 131-159.

Gunn, T. M., & Hollingsworth, M. (2013). The implementation and assessment of a shared 21st century learning vision: A district-based approach. *Journal of Research on Technology in Education, 45*(3), 201.

Harper, B., & Milman, N. B. (2016). One-to-one technology in K-12 classrooms: A review of the literature from 2004 through 2014. *Journal of Research on Technology in Education*, *48*(2), 129-142.

Hechter, R. P., & Vermette, L. A. (2013). Technology integration in K-12 science classrooms: An analysis of barriers and implications. *Themes in Science and Technology Education*, *6*(2), 73-90.

Hein v. Freedom from Religion Foundation, Inc.. 551 U.S. 587. (2007).

Hendry, J., Hiller, T., Martin, E., & Boyd, N., (2017). Context and pedagogy: A quarter century of change in an introductory management course. *Journal of Management Education, 41*(3), 346-384.

Hepp, P., Prats-Fernández, M., & Garcia, J. (2015). Teacher training: Technology helping to develop an innovative and reflective professional profile. *RUSC Universities and Knowledge Society Journal, 12*(2), 30-43.

Herald, B. (2018). On social media, principals fight losing battle to keep up with students. *Ed Week. 37(*27). 20-22.

Hosanna-Tabor Evangelical Lutheran Church & School v. EEOC. 132S. Ct. 694. (2011).

Huat See, B., & Gorard, S. (2015). The role of parents in young people's education—a critical review of the causal evidence. *Oxford Review of Education*, *41*(3), 346-366. doi:10.1080/03054985.2015.1031648

Hudson, M. W., & Vasil, M. (2015). K-12 Music educators' use of technology and social media platforms as tools for communication with students and parents. *Missouri Journal of Research in Music Education*, (52), 30-43.

Hummell, L. (2015). Fostering collaboration. *Children's Technology & Engineering*, *20*(1), 5-15.

Hussain, S. W. (2018). Educational technology for professional development of English teachers: A case study of the college teachers of English in J&K. *Language in India*, *18*(3), 122-130.

Husserl, E. (1931). *Ideas: General introduction to pure phenomenology*. Evanston, IL: Northwestern University Press.

Ilaria, D. (2017). The efficacy and impact of a hybrid professional development model on handheld graphing technology use. *Contemporary Issues in Technology and Teacher Education (CITE Journal)*, *17*(2),

Inam, A., Nomaan, S., & Abiodullah, M. (2016). Parents' parenting styles and academic achievement of underachievers and high achievers at middle school level. *Bulletin of Education & Research*, *38*(1), 57-74.

Irwin, S. (2018). Parenting teenagers as they grow up: Values, practices and young people's pathways beyond school in England. *Sociological Review*, *66*(1), 241-256. doi:10.1177/0038026117691718

ISTE. (2016). National Educational Technology Standards. Retrieved from http://www.iste.org/standards.

Jackson, K. (2012). Participatory diagramming in social work research: Utilizing visual timelines to interpret the complexities of the lived multiracial experience. *Qualitative Social Work, 12*(4), 414-432. doi: 10.1177/1473325011435258

Jacobson, I., Sence, I., & Pan-Wei, N. (2017). Is there a single method for the internet of things?. *Communications of the ACM*, *60*(11), 46-53. doi:10.1145/3106637

Janssen, N., & Lazonder, A. (2015). Implementing innovative technologies through lesson plans: What kind of support do teachers prefer?. *Journal of Science Education & Technology*, *24*(6), 910-920. doi:10.1007/s10956-015-9573-5

Jonassen, D. (2014). Using cognitive tools to represent problems. Journal of Research on Technology in Education, 35(3), 362-381.

Jones, M., & Dexter, S. (2016). Conceptualizing school-based teacher learning from teachers' points of view: holistically leveraging formal, informal, and independent learning activities. *Journal of Educational Multimedia & Hypermedia*, *25*(3), 251-268.

Kaldor, T., & Donohue, C. (2018). Tech enabled educators: Engagement and empowerment through professional development. *Exchange (19460406)*, (240), 36.

Kamenov, K. (2017). Immersive experience – The 4th wave in tech: Learning the ropes. Accenture: Living Innovation. https://www.accenture.com/gb-en/blogs/blogs-living-innovation-default. Accessed 09AUGUST2018.

Keane, T., & Keane, W. F. (2018). Parents' expectations, perceptions and concerns when schools implement a 1:1 program. *Education & Information Technologies*, *23*(4), 1447-1464. doi:10.1007/s10639-017-9671-5

Keengwe, J. (2013). *Research perspectives and best practices in educational technology integration*. IGI Global.

Khan, A., Ahmad, R., Hamdan, A. R., & Mustaffa, M. S. (2014). Educational encouragement, parenting styles, gender and ethnicity as predictors of academic achievement among special education students. *International Education Studies*, *7*(2), 18-24.

Kiadarbandsari, A., Madon, Z., Hamsan, H, & Mehdinezhad Nouri, K. (2016). Role of parenting style and parents' education in positive youth development of adolescents. *Pertanika Journal of Social Sciences & Humanities*, *24*(4), 1465-1480.

Kingsley, T. L., & Grabner-Hagen, M. M. (2015). Gamification: Questing to integrate content knowledge, literacy, and 21st-century learning. *Journal of Adolescent & Adult Literacy*, *59*(1), 51-61.

Kitchen, R., & Berk, S. (2016). Research commentary: Educational technology--An equity challenge to the Common Core. *Journal for Research In Mathematics Education*, *47*(1), 3-16.

Kivunja, C. (2015). Innovative methodologies for 21st century learning, teaching and assessment: A convenience sampling investigation into the use of social media technologies in higher education. *International Journal of Higher Education*, *4*(2), 1-26.

Koh, J., Chai, C., Benjamin, W., & Hong, H. (2015). Technological pedagogical content knowledge (TPACK) and design thinking: A framework to support ICT lesson design for 21st century learning. *Asia-Pacific Education Researcher (Springer Science & Business Media B.V.)*, *24*(3), 535-543. doi:10.1007/s40299-015-0237-2

Kolar, K., Ahmad, F., Chan, L., & Erickson, P. G. (2015). Timeline mapping in qualitative interviews: A study of resilience with marginalized groups. *International Journal of Qualitative Methods*, *14*(3), 13-32.

Kong, S. (2018). Parents' perceptions of e-learning in school education: implications for the partnership between schools and parents. *Technology, Pedagogy and Education*, *27*(1), 15-31.

Kose, U., & Arslan, A. (2015). Realizing an optimization approach inspired from Piaget's theory on cognitive development. *BRAIN: Broad Research in Artificial Intelligence & Neuroscience*, *6*(1/2), 14-21.

