

Cultural Transformation: An Exploratory Case Study on Latinx Internet Access

by

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Abstract

The ramifications of Latinx families being exposed to increased access to the Internet, through school district programs sending home Internet-capable devices with students, was unknown. There exists a need to conduct research in order to understand what affects forced, increased access to the Internet might be having on the home culture of Latinx families. The research fills a gap in research on how Latinx families perceive, view, and make use of technology forcibly sent into homes. Using a framework of critical race theory was appropriate for examining a racial group and a phenomenon experienced by the group. Latinx families explained the affects Internet-capable devices sent home were having on Latinx home culture. Further compared and contrasted were cultural differences experienced from previous limited access to the Internet to increased access of the Internet. Latinx families shared perceived benefits and detriments experienced with the school district initiative in sending home Internet-capable devices. The overall purpose of the exploratory case study was to understand how increased access to Internet-capable technology affected Latinx home cultural dynamics as well as lingering effects from the transition. The research subjects were 17 randomly sampled Latinx families who had students participating in the Internet-capable device take-home initiative enacted by one particular school district. Coding and member checking were used on the questionnaire, in-depth interviews, and a focus group in which all 17 families participated.

Dedication

Thank you to all of whom helped me in some way. Some may never know they helped me and some were essential in their guidance. I further dedicate this research study to my children and my grandson. All of whom I hope spend a lifetime cultivating a sense of wonder and a love for learning. To all of you this dissertation is dedicated.

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Chapter 1: Introduction

Technology could be a powerful tool for transformative education and learning if applied in ways which prove innovative and meaningful (Magana, 2017). Educational uses of technology were known to increase student engagement (Peterson, 2017) and might be a catalyst toward student achievement success (S. Flores & Flores, 2018). In order to meet the needs of 21st-century learners, school districts have not only purchased computers for each student, but many districts were beginning to send students home with Internet-capable devices in an effort to provide 24/7/365 equity and access to technology and learning (Zalaznik, 2018). These 1:1 take-home initiatives do not take into account how the home learning environment and culture might be dramatically altered (Fleischer, 2017).

The research explored how having Internet-capable devices being sent home with students, via district initiatives, might be altering the culture of Latinx households. The research was necessary to understand the ramifications of school district initiatives where technology was sent home with students and how technology might affect student lives and the lives of student's families, who were exposed to new or increased technology within homes. As technology initiatives in which Internet-capable devices being sent home was a recent development (Zalaznik, 2018), the study was timely and should serve as a base for further research. Further studies should find benefit in the study whenever one culture creates initiatives which could affect another culture.

Chapter 1 serves as an introduction to the exploratory research on Latinx families and the use of educational technology within homes and how technology might be altering lives. Sections of Chapter 1 explain the background of the problem and offer a statement of the

problem researched. A section on the purpose of the study details as to exactly who, what, and where were included in the study and offers information on why and how the study operated. Another section on the significance of the study gives reasons for why research on the topic was necessary and how new research should advance knowledge about the topic of study. Next, the research questions were clearly stated and followed by a hypothesis on what the research uncovered. The chapter continues with sections on the theoretical and conceptual frameworks which were used for research, definitions of terms used, and any assumptions which were necessary or unavoidable with the research. A further section deals with establishing the scope and delimitations of the research and further describes the physical boundaries which limited the study and discusses any potential for transferability of the results of the research. A following section is one on limitations which were anticipated and experienced through the research design to be utilized. The final section serves as a summary of Chapter 1.

Background of the Study

One school district in Southern California, whose student body was comprised of 76.5% Latinx students (Val Verde Unified School District [VVUSD], 2019), was trying to remedy the lack of computers in impoverished homes by sending Internet-capable computers home with all district students beginning with the 2017–2018 school year. The initiative was started by a particular district to further digital literacy and initiated in a spirit of altruism. In district correspondence with stakeholders, the district expressed how all family members of the students were allowed to use these computers (M. Penner, personal communication, May 18, 2018). Anecdotal evidence on how the district families were experiencing detriments and benefits of

increased technology in the home have been heard from various stakeholders. These families were never included in the implementation of the initiative.