Krahenbuhl, K. (2016). Student-centered education and constructivism: Challenges, concerns, and clarity for teachers. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 89(3),* 97-105. doi: 10.1080/00098655.2016.1191311

Lawlor, J., Conneely, C., Oldham, E., Marshall, K., & Tangney, B. (2018). Bridge21: Teamwork, technology and learning. A pragmatic model for effective twenty-first-century team-based learning. *Technology, Pedagogy & Education*, *27*(2), 211-232. doi:10.1080/1475939X.2017.1405066

Leadership Conference Education Fund. (2016). Parent and family engagement provisions in the Every Child Succeeds Act. Retrieved from: http://civilrightsdocs.info/pdf/education/ESSA-Parent-Family-Engagement.pdf on 30 April 2018.

Lemley, J. B., Schumacher, G., & Vesey, W. (2014). What learning environments best address 21st-century students' perceived needs at the secondary level of instruction?. *NASSP Bulletin*, *98*(2), 101-125.

Leung, P. Y. (2010). Autobiographical timeline: A narrative and life story approach in understanding meaning-making in cancer patients. *Illness, Crisis & Loss*, *18*(2), 111-127. doi:10.2190/IL.18.2.c

Lih-Juan, C. (2017). Analysis of teachers' tablet teaching adoption process. *Educational Sciences: Theory & Practice*, *17*(6), 1935-1958. doi:10.12738/estp.2017.6.0436

Lin, C., Ma, J., Kuo, K. Y., & Chou, C. C. (2015). Examining the efficacy of project-based learning on cultivating the 21st century skills among high school students in a global context. *Journal on School Educational Technology*, *11*(1), 1-9.

Lin, Z. (2017). Indicators of digital leadership in the context of K-12 education. *Journal of Educational Technology Development & Exchange*, *10*(1), 27-40.

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications

Locke v. Davey. 540 U.S. 712. (2004).

Maccoby, E. & Martin, J. (1983). Socialization in the context of the family: Parent-child interaction. In P.H. Mussen (ed) and E.M. Hetherington (vol. ed.), *Handbook of Child Psychology: Vol. 4. Socialization, personality, and social development* (4th ed., pp. 1-101). New York: Wiley.

Manigo, C., & Allison, R. (2017). Does pre-school education matter? Understanding the lived experiences of parents and their perceptions of preschool education. *Teacher Educators' Journal*, *10*5-42.

Martell, C. (2015). Age of creative insecurity: Student centered learning. *Journal of Education for Library & Information Science. 56*(1)*,* 88-96.

Martin, F., & Carr, M. L. (2015). An exploratory study on K-12 teachers' use of technology and multimedia in the classroom. *Journal of Educational Technology*, *12*(1), 7-14.

McNeal, R. (2014). Parent involvement, academic achievement and the role of student attitudes and behaviors as mediators. *Universal Journal of Educational Research*, *2*(8), 564-576.

Miah, M., Adnan, O., & Allison-Golding, M. (2013). Effects of social networking on adolescent education. *Information Systems Education Journal, 11*(3), 90-100

Min, L., Navarrete, C. C., & Wivagg, J. (2014). Potentials of mobile technology for K-12 education: An investigation of iPod touch use for English language learners in the United States. *Journal of Educational Technology & Society*, *17*(2), 115-126.

Mitchell, G. W., Wohleb, E. C., & Skinner, L. B. (2015). Perceptions of public educators regarding accessibility to technology and the importance of integrating technology across the curriculum. *Journal for Research in Business Education*, *57*(2), 14-25.

Moawad, G. A., & Ebrahem, G. S. (2016). The relationship between use of technology and parent-adolescents social relationship. *Journal of Education and Practice*, *7*(14), 168-178.

Mohd, C., & Shahbodin, F. (2015). Personalized Learning Environment (PLE) integration in the 21st century classroom. *International Journal of Computer Information Systems and Industrial Management Applications*, *7*14-20.

Mølster, T., & Nes, K. (2018). To what extent does information and communication technology support inclusion in education of students with learning difficulties?. *Universal Journal of Educational Research*, *6*(4), 598-612.

Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, CA: Sage Publications

Mumba, F., & Zhu, M. (2013). Development of an innovative interactive virtual classroom system for K-12 education using Google App engine. *Journal of Computers in Mathematics and Science Teaching*, *32*(2), 195-217.

Muñoz, D., Cornejo, R., Gutierrez, F. J., Favela, J., Ochoa, S. F., & Tentori, M. (2015). A social cloud-based tool to deal with time and media mismatch of intergenerational family

communication. *Future Generation Computer Systems*, *53*140-151. doi:10.1016/j.future.2014.07.003

Nation, H. (2016). "Favored as we are": Early protestant missions, cultural imperialism, and the liberating power of the Bible. *Priscilla Papers*, *30*(4), 22-26.

Neging, P., Musa, R., Kasuma, J., & Neging, M. (2017). Millennial and internet: a positive behavioral effect of pathological internet use (PIU). *International Journal of Business & Society*, *18*(3), 619-631.

Nelson, A. C. (2013). Design of the technology-rich classroom practices and facilities environments. *Educational Technology*, *53*(6-), 3-12.

Noguerón-Liu, S. (2017). Expanding notions of digital access: Parents' negotiation of school-based technology initiatives in new immigrant communities. *Equity & Excellence in Education*, *50*(4), 387-399.

Odongo, A. A., Aloka, P. O., & Raburu, P. (2016). Influence of parenting styles on the adolescent students' academic achievement in Kenyan day secondary schools. *Journal of Education and Practice*, *7*(15), 101-108.

Orhan Goksun, D., Filiz, O., & Kurt, A. A. (2018). Student teachers' perceptions on educational technologies' past, present and future. *Turkish Online Journal of Distance Education*, *19*(1), 136-146.

Ozdamli, F., & Yildiz, E. P. (2017). Opinions and expectations of parents on integration of mobile technologies to education and school family cooperation. *International Journal of Interactive Mobile Technologies*, *11*(4), 136-148. doi:10.3991/ijim.v11i4.6791

Ozden, S. Y., Mouza, C., & Shinas, V. H. (2016). Teaching knowledge with curriculum-based technology: Development of a survey instrument for pre-service teachers. *Journal of Technology & Teacher Education*, *24*(4), 471-499.

Parsons, D., & Adhikari, J. (2016). Bring your own device to secondary school: the perceptions of teachers, students and parents. *Electronic Journal of E-Learning*, *14*(1), 66-79.

Patterson, M. L., Markey, M. A., & Somers, J. M. (2012). Multiple paths to just ends: Using narrative interviews and timelines to explore health equity and homelessness. *International Journal of Qualitative Methods*, *11*(2), 132-151.

Patton, M. (2015). *Qualitative research & evaluation methods: Integrating theory and practice (fourth ed.)*. Thousand Oaks, CA: Sage Publications

Pei-Ling Tan, J., Koh, E., Jonathan, C., & Yang, S. (2017). Learner dashboards a double-edged sword? Students' sense-making of a collaborative critical reading and learning analytics environment for fostering 21st-century literacies. *Journal of Learning Analytics*, *4*(1), 117-140.

Pei-Shan, T., Ching Sing, C., Yen-Yuan, C., Min-Hsien, L., Jyh-Chong, L., & Chin-Chung, T. (2016). A pilot study of students' perceptions of collaborative knowledge building in 21st century learning with their knowledge building behaviors. doi:10.1109/ICALT.2016.7

Periathiruvadi, S., & Rinn, A. N. (2012). Technology in gifted education: A review of best practices and empirical research. *Journal of Research on Technology in Education*, *45*(2), 153-169.

Perrin, A. & Duggin, M. (2015). Americans' internet access. Retrieved from http://www.pewinternet.org/2015/06/26/americans-internet-access-2000-2015/

Pierce, G., & Cleary, P. (2016). The K-12 educational technology value chain: Apps for kids, tools for teachers and levers for reform. *Education and Information Technologies*, *21*(4), 863-880. doi:10.1007/s10639-014-9357-1

Provenzano, N., Klein, E., & Davis, R. (2016). Teacher tech leaders. *Education Week*, *35*(35), 10.

Ragusa, A. (2017). Technologically-mediated communication: Student expectations and experiences in a FOMO society. *International Journal of Educational Technology in Higher Education*, *14*(1), 1-20. doi:10.1186/s41239-017-0077-7

Razik, T, & Swanson, A. (2010). *Fundamental concepts in educational leadership & management* (third ed.). Upper Saddle River, NJ: Pearson.

Redecker, C, & Oystein, J. (2013). Changing assessment – Towards a new assessment paradigm using ICT. *European Journal of Education*, *48*(1). 79-96.

Resta, P., & Laferrière, T. (2015). Digital equity and intercultural education. *Education & Information Technologies*, *20*(4), 743-756. doi:10.1007/s10639-015-9419-z

Sanders, M., & George, A. (2017). Viewing the changing world of educational technology from a different perspective: present realities, past lessons, and future possibilities. *Education and Information Technologies*, *22*(6), 2915-2933.

Santos, I. M., Ali, N., & Hill, A. (2016). Students as co-designers of a virtual learning commons: Results of a collaborative action research study. *Journal of Academic Librarianship*, *42*(1), 8-14. doi:10.1016/j.acalib.2015.09.006

Santos, I., & Bocheco, O. (2016). Exploring BYOD usage in the classroom and policies. *International Journal of Information & Communication Technology Education*, *12*(4), 51-61. doi:10.4018/IJICTE.2016100105

Sawyer, S., Proimos, J., & Towns, S. (2010). Adolescent-friendly health services: what have children's hospitals got to do with it? Journal of Pediatrics Child Health, 46: 214– 216.

Schrum, L., & Levin, B. B. (2016). Educational technologies and twenty-first century leadership for learning. *International Journal of Leadership in Education*, *19*(1), 17-39.

Schwandt, T. (2015). *The Sage dictionary of qualitative inquiry (fourth ed.)*. Thousand Oaks, CA: Sage Publications.

Scott-Janda, E., & Karakok, G. (2016). Revisiting Piaget: Could post-formal thinking be the next step?. *Philosophy of Mathematics Education Journal*, (30), 1-11.

Shadiev, R., Hwang, W., Huang, Y., & Yang, Y. (2015). Study of using a multi-touch tabletop technology to facilitate collaboration, interaction, and awareness in co-located environment. *Behaviour & Information Technology*, *34*(10), 952-963.

Shenton, A. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information. 22*(1). P 63-75.

Simsek, O., & Yazar, T. (2016). Education technology standards self-efficacy (ETSSE) scale: A validity and reliability study. *Eurasian Journal of Educational Research*, (63), 311-334.

Smith, T. K. (2014). Elementary science instruction: Examining a virtual environment for evidence of learning, engagement, and 21st century competencies. *Education Sciences*, *4*(1), 122-138.

Spector, J., Ifenthaler, D., Sampson, D., Lan, Y., Mukama, E., Warusavitarana, A., & ... Gibson, D. (2016). Technology enhanced formative assessment for 21st century learning. *Journal Of Educational Technology & Society*, *19*(3), 58-71.

Stanley, J. L., Vaterlaus, J. M., Tulane, S., & Beckert, T. E. (2017). A place for technology in parent education: An exploratory study of parent perceptions. *Marriage & Family Review*, *53*(8), 811-825. doi:10.1080/01494929.2017.1359813

Staton, M. G. (2016). improving student job placement and assessment through the use of digital marketing certification programs. *Marketing Education Review*, *26*(1), 20-24.

Stich, A. E., & Reeves, T. D. (2016). Class, capital, and competing academic discourse: a critical analysis of the mission/s of American higher education. *Discourse: Studies in The Cultural Politics of Education*, *37*(1), 116-132. doi:10.1080/01596306.2014.938221

Swallow, M. C., & Olofson, M. W. (2017). Contextual understandings in the TPACK framework. *Journal of Research on Technology in Education*, *49*(3/4), 228. doi:10.1080/15391523.2017.1347537

Swart, R. (2017). Critical thinking instruction and technology enhanced learning from the student perspective: A mixed methods research study. *Nurse Education in Practice*, *23*30-39. doi:10.1016/j.nepr.2017.02.003

Tarling, I., & Ng'ambi, D. (2016). Teachers pedagogical change framework: A diagnostic tool for changing teachers' uses of emerging technologies. *British Journal of Educational Technology*, *47*(3), 554-572.

Taufik, N. M., & Maat, S. M. (2017). Perception of mathematics teachers on cooperative learning method in the 21st century. *AIP Conference Proceedings*, *1847*(1), 1-5. doi:10.1063/1.4983882

Thieman, G. (2017). Promoting educational opportunity and achievement through 1:1 iPads. *The International Journal of Information and Learning Technology*, 34(5), 409-427. doi:10.1108/IJILT-06-2017-0047.

Tomczyk, L. and Wasinski, A. (2017). Parents in the process of educational impact in the area of the use of new media by children and teenagers in the family environment. *Education and Science, 42*(190), 305-323.