There was little research found on 1:1 computer initiatives from school districts and little research on the intersection of Latinx people and technology (Guerra-Nunez, 2017; Vaala, 2013). In conducting searches for relevant research, search terms were determined which yielded results fitting into these categories: computers and Latinx student achievement, integration of technology in the classroom, language and literacy issues with technology, student achievement with technology, cultural and demographic factors of Latinx families and technology, and Latinx technology use. As Latinx populations continue to grow, there existed a need to explore interactions and phenomenon which might have effects with the Latinx demographic population. Critical race theory (CRT) was one relevant theory from which research could begin when examining racial groups and a certain phenomenon (Denzin, 2005).

Statement of the Problem

The problem analyzed was how having an Internet-capable device sent home with Latinx students might be affecting the culture of the Latinx household. School districts sending home Internet-capable devices into the homes of students was a recent trend (Bennet, 2017; Lamb & Weiner, 2018; Zalaznik, 2018). Around the world people from differing locales are known for unique racial and cultural contributions to life. Latinx people were no different in having many unique contributions and were revered as a group for many racial and cultural aspects as well. While there existed much research on Latinx (Hispanic, etc.) people and interaction and relation within different contexts and situations, not much had been done to document how the Latinx demographic aligned with technology use (Guerra-Nunez, 2017; Vaala, 2013). The research

study should fill a gap in the literature as to how Latinx families perceived, viewed, and used technology sent into homes.

There was a crucial need to determine what effects similar initiatives might be having on Latinx families (Guerra-Nunez, 2017). There was a secondary need to discover if institutional racism was exerting influence with technology initiatives aimed at providing equity and access (Lamb & Weiner, 2018; Zorn, 2018). There existed little research behind computer 1:1 initiatives and the effects on student's families, making the conducted research relevant, and meaningful in identifying aspects for further research (Bussert-Webb & Henry, 2016; Guerra-Nunez, 2017; Lamb & Weiner, 2018; Livingston, 2011).

Purpose of the Study

The purpose of the qualitative exploratory case study was to determine any cultural effects of having an Internet-capable laptop in the hands of predominantly impoverished Latinx students, and families, who previously had no, or limited, digital access at home. Since there was no clear outcome of the initiative to be researched, an exploratory case study was appropriate to use with the study at hand (Baxter & Jack, 2008). A case study uses real-life context to study a phenomenon (Yin, 2009). The research was timely given the trend of Internet-capable devices being sent into the homes of students. Latinx students, and families by extension, comprised an ever-increasing population demographic in public schools, and were the focus of research. Latinx adults within the student's homes were surveyed and interviewed to explore the effects of increased technology on a historically impoverished demographic.

The research created new knowledge on how computer 1:1 initiatives might be altering the home culture of Latinx students, which could be used as a basis for further research with

Latinx or transferred to other populations. Through coding of surveys and in-depth interviews, results were analyzed and shared in an effort to further understanding of the intersection of the Latinx demographic group and technology use and what constitutes true equity and access for Latinx people. The research was devised as a means by which to better understand how to meet the needs of Latinx students and families with technology (Delgado & Stefancic, 2012).

Significance of the Study

The research provided new knowledge on how Latinx family and home culture were affected by increased technology sent into homes by students participating in 1:1 take-home initiatives (Bennet, 2017). Many school districts were trying to meet the demands of the 21st-century learner and skill and knowledge acquisition by ensuring equity and access with educational technology (Magana, 2017). Resulting findings should guide school districts and educational leaders to craft technology initiatives which not only provide equity and access, but further mindful to be race conscious and ensure a greater justice for all students. Resulting research suggested how practices should be improved to include all stakeholders on decisions which might affect different groups of students and families. Findings illustrated ways in which to better meet the needs of diverse student populations and the student's families by extension.