Tondeur, J., Braak, J., Ertmer, P., & Ottenbreit-Leftwich, A. (2017). Understanding the relationship between teachers' pedagogical beliefs and technology use in education: A systematic review of qualitative evidence. *Educational Technology Research and Development*, *65*(3), 555-575. doi:10.1007/s11423-016-9481-2

Tondeur, J., Pareja Roblin, N., van Braak, J., Voogt, J., & Prestridge, S. (2017). Preparing beginning teachers for technology integration in education: ready for take-off?. *Technology, Pedagogy & Education*, *26*(2), 157-177. doi:10.1080/1475939X.2016.1193556

Trust, T. (2017). Motivation, empowerment, and innovation: Teachers' beliefs about how participating in the Edmodo math subject community shapes teaching and learning. *Journal of Research on Technology in Education*, *49*(1/2), 16. doi:10.1080/15391523.2017.1291317

Tucker, S. (2014). Transforming pedagogies: Integrating 21st century skills and web 2.0 technology. *Turkish Online Journal of Distance Education, 15*(1), 166-173.

Ullrich, C. (2016). Rules for adaptive learning and assistance on the shop floor. *International Association for Development of the Information Society*, 13.

United States Census Bureau. (2018). Retrieved from https://www.census.gov/quickfacts, April 18, 2019.

United States Congress. (2002). S. Rept. 107-63 - Authorizing appropriations for fiscal year 2002 for intelligence and intelligence-related activities of the United States government,

the community management account of the director of central intelligence, and the Central Intelligence Agency retirement and disability system, and for other purposes, Washington, DC.

Ursavas, Ö. F., Kabakçi Yurdakul, I., Türk, M., & Mcilroy, D. (2016). measurement invariance of the digital natives assessment scale across gender in a sample of Turkish university students. *Journal of Educational Computing Research*, *54*(4), 513-530.

Vandeyar, S., & Swart, R. (2016). Educational change: A case for a 'pedagogy of compassion'. *Education as Change*, *20*(3), 141-159. doi:10.17159/1947-9417/2016/1362

van Tetering, M. J., & Jolles, J. (2017). Teacher evaluations of executive functioning in schoolchildren aged 9-12 and the influence of age, sex, level of parental education. *Frontiers in Psychology*, *8*481. doi:10.3389/fpsyg.2017.00481

Venkatesh, S., Greenhill, S., Phung, D., Adams, B., & Duong, T. (2012). Pervasive multimedia for autism intervention. *Pervasive and Mobile Computing*, *8*(6), 863-882. doi:10.1016/j.pmcj.2012.06.010

Valtonen, T., Sointu, E. T., Kukkonen, J., Häkkinen, P., Järvelä, S., Ahonen, A., & ... Mäkitalo-Siegl, K. (2017). insights into Finnish first-year pre-service teachers' twenty-first century skills. *Education and Information Technologies*, *22*(5), 2055-2069.=

Wagner, W., & Mathison, P. (2015). Connecting to communities: powerful pedagogies for leading for social change. *New Directions for Student Leadership*, *2015*(145), 85-96. doi:10.1002/yd.20126

Wagner, W., & Pigza, J. M. (2016). The intersectionality of leadership and service-learning: A 21st-century perspective. *New Directions for Student Leadership*, *2016*(150), 11-22. doi:10.1002/yd.20167

Walsh, M., Durrant, C, & Simpson, A. (2015). Moving in a multimodal landscape: Examining 21st century pedagogy for multicultural and multilingual students. *English in Australia, 50*(1), 67-76.

Wasko, C. W. (2016). Using the DSAP framework to guide instructional design and technology integration in BYOD Classrooms. *Journal of Digital Learning in Teacher Education*, *32*(3), 85-94. doi:10.1080/21532974.2016.1169957

Webb, M. (2014). Pedagogy with information and communications technologies in transition. *Education Information Technology, 19*(1), 275-294. doi 10.1007/s10639-012-9216-x

Whiteside, M., Bould, E., Tsey, K., Venville, A., Cadet-James, Y., & Morris, M. E. (2017). Promoting twenty-first-century student competencies: A wellbeing approach. *Australian Social Work*, *70*(3), 324-336. doi:10.1080/0312407X.2016.1263351

Wong, R. M., Ho, F. W., Wong, W. S., Tung, K. S., Chow, C. B., Rao, N., & ... Ip, P. (2018). Parental involvement in primary school education: Its relationship with children's academic performance and psychosocial competence through engaging children with school. *Journal of Child & Family Studies*, *27*(5), 1544-1555.

Workman, J. L. (2015). Parental influence on exploratory students' college choice, major, and career decision making. *College Student Journal*, *49*(1), 23.

Yamamoto, T., Chang, M., Wu-Yuin, H., Ming-Puu, C., & Muller, W. (2011). Paradigm shift in education with the use of e-portfolio: Showcases of e-portfolio at work at the various levels of education - introduction and showcase i: K-12 e-portfolio involving all stakeholders. doi:10.1007/978-3-642-23456-9_84

Yanjie, S., & Siu Cheung, K. (2017). Affordances and constraints of BYOD (Bring Your Own Device) for learning and teaching in higher education: Teachers' perspectives. *Internet and Higher Education*, *32*39-46. doi:10.1016/j.iheduc.2016.08.004

Yin, X., Li, Z., Yuan, Y., & Wang, Z. (2019). Developmental trajectory of hope among late-adolescents: Population heterogeneity and the impact of gender and family socioeconomic status. *Journal of Adolescence*, *72*, 124–131. https://doi-org.ezproxy.liberty.edu/10.1016/j.adolescence.2019.03.003

Young, K. (2016). Teachers' attitudes to using ipads or tablet computers; implications for developing new skills, pedagogies and school-provided support. *Techtrends: Linking Research and Practice to Improve Learning*, *60*(2), 183-189.

Yuen, A., Lau, W., Park, J., Lau, G., & Chan, A. (2016). Digital equity and students' home computing: A Hong Kong study. *Asia-Pacific Education Researcher (Springer Science & Business Media B.V.)*, *25*(4), 509-518. doi:10.1007/s40299-016-0276-3

Yunus, M. M., Nordin, N., Salehi, H., Sun, C. H., & Embi, M. A. (2013). Pros and cons of using IICT in teaching ESL reading and writing. *International Education Studies*, *6*(7), 119-130.

APPENDICES

APPENDIX A: ADVANCED ELEOT OBSERVATION TOOL

Effective Learning Environments Observation Tool (ELEOT)

The purpose of this tool is to help you identify and document observable evidence of classroom environments that are conducive to student learning. Results of your observations will be used to corroborate information obtained from interviews, artifacts and student performance data. Please circle the number that corresponds with your observation of each learning environment item descriptor below. As needed and appropriate, briefly make inquiries with students.

Date _____ **School** _____ **City** _____ **State** _____ **Grade Level** _____ **Subject Observed** _____

Time In _____ **Time Out** _____ **Check ALL that apply:** **Lesson Beg.** ____ **Lesson Middle** ____ **Lesson End** ____ **Observer** _____

Student-focused Observations	Very Evident	Evident	Somewhat Evident	Not Observed
A. Equitable Learning Environment:				
1. Has differentiated learning opportunities and activities that meet her/his needs	4	3	2	1
2. Has equal access to classroom discussions, activities, resources, technology, and support	4	3	2	1
3. Knows that rules and consequences are fair, clear, and consistently applied	4	3	2	1
4. Has ongoing opportunities to learn about their own and other's backgrounds/cultures/differences	4	3	2	1
SubTotal				
B. High Expectations Environment:				
1. Knows and strives to meet the high expectations established by the teacher	4	3	2	1
2. Is tasked with activities and learning that are challenging but attainable	4	3	2	1
3. Is provided exemplars of high quality work	4	3	2	1
4. Is engaged in rigorous coursework, discussions, and/or tasks	4	3	2	1
5. Is asked and responds to questions that require higher order thinking (e.g., applying, evaluating, synthesizing)	4	3	2	1
SubTotal				
C. Supportive Learning Environment:				
1. Demonstrates or expresses that learning experiences are positive	4	3	2	1
2. Demonstrates positive attitude about the classroom and learning	4	3	2	1
3. Takes risks in learning (without fear of negative feedback)	4	3	2	1
4. Is provided support and assistance to understand content and accomplish tasks	4	3	2	1
5. Is provided additional/alternative instruction and feedback at the appropriate level of challenge for her/his needs	4	3	2	1
SubTotal				

	Very Evident	Evident	Somewhat Evident	Not Observed
D. Active Learning Environment:				
1. Has several opportunities to engage in discussions with teacher and other students	4	3	2	1
2. Makes connections from content to real-life experiences	4	3	2	1
3. Is actively engaged in the learning activities	4	3	2	1
SubTotal				
E. Progress Monitoring and Feedback Environment:				
1. Is asked and/or quizzed about individual progress/learning	4	3	2	1
2. Responds to teacher feedback to improve understanding	4	3	2	1
3. Demonstrates or verbalizes understanding of the lesson/content	4	3	2	1
4. Understands how her/his work is assessed	4	3	2	1
5. Has opportunities to revise/improve work based on feedback	4	3	2	1
SubTotal				
F. Well-Managed Learning Environment:				
1. Speaks and interacts respectfully with teacher(s) and peers	4	3	2	1
2. Follows classroom rules and works well with others	4	3	2	1
3. Transitions smoothly and efficiently to activities	4	3	2	1
4. Collaborates with other students during student-centered activities	4	3	2	1
5. Knows classroom routines, behavioral expectations and consequences	4	3	2	1
SubTotal				
G. Digital Learning Environment				
1. Uses digital tools/technology to gather, evaluate, and/or use information for learning	4	3	2	1
2. Uses digital tools/technology to conduct research, solve problems, and/or create original works for learning	4	3	2	1
3. Uses digital tools/technology to communicate and work collaboratively for learning	4	3	2	1
SubTotal				
TOTAL				

NOTES:

APPENDIX B: PARTICIPANT DEMOGRAPHIC SURVEY

School _____ Participant _____

Age

18-24 25-34 35-44 45-54 55-64 65-74 75 and up

Ethnicity

White
African American
Asian / Pacific Islander
Hispanic / Latino
Native American

Language(s) Spoken at home

English
Spanish
French
Creole
Portuguese
Other _____

Education

No schooling completed
Nursery school to 8th grade
Some high school, no diploma
High school graduate, diploma or the equivalent (for example: GED)
Some college credit, no degree
Trade/technical/vocational training
Associate degree
Bachelor's degree
Master's degree
Professional degree
Doctorate degree

Employment Status

Employed for wages
Self-employed
Out of work and looking for work
Out of work but not currently looking for work
A homemaker
A student
Military
Retired
Unable to work

Marital Status

Single, never married
Married or domestic partnership
Widowed
Divorced
Separated

APPENDIX C: COTA OBSERVATION TOOL

Teacher's Name: Date: Observation # ___

School's Name: City: State: Cntry:

Observer's Name:

Subject: Grade Level:

Lesson Beginning: ___ Middle: ___ End: ___ (15-20 min. required) Time In: Time Out:

Classroom Observation Tool for Accreditation **Indicators from REACH 2.1**		**Clearly Evident**	**Minimally Evident**	**Not Observed**
1 - Student Engagement/Instructional Practice		**2**	**1**	**0**
a	The portion of the lesson observed appears to fit into a well-designed lesson/unit plan. (evident in written plan or verbal cues). (5.2)			
b	Instructional strategies are effective in keeping students actively engaged in learning. (5.5)			
c	Instruction is motivational, interactive, and multi-sensory. (5.5)			
d	Classroom activities and discussions promote higher order thinking skills. (5.5)			
e	Instruction focuses on essential knowledge and skill development. (5.5)			
f	Instructional time is used effectively, including transitions from one activity to another. (5.15)			
	Poor (0-3.2) Fair (3.3-7.2) Good (7.3-10.6) Exc. (10.7-12) Score			**0**
2 - Instructional Resources/Technology		**2**	**1**	**0**
a	Instructional resources are adequate in number, relevant, and appropriate for the learners and programs offered. (5.10, 5.11, 5.12)			
b	There is evidence of student use of technology for research, collaboration, or creation/presentation of new ideas. (5.10, 5.12, 5.13)			
c	Teachers use multi-media resources in ways that actively engage students in learning. (5.13)			
	Poor (0-1.65) Fair (1.66-3.65) Good (3.66-5.29) Exc. (5.3-6.0) Score			**0**
3 - Support for Learning		**2**	**1**	**0**
a	Students receive developmentally appropriate instruction needed to accomplish learning tasks. (2.6, 3.9)			
b	Needs of individual students are taken into consideration such as struggling learners, gifted, ELL, or cultural differences. (2.6, 3.9)			