There were implications within the research to increase race-conscious decision making in an effort to abolish vestiges of institutional racism, which might exist whenever stakeholder's needs were not considered (Zorn, 2018). The research might be catalytic in serving as evidence with efforts to promote beneficence, equality, and justice for all students and families within a school district. While the research should help stakeholders within education, there existed a possibility of the research being applicable to any organization which might create initiatives for

a diverse demographic population of members. The need for race-conscious decision making in regard to initiatives involving technology might be seen applied universally in contexts dealing with the interaction of technology and people (Delgado & Stefancic, 2012).

Research Questions

The purpose of the qualitative exploratory case study was to determine any cultural effects of having an Internet-capable laptop in the hands of predominantly impoverished Latinx students, and families, who previously had no, or limited, digital access at home. In order to uncover basic data and discover basic truths, research questions were developed to guide the research in a logical way:

Research Question 1: What do Latinx families explain as the effects to culture felt by increased digital access due to the Internet-capable computers being sent home with Latinx students?

Research Question 2: What changes do Latinx families experience with Internet-capable computers being used at home in ways which reflect a cultural difference from previous limited digital access to increased digital access?

Research Question 3: What cultural shifts are Latinx families experiencing, including benefits or detriments, in having Internet-capable computers brought home?

Besides these research questions, some general questions were entertained, such as, how should initiatives involving the intersection of humans and technology be created in order to maintain beneficence, equity, and ever greater justice? What could an institution do to ensure institutional racism does not factor into any initiatives involving technology and people? Additional questions which arose through the research were described and resulting data were added to the findings.

Theoretical Framework

Adopting CRT as a theoretical framework was beneficial when studying different racial populations of people. CRT could be employed in research design as a means by which to draw understanding from the examination of the tendencies, perspectives, habits, and assumptions of a particular race of people to be studied (Denzin, 2005). In education, public school districts were often comprised of students from many different racial and cultural backgrounds. Groves-Price (2019) asserted using CRT as a framework allowed educational leaders a perspective from which to craft solutions which provide equality and greater justice for students through a race-conscious approach.

CRT originated in U.S. law schools during the 1980s with a group of lawyers who broke away from critical legal studies because race was not being acknowledged within the legal system. The group which created CRT believed race to be a central component in the challenging of unfair laws (A. Martinez, 2014). CRT as a lens uncovers achievement gaps between Latinx students and White peers in education and further identifies institutional racism (Zorn, 2018). Some proponents assert CRT should be imperative in order to understand students, and by extension families, of color as families experience education saddled within the constraints of a culture of poverty (Delgado & Stefancic, 2012).

There existed a large body of work on how students of differing racial and cultural backgrounds learn in ways best suited to match the culture ascribed to. Some of the research work specifically addressed how these students learn best through interaction with emerging technology. Computers and other technology being integrated into a classroom make up a portion of the existing research. Other research might be found on language and literacy with

technology, student achievement success when coupled with technology, and overall use of technology with a specific demographic of people.

Definitions of Terms

The following terms are defined as applicable to the study. These terms were needed to develop an understanding of concepts relevant to Latinx and education. Having an understanding of these terms guided the research.

Critical Race Theory: A theoretical framework concerned with racial assumptions, cultural logics, habits, perceptions, ideas, and attitudes of a people, which might used as a basis from which to review past research and conduct research on the intersection of technology and race (Denzin, 2005).

Culturally relevant teaching: Using the cultural concerns, strengths, interests, and hobbies of students to increase learning motivation and academic achievement (Mackay & Strickland, 2018).

Equity and access: The ideology in which programs are developed to supply equity for at-risk populations, ensuring these groups access to the same treatment as populations not at risk, especially in the distribution of educational technology (Warschauer, Zheng, Niiya, Cotten, & Farkas, 2014).

4Cs: Four specific skills for 21st-century learning: communication, collaboration, critical thinking, and creativity (Magana, 2017).

Institutional/structural racism: Type of racism which exists when institutional power bases establish systematic ignorance, and exploit the ignorance, which terminates in the oppression of people of color (Hiraldo, 2019; Zorn, 2018).