c	*All* students have opportunities to engage in the instructional activities. (5.5)			
d	The social, emotional, spiritual, physical, and academic needs of the whole child are addressed (evidence in classroom, materials, or interactions). (1.5, 5.2, 5.4)			
	Poor (0-2.1) Fair (2.2-4.87) Good (4.88-7.0) Exc. (7.1- 8.0) Score			**0**
4 - Classroom Management		**2**	**1**	**0**
a	Students know and cooperate with classroom rules and procedures (5.14)			
b	Students know that classroom rules are fairly applied to all (5.14)			
c	Students show respect when interacting with the teacher and other students (7.2)			
	Poor (0-1.65) Fair (1.66-3.65) Good (3.66-5.29) Exc. (5.3-6.0) Score			**0**
5 - Teacher/Student Relationships		**2**	**1**	**0**
a	Student-to-student and student-to-staff relationships reflect the attitude of Christ in temperament, actions, and spoken words. (7.2, 7.4)			
b	Positive teacher-student relationships enhance the learning atmosphere in the classroom. (7.4)			
c	Students feel free to ask for help when needed. Help is given without criticism. (7.4)			
	Poor (0-1.65) Fair (1.66-3.65) Good (3.66-5.29) Exc. (5.3-6.0) Score			**0**
6 - Biblical Integration		**2**	**1**	**0**
a	Instructional activities and resources include a clear path for students to develop a biblical worldview (5.1, 5.3, 5.10)			
b	Classroom discussions, interactions, and resources foster a greater understanding of God's truth in the subject being taught (7.5)			
c	Instructional activities and resources promote personal application of biblical principles (5.2, 5.3, 7.5)			
	Poor (0-1.65) Fair (1.66-3.65) Good (3.66-5.29) Exc. (5.3-6.0) Score			**0**
7 - Assessment Strategies		**2**	**1**	**0**
a	Assessment includes progress monitoring (formative assessment), feedback, and opportunities to improve performance. (5.6)			
b	Expectations for activities and/or assessments are clear, having been communicated appropriately in advance. (5.2)			
c	Multiple assessment measures or strategies are used. (5.6)			
	Poor (0-1.65) Fair (1.66-3.65) Good (3.66-5.29) Exc. (5.3-6.0) Score			**0**

	Poor (0-13.84) Fair (13.85-30.49) Good (30.5-44.4) Exc. (44.5.-50) ***Total Score***			**0**
	Briefly describe: (if observed)			
	Values multiple, global, diverse perspectives? + -			
1				
	Assessment of/for learning? + -			
2				
	Use of technology? + - (by students? By teachers?)			
3				
	Briefly summarize:			
	Highlight of the class period:			
4				
	Most needed improvement:			
5				

APPENDIX D: ACSI CORRESPONDANCE

From: Matt Ozolnieks <MattO@ccaeagles.org>
Sent: Tuesday, June 12, 2018 9:41 PM
To: David Holtzhouse <David_Holtzhouse@acsi.org>
Subject: Doctoral Research Project in South Florida

Mr. Holtzhouse,

As a teacher in an ACSI school and a proponent of the power of Christian education, I would like to enlist your assistance in identifying and recruiting participant schools for a study that I propose in the Lived Experience of Middle School Parents in the 21st Century Learning Model. The research involves a small sample size (approximately three ACSI schools in South Florida) and perhaps 10-15 individuals (three-to-five per school).

I will need to know what technology-rich ACSI schools have successfully passed accreditation or are planning on doing so in the next few months as my research may also pair well with accreditation team work. Individual interviews and focus groups will be used to gather data.

The results of this study will address a gap in the general literature regarding the adoption of technology rich learning methods, and hopefully, help guide ACSI schools in the effective adoption and improvement of technology in our schools.

I will be conducting my research under the guidance of Liberty University and will adhere to all IRB standards concerning research that includes human participants.

I have attached my current manuscript which includes the details of my research plan for your consideration.

Please let me know what I need to do to proceed with your assistance. This summer I may be contacted at my home phone (954-778-1831).

Blessings,

Matt Ozolnieks, Ed.S., M.Ed.
AP Capstone Research
AP Capstone Seminar
AP US Government & Politics

CALVARY CHRISTIAN ACADEMY

Matto@ccaeagles.org
954-905-5343
2401 West Cypress Creek Road
Ft. Lauderdale, FL 33309

APPENDIX E: ACSI SCHOOL RECOMMENDATIONS

Matt,
Thank you for your email and bravo to your research project! I'm glad to see this level of research being conducted that will benefit our schools. I hope that I can be of assistance to you. Obviously, you serve in a tech rich school there at Calvary. Unfortunately, your school is one of the few tech rich accredited schools in South Florida. So let's try the following:

[redacted]

Matt, I've copied the HOS's on this email so that they won't be surprised to receive a phone call from you regarding your doctoral research project. I hope we can be of assistance.

David

DAVID K HOLTZHOUSE
Regional Director | Florida/Caribbean Region

Association of Christian Schools International
Florida/Caribbean Region
25941 US Highway 19 N # 16362
Clearwater, FL 33763-2002
Office: 727.734.7096
ACSI.org

ACSI
STRONGER TOGETHER
FLORIDA / CARIBBEAN

APPENDIX F: CONSENT FORM

CONSENT FORM

Parental Perspectives On Twenty-First Century Learning Environments In Private Middle Schools: A Phenomenological Study

Matthew Ozolnieks
Liberty University
School of Education

You are invited to be in a research study on the experiences of middle school parents in technology-rich middle school environments. You were selected as a possible participant because you are the parent of a middle school student enrolled in a technology-rich ACSI school in South Florida. Please read this form and ask any questions you may have before agreeing to be in the study.

Matthew Ozolnieks, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this study is to understand the lived experiences of parents of middle school students enrolled in private, technology-rich ACSI schools in South Florida. The results of this study will inform educators about the experiences of parents as they navigate through new technology tools and techniques within this critical developmental period.

Procedures: If you agree to be in this study, I would ask you to do the following things:

1. Take part in a personal interview. This interview will last about an hour and will include questions about your understanding of and experiences with instructional technology tools and techniques used your child's school. Interviews will be audio recorded for transcription. Written notes will also be taken.
2. Provide a token image or object that reflects your experience with the technology-rich learning environment. This object will be presented at the interview. This process will take less than 10 minutes. Photos will be taken of the item and discussions will be audio recorded for transcription. Written notes will also be taken.
3. Take part in a focus group with other participants. This focus group will last about an hour. All willing participants in this study will take part in the focus group. Focus groups will be audio recorded for transcription. Written notes will also be taken.

Risks: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life. As a mandatory reporter, the researcher is required to disclose information that reflects child abuse, child neglect, elder abuse, or intent to harm self or others.

Benefits:

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include improved educator understanding of parents' experiences in the technology-rich learning environment, and improved procedures for adoption and implementation of new technology tools and techniques especially as it relates to middle school parents as stakeholders.

Compensation: Participants will be compensated for participating in this study. Participants that complete the study will receive a $20 gift card as consideration of their time.

Confidentiality: The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a participant. Research records will be stored securely, and only the researcher will have access to the records. I may share the data I collect from you for use in future research studies or with other researchers; if I share the data that I collect about you, I will remove any information that could identify you, if applicable, before I share the data.

Include the following in this section:

- To protect the identity of participants, participants will be assigned a pseudonym. I will conduct the interviews in a location where others will not easily overhear the conversation.
- Data will be stored on a password locked computer and may be used in future presentations. After three years, all electronic records will be deleted.
- Interviews will be recorded and transcribed. Recordings will be stored on a password locked computer for three years and then erased. Only the researcher will have access to these recordings.
- Limitations of confidentiality: The researcher cannot assure participants that other members of the focus group will not share what was discussed with persons outside of the group.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you, apart from focus group data, will be destroyed immediately and will not be included in this study. Focus group data will not be destroyed, but your contributions to the focus group will not be included in the study if you choose to withdraw.