Latinx: Referring to people of Latin American descent in a way perceived as gender inclusive (Padilla, 2016).

Limitations

The limitations of the study were few, but included the natural setting and time. The potential sample size was limited to one public school district and the participants had to make time to meet to complete questionnaires, interviews, and the focus group. Since the setting was a particular school district, there might exist a difficulty for an exact replication of the study as related to validity and reliability (Wiersma, 1999). Credibility was maintained with sample families through member checking of transcribed interviews (Saldaña, 2013; Winters & Netscher, 2016). Deadlines might have been perceived as a time constraint if there was not enough time given for completion of tasks by respondents (Delva, Kirby, Knapper, & Birtwhistle, 2002). Adhering to deadlines did not appear as a constraint during the study. Although the study was focused on one demographic group, findings might be transferable to studies involving other non-Latinx demographic groups and interaction with technology within homes (Delgado & Stefancic, 2012). All data were maintained per IRB regulations and could be made available for scrutiny in ways which adhere to the anonymity guidelines of IRB and exude dependability through reproduction. Confirmability was established through the checking and rechecking of data (Fontana & Frey, 2005).

Scope and Delimitations

The study focused on one public school district in Southern California. The final sample of participants was comprised of 17 families who self-identified as Latinx. Of these 17 families, seven families had students at the elementary level, another five families had students at the

middle school level, and the last five families had students at the high school level. Only parents or other adult members, living within the same household as the student, were interviewed. Students were not present during data collection and no students were interviewed. In the exploratory research, the families which were interviewed all met specific criteria in order to participate (Starman, 2013). Families had at least one student enrolled in the district of study and the student(s) had to be participating in the 1:1 take-home initiative.

To prevent the possible limitation of related to a families dropping out of the study, an additional set of 12 families were chosen as alternates. None of these additional families were used as none of the initial participants dropped out of the study. All families were informed of rights to anonymity, confidential participation, and ethical considerations as laid out per Institutional Review Board (IRB). All data collected from families was coded in a numerical configuration and no names were ever used in order to protect privacy. All efforts were made to ensure no participants were harmed in any way and anonymity was maintained at all times (Fontana & Frey, 2005).

Assumptions

Given the altruistic intent of most school districts and educational leaders, there was a possibility to hypothesize, in most instances, when institutional racism appears, the racism was created unintentionally (Zorn, 2018). An assumption was made as to how educational leaders might change policies and procedures to better steer away from any potential racism and become more race conscious in decision making. There was another assumption all participants would be able to answer survey and interview questions in a candid and honest manner as participation was voluntary. A further assumption made was in voluntary participation being a part of

knowing there would be an appropriate monetary compensation at the end of the study (Kaba & Beran, 2014). There was an expectation that participants would be content with the findings of the research. A final hypothesis was on how the research should be of future use to people studying the intersection of diverse populations and technology (Delgado & Stefancic, 2012).

Chapter Summary

Chapter 1 serves as an introduction and summary of the 1:1 computer take-home initiatives which were being started by school districts in an effort to provide equity and access (Zalaznik, 2018) and how these initiatives might be altering the home culture of Latinx families (Fleischer, 2017). The problem uncovered a gap in the literature. A qualitative exploratory case study was the framework chosen for the study in order to explore how Latinx family culture might be affected by having technology sent home with students from one particular school district. Interviews were conducted on a stratified sample of 17 district families in order to explore experiences with the technology initiative. The significance of the study was established by the gap found in the literature and the timely relevance of such a study with increased emerging educational technology and how divergent populations interact with the technology.

The results of the study should provide insight on how technology might best be deployed by an institution to meet the needs of stakeholders with respect to culture, perceptions, and ideas. The research questions guiding the study were stated and key terms were defined. Assumptions, limitations, and delimitations of the study were recognized and outlined prior to the commencement of research. Chapter 2 serves as an in-depth overview of the theoretical framework employed by the study and includes a detailed review of literature pertaining to the study.

Chapter 2: Literature Review

The problem analyzed was how having an Internet-capable device sent home with Latinx students might be affecting the culture of the Latinx household. School districts sending home Internet-capable devices into the homes of students was a recent trend (Bennet, 2017; Lamb & Weiner, 2018; Zalaznik, 2018). The purpose of the qualitative exploratory case study was to determine any cultural effects of having an Internet-capable laptop in the hands of predominantly impoverished Latinx students, and families, who previously had no, or limited, digital access at home. Since there was no clear outcome of the initiative to be researched, an exploratory case study was appropriate to use with the study (Baxter & Jack, 2008).

Even though the sending home of Internet-capable computers was a new trend (Bennet, 2017; Lamb & Weiner, 2018; Zalaznik, 2018) with little research behind such initiatives (Bussert-Webb & Henry, 2016; Guerra-Nunez, 2017; Lamb & Weiner, 2018; Livingston, 2011), there was a need to conduct the research to determine any effects on the culture of the Latinx demographic (Guerra-Nunez, 2017). With an increasing number of school districts sending computers into student's homes, there was a relevant imperative to examine similar past research, which might shed light on ways to focus the research and identify areas to investigate further (Bussert-Webb & Henry, 2016; Guerra-Nunez, 2017; Lamb & Weiner, 2018; Livingston, 2011).

Chapter 2 serves as a review and summary of the outcomes of previous research conducted on Latinx students and Latinx families and the intersection of technology and the effects upon Latinx lives. The lack of information identified as pertaining to the central issue of Latinx families of students bringing school-issued computers into Latinx homes and the effects

of increased access to the Internet established the need for the study. The stated research questions in Chapter 1 were used as a strategical basis in determining articles to review in Chapter 2 (Grewal, Kataria, & Dhawan, 2016). All research was examined through the theoretical framework of CRT as a means by which to better understand the assumptions, perspectives, habits, and tendencies of Latinx and personal use of technology (Denzin, 2005). The main body of Chapter 2 was comprised of a summary of the reviewed research articles and an examination of the emergent themes. The final part of Chapter 2 represented an overall summary of the findings of the research reviewed.

Literature Search Strategy

Searches were made using key terms in the EBSCO Discovery service search engine and the ProQuest search engine. Both of these search engines were available from the American College of Education library. Key terms were formed from the research questions, which were then reviewed and categorized, leading to the collection of the literature for the review (Grewal et al., 2016). The main terms and phrases used in conducting searches for past research were multiple variations of the key terms *Latinx*, *Latino*, *Latina*, *Spanish*, and *Hispanic* combined with the terms *technology*, *computers*, or *education*. Some searches were made using the key terms and adding longer phrases such as *access and equity*, *culturally relevant*, *poverty culture*, *multicultural learning*, and others. As there was little existing research regarding the topic of study, various configurations of searches and terms had to be used in order to find all pertinent research related to the study.

All research articles were evaluated for relevancy, authoritativeness, accuracy (peer reviewed, included reference list), objectiveness, and whether current sources of information

were used in the formation of the articles. Themes emerged from the categorization and organization of literature reviewed. Three major themes were developed from the process: computers and Latinx student achievement, cultural and demographic factors of Latinx families and technology, Latinx and overall technology use. These emergent themes were used to organize Chapter 2.

Theoretical Framework

CRT, as proposed by Delgado and Stefancic (2012) and Denzin (2005), was the theoretical framework utilized by the research study. CRT was utilized as the theoretical framework was concerned with racial assumptions, cultural logics, habits, perceptions, ideas, and attitudes of a people. CRT was used as a basis from which to review past research and conduct research on the intersection of technology and race (Denzin, 2005). Using a CRT lens gave an explanation regarding the achievement gaps between Latinx students and White peers in education and further sought to identify any structural racism (Zorn, 2018). There was an imperative need to examine the Latinx experience with CRT to understand how certain aspects play a role in the formation of attitudes and perceptions relating to the Latinx group and technology use. As Latinx often contend with living in a culture of poverty, high dropout rates, lower socioeconomic stress, broken homes, and inaccessibility to technology, these aspects might play an important role in Latinx technology use (Delgado & Stefancic, 2012).