Contacts and Questions: The researcher conducting this study is Matthew Ozolnieks. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at 954-778-1831 or moozolnieks@liberty.edu. You may also contact the researcher's faculty chair, Dr. Meredith Park, at mjpark@liberty.edu.
If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 1887, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

☐ The researcher has my permission to audio-record/ photograph me as part of my participation in this study.

_____

Signature of Participant Date

_____

Signature of Investigator Date

APPENDIX G:SITE ADMINISTRATORS APPROVAL

Site Administrator Approvals

01AUG2018

[redacted]
Head of school
[redacted]
Miami, FL 33168

Dear Matthew Ozolnieks:

After careful review of your research proposal entitled Parental Perspectives On Twenty-First Century Learning Environments In Private Middle Schools: A Phenomenological Study, I have decided to grant you permission to conduct your study among middle school parents at

[redacted]

Check the following boxes, as applicable:

☐ Data will be provided to the researcher stripped of any identifying information.

☐ I/We are requesting a copy of the results upon study completion and/or publication.

Sincerely,

[redacted]
Head of School
[redacted]

01AUG2018

[redacted]
Assistant Head of school
[redacted]

Dear Matthew Ozolnieks:

After careful review of your research proposal entitled Parental Perspectives On Twenty-First Century Learning Environments In Private Middle Schools: A Phenomenological Study, I have decided to grant you permission to conduct your study among middle school parents at [redacted]

Check the following boxes, as applicable:

☐ Data will be provided to the researcher stripped of any identifying information.

☐ I/We are requesting a copy of the results upon study completion and/or publication.

Sincerely,

[redacted]
Assistant Head of school
[redacted]

01AUG2018

[redacted]

Dear Matthew Ozolnieks:

After careful review of your research proposal entitled Parental Perspectives On Twenty-First Century Learning Environments In Private Middle Schools: A Phenomenological Study, I have decided to grant you permission to conduct your study among middle school parents at [redacted]

Check the following boxes, as applicable:

☐ Data will be provided to the researcher stripped of any identifying information.

☐ I/We are requesting a copy of the results upon study completion and/or publication.

Sincerely,

[redacted]
Head of school
[redacted]

01AUG2018

[redacted]

Dear Matthew Ozolnieks:

After careful review of your research proposal entitled Parental Perspectives On Twenty-First Century Learning Environments In Private Middle Schools: A Phenomenological Study, I have decided to grant you permission to conduct your study among middle school parents at [redacted]

Check the following boxes, as applicable:

☐ Data will be provided to the researcher stripped of any identifying information.

☐ I/We are requesting a copy of the results upon study completion and/or publication.

Sincerely,

[redacted]
Head of School
[redacted]

APPENDIX H: PARTICIPANT RECRUITMENT FOLLOW-UP

Participant Recruitment Follow-up

[Insert Date]

[Recipient]
[Title]
[Company]
[Address 1]
[Address 2]
[Address 3]

Dear [Recipient]:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctoral degree. Last week an email was sent to you inviting you to participate in a research study. This follow-up email is being sent to remind you to respond if you would like to participate and have not already done so. The deadline for participation is [Date].

If you choose to participate, you will be asked to take part in an interview, provide an item that best reflects your experience with the technology rich middle school environment, and take part in a focus group. It should take approximately two hours for you to complete the procedures listed. Your name and/or other identifying information will be requested as part of your participation, but the information will remain confidential.

To participate, contact me to schedule an interview. You may contact me at 954-778-1831 or moozolnieks@liberty.edu.

A consent document will be given to you at the time of the interview. The attached informed consent document contains additional information about my research, please sign the informed consent document and return it to me at the time of the interview.
If you choose to participate, you will receive a $20 gift card.

Sincerely,

Matthew Ozolnieks
Doctoral Candidate

APPENDIX I: RECRUITMENT LETTER

[Insert Date]

[Recipient]
[Title]
[Company]
[Address 1]
[Address 2]
[Address 3]

Dear [Recipient]:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The purpose of my research is to understand the lived experiences of parents of middle school students enrolled in private, twenty-first century learning model ACSI schools in South Florida, and I am writing to invite you to participate in my study.

If you are the parent of a middle school student enrolled in a technology rich ACSI school in South Florida, and are willing to participate, you will be asked to take part in an interview, provide an item that best reflects your experience with the technology rich middle school environment, and take part in a focus group. It should take approximately two hours for you to complete the procedures listed. Your name and/or other identifying information will be requested as part of your participation, but the information will remain confidential.

To participate contact me to schedule an interview at 954-778-1831 or moozolnieks@liberty.edu.

A consent document is attached to this letter for informational purposes. At the time of the interview a copy will be provided for you to sign. The consent document contains additional information about my research, but you do not need to sign and return it at this time.

If you choose to participate, you will receive a $20 gift card.

Sincerely,

Matthew Ozolnieks
Doctoral Candidate

APPENDIX J: RECRUITMENT FLYER

Research Participants Needed

Parental Perspectives On Twenty-First Century Learning Environments In Private Middle Schools: A Phenomenological Study

- Are you the parent of a middle school student at a technology-rich school?
- Are you willing to share your thoughts, ideas and experiences?

If you answered **yes** to either of these questions, you may be eligible to participate in an education research study.

The purpose of this study is to understand the lived experiences of parents of middle school students enrolled in private, technology-rich ACSI schools in South Florida. Participants will be asked to take part in an interview, provide an item that symbolizes their personal experience, and take part in a focus group. Participants will receive token monetary compensation.

Parents of middle school students currently enrolled in technology-rich ACSI schools in South Florida are eligible.

Interviews will take place on your school campus.

Let's talk about educational technology!

Please contact Matthew Ozolnieks at (954) 778-1831 or moozolnieks@liberty.edu for more information.

APPENDIX K: ISTE STANDARDS FOR TEACHERS

ISTE Standards

International Society for Technology in Education

ISTE Standards Teachers

Effective teachers model and apply the ISTE Standards for Students (Standards•S) as they design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community. All teachers should meet the following standards and performance indicators.