The differences between race and class cannot be ignored just as racism should not be ignored. Racism starts with systematic ignorance and exploitation which might be filtered through institutional power bases and terminates in the oppression of Latinx, as well as other groups of color (Hirald, 2019; Zorn, 2018). Using CRT was an appropriate theoretical

framework to analyze and understand students of color in education. CRT acknowledges the experiences of students of color as a strength from which these students could draw upon (Solorzano & Yosso, 2001). While there existed many individual concerns which could be studied using CRT, the main reason to employ CRT was best summed up by the definition,

Critical race theory (CRT) is a framework that offers researchers, practitioners, and policy-makers a race-conscious approach to understanding educational inequality and structural racism to find solutions that lead to greater justice. Placing race at the center of analysis, critical race theory scholars interrogate policies and practices that are taken for granted to uncover the overt and covert ways that racist ideologies, structures, and institutions create and maintain racial inequality. (Groves-Price, 2019, p. 1)

CRT was the theoretical framework of the research study, which employed an inductive qualitative exploratory-descriptive case study design approach. A qualitative research approach allowed for the incorporation of the behaviors and voices of various family members (Guerra-Nunez, 2017). The complex analytical approach was what defined true qualitative research (Denzin & Lincoln, 2017). The study had a goal of recording unbiased descriptions, in a configurative-idiographic manner (Eckstein, 1975), as the study was on a little researched phenomenon (Edwards, 1998).

Digital literacy was the conceptual framework used to further understand the intersection between Latinx and technology. As technology use was growing amongst most people in North America, regardless of age, race, or gender, there was an emerging necessity for people to possess skills which enabled the successful navigation of technology use to accomplish goals (Osterman, 2012). Digital literacy includes a multitude of complex sociological, emotional,

cognitive, and motor skills (Eshet-Alkalai, 2004). The ability to perform educational, creative, and managerial tasks, along with the ability to communicate with others globally and organize and create content through the synthesis and integration of visual media were skills known as part of digital literacy (Eshet-Alkalai, 2004; Osterman, 2012). Eshet-Alkalai (2004) contends digital literacy was best defined as a survival skill consisting of a system of strategies and skills used in digital environments.

As business organizations and educational institutions increasingly rely on computer assisted tasks and assignments, there existed a pervasive growth of the Internet at school, at home, and at work (Neumann, Finger, & Neumann, 2017; Osterman, 2012). Limited research existed on which digital literacy skills were most important for survival (Neumann et al., 2017) and policymakers were behind in ensuring which skills or assessments should be taught or employed to meet the needs of people facing an age of increasing technology (Osterman, 2012). A few of the skills which were considered essential in digital literacy were communication, collaboration, critical thinking, and creativity (Bach, Wolfson, & Crowell, 2018; Eshet-Alkalai, 2004; Hebern & Corippo, 2018; Magana, 2017; Osterman, 2012).

The advent of digital technologies enables people of all ages to represent knowledge and expression in ways which are easily archived and accessible (Magana, 2017). As text moved from being fixed to fluid, moving from linear to nonlinear, the change represented a challenge for people who had a need to understand and evaluate information presented digitally (Osterman, 2012). While the digital representation of media and information might not in itself be transformational, the consumption of multisensory multimedia adds greater value to knowledge acquisition than just plain text (Magana, 2017). Digital literacy, apart from traditional literacy,

has a unique set of cognitive and procedural skills and demands which could be acquired for survival success in the 21st century (Osterman, 2012). Access to the Internet has been declared a human right by the United Nations as the Internet enables social, cultural, and economic rights including education and right of participation in cultural, social, scientific and political life (Bach et al., 2018).