1. Facilitate and inspire student learning and creativity

Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments.

a. Promote, support, and model creative and innovative thinking and inventiveness

b. Engage students in exploring real-world issues and solving authentic problems using digital tools and resources

c. Promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes

d. Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments

2. Design and develop digital age learning experiences and assessments

Teachers design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the Standards•S.

a. Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity

b. Develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress

c. Customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources

d. Provide students with multiple and varied formative and summative assessments aligned with content and technology standards, and use resulting data to inform learning and teaching

3. Model digital age work and learning

Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society.

a. Demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations

b. Collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation

APPENDIX K: ISTE STANDARDS FOR EDUCATORS

ISTE STANDARDS

FOR EDUCATORS

Empowered Professional

1. Learner

Educators continually improve their practice by learning from and with others and exploring proven and promising practices that leverage technology to improve student learning. Educators:

a. Set professional learning goals to explore and apply pedagogical approaches made possible by technology and reflect on their effectiveness.
b. Pursue professional interests by creating and actively participating in local and global learning networks.
c. Stay current with research that supports improved student learning outcomes, including findings from the learning sciences.

2. Leader

Educators seek out opportunities for leadership to support student empowerment and success and to improve teaching and learning. Educators:

a. Shape, advance and accelerate a shared vision for empowered learning with technology by engaging with education stakeholders.
b. Advocate for equitable access to educational technology, digital content and learning opportunities to meet the diverse needs of all students.
c. Model for colleagues the identification, exploration, evaluation, curation and adoption of new digital resources and tools for learning.

3. Citizen

Educators inspire students to positively contribute to and responsibly participate in the digital world. Educators:

a. Create experiences for learners to make positive, socially responsible contributions and exhibit empathetic behavior online that build relationships and community.
b. Establish a learning culture that promotes curiosity and critical examination of online resources and fosters digital literacy and media fluency.
c. Mentor students in the safe, legal and ethical practices with digital tools and the protection of intellectual rights and property.
d. Model and promote management of personal data and digital identity and protect student data privacy.

Learning Catalyst

4. Collaborator

Educators dedicate time to collaborate with both colleagues and students to improve practice, discover and share resources and ideas, and solve problems. Educators:

a. Dedicate planning time to collaborate with colleagues to create authentic learning experiences that leverage technology.
b. Collaborate and co-learn with students to discover and use new digital resources and diagnose and troubleshoot technology issues.
c. Use collaborative tools to expand students' authentic, real-world learning experiences by engaging virtually with experts, teams and students, locally and globally.
d. Demonstrate cultural competency when communicating with students, parents and colleagues and interact with them as co-collaborators in student learning.

5. Designer

Educators design authentic, learner-driven activities and environments that recognize and accommodate learner variability. Educators:

a. Use technology to create, adapt and personalize learning experiences that foster independent learning and accommodate learner differences and needs.
b. Design authentic learning activities that align with content area standards and use digital tools and resources to maximize active, deep learning.
c. Explore and apply instructional design principles to create innovative digital learning environments that engage and support learning.

6. Facilitator

Educators facilitate learning with technology to support student achievement of the 2016 ISTE Standards for Students. Educators:

a. Foster a culture where students take ownership of their learning goals and outcomes in both independent and group settings.
b. Manage the use of technology and student learning strategies in digital platforms, virtual environments, hands-on makerspaces or in the field.
c. Create learning opportunities that challenge students to use a design process and computational thinking to innovate and solve problems.
d. Model and nurture creativity and creative expression to communicate ideas, knowledge or connections.

7. Analyst

Educators understand and use data to drive their instruction and support students in achieving their learning goals. Educators:

a. Provide alternative ways for students to demonstrate competency and reflect on their learning using technology.
b. Use technology to design and implement a variety of formative and summative assessments that accommodate learner needs, provide timely feedback to students and inform instruction.
c. Use assessment data to guide progress and communicate with students, parents and education stakeholders to build student self-direction

APPENDIX L: ISTE STANDARDS FOR STUDENTS

ISTE Standards

International Society for Technology in Education

ISTE Standards Students

1. Creativity and innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

a. Apply existing knowledge to generate new ideas, products, or processes

b. Create original works as a means of personal or group expression

c. Use models and simulations to explore complex systems and issues

d. Identify trends and forecast possibilities

2. Communication and collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media

b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats

c. Develop cultural understanding and global awareness by engaging with learners of other cultures

d. Contribute to project teams to produce original works or solve problems

3. Research and information fluency

Students apply digital tools to gather, evaluate, and use information.

a. Plan strategies to guide inquiry

b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media

c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks

d. Process data and report results

4. Critical thinking, problem solving, and decision making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

a. Identify and define authentic problems and significant questions for investigation

b. Plan and manage activities to develop a solution or complete a project

c. Collect and analyze data to identify solutions and/or make informed decisions

d. Use multiple processes and diverse perspectives to explore alternative solutions

5. Digital citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

a. Advocate and practice safe, legal, and responsible use of information and technology

b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity

c. Demonstrate personal responsibility for lifelong learning

d. Exhibit leadership for digital citizenship

6. Technology operations and concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations.

a. Understand and use technology systems

b. Select and use applications effectively and productively

c. Troubleshoot systems and applications

d. Transfer current knowledge to learning of new technologies

APPENDIX M: IRB APPROVAL

APPENDIX N: PARTICIPANT CONSENT FORM

and The Liberty University Institutional Review Board has approved this document for use from 10/29/2018 to 10/28/2019 Protocol # 3499.102918 implementation of new technology tools and techniques especially as it relates to middle school parents as stakeholders.

Compensation: Participants will be compensated for participating in this study. Participants that complete the study will receive a $20 gift card as consideration of their time.

Confidentiality: The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a participant. Research records will be stored securely, and only the researcher will have access to the records. I may share the data I collect from you for use in future research studies or with other researchers; if I share the data that I collect about you, I will remove any information that could identify you, if applicable, before I share the data.

- • _To protect the identity of participants, participants will be assigned a pseudonym. I will conduct the interviews in a location where others will not easily overhear the conversation.
- • _Data will be stored on a password locked computer and may be used in future presentations. After three years, all electronic records will be deleted.
- • _Interviews will be recorded and transcribed. Recordings will be stored on a password locked computer for three years and then erased. Only the researcher will have access to these recordings.
- • _The researcher cannot assure participants that other members of the focus group will not share what was discussed with persons outside of the group.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you, apart from focus group data, will be destroyed immediately and will not be included in this study. Focus group data will not be destroyed, but your contributions to the focus group will not be included in the study if you choose to withdraw.

Contacts and Questions: The researcher conducting this study is Matthew Ozolnieks. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at 954-778-1831 or moozolnieks@liberty.edu. You may also contact the researcher's faculty chair, Dr. Meredith Park, at mjpark@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records. The Liberty University Institutional Review Board has approved this document for use from 10/29/2018 to 10/28/2019 Protocol # 3499.102918

Statement of Consent: I have read and understood the above information. I have asked questions and received answers. I consent to participate in the study.

☐ The researcher has my permission to audio-record me as part of my participation in this study.

_____

Signature of Participant / Date

_____

Signature of Investigator / Date