Examining Latinx culture through a combination of CRT with a conceptual framework of digital literacy, allowed for several avenues of research as pertained to the intersection of Latinx and technology. For possible social change to occur, leadership theories and issues dealing with human rights with technology, social and emotional aspects of technology use, institutional racism with technology, and other social, cultural, and economic aspects of technology use with Latinx were examined. For social change to occur within a dynamic society, leadership theories should be deconstructed and reconstructed in an effort to meet cultural needs (Hiraldo, 2019). There existed a need to intersect CRT with digital literacy in order to first understand Latinx cultural norms and then address technology needs in ways which should prove altruistic, beneficial, and do no harm to Latinx cultural expectations.

The studies on educational media research and Latinx families in the United States by Guerra-Nunez (2017) and Vaala (2013) indicated little was known of these families and digital media usage and espoused a need to understand Latinx technology use in order to support Latinx and make innovative implementation of technology with the Latinx population. There was an important need to understand how the group perceived and applied technology in ways unique to the group in order to know how to best meet Latinx learning needs and help the group reach total access and equity with technology (Guerra-Nunez, 2017). There was an additional need to ensure

institutional racism was not exerting power with the group and technology initiatives (Lamb & Weiner, 2018; Zorn, 2018). While CRT was the theoretical framework most appropriate for the study, adopting digital literacy as a conceptual framework aided in discovering how Latinx perceived and made use of technology. A goal of the research was to add to the literature and uncover aspects which should be investigated further in future research (Bussert-Webb & Henry, 2016; Livingston, 2011). Through the lens of CRT and digital literacy, the literature review was divided into three main topics: computers and student achievement, cultural and demographic factors of technology and Latinx, and Latinx and technology use.

Research Literature Review

Three major themes emerged through a review of the literature: computers and Latinx student achievement, cultural and demographic factors of Latinx as applied technology, and Latinx and applied use of technology. These themes were used to guide the research. The research literature review was organized using these dominant themes.

Computers and Latinx Student Achievement

To understand how technology use in public education affected Latinx students, and district Latinx families by extension, there was a need to look at research on technology integration and learning achievement. Both Bussert-Webb and Henry (2016) and Guerra-Nunez (2017) believed the educational experience of Latinx was an education crisis needing further research. By examining research on technology integration, language and literacy issues with technology, and student achievement with technology use in the classroom, insight might be gained on how district Latinx families experienced changes in life and culture through the introduction of technology (Guerra-Nunez, 2017). Systems in place are mainly procedural and

not substantive (Delgado & Stefancic, 2012). The advent of all students no matter what the race, gender, or other demographic, receiving equal access to technology within schools might be one of the greatest substantive advances in education in many years and one which could hold substantive benefits for the families of students as well (Guerra-Nunez, 2017; Lamb & Weiner, 2018).

Integration of technology in classrooms. Another area to examine was how school districts were trying to integrate technology into classrooms and why there was a perceived need to accomplish the integration. School districts across the nation were rushing to provide students access to computers with many schools purchasing enough computers for each student. These purchases were being done in an effort to stay relevant to the needs of the 21st-century learner and the knowledge and skills with technology students need for future success (Bussert-Webb & Henry, 2016; Lamb & Weiner, 2018). Many educational leaders hold the belief students should continuously develop new literacies, skills, competencies, and knowledge to meet the demands of life and work in the 21st century, which were not necessary for success with college and career choices in the 20th century (Magana, 2017).

The drive to imbue students with the tools to ensure readiness for any future possibilities was catching on in education (Lamb & Weiner, 2018; Magana, 2017). Schools in many countries were starting to see technology as a way for students to advance and find opportunities. Schools in the United States were seeking to integrate technology into the curriculum in order to give Latinx students exposure to technology, which had been linked to successful learning (S. Flores & Flores, 2018). The move toward total inclusion of all students with these initiatives was helping to close the gap of access and equity with the technology use between Latinx and White

students and ending any possible institutionalized racism regarding access to technology which might have existed (Guerra-Nunez, 2017; Zorn, 2018). The move toward total inclusion with technology made democratization of a classroom possible, allowing for experimenting in pedagogy, ensuring full participation of a class, and gaining the benefit of instant feedback possible with digital technology for both teachers and students (Himmelsbach, 2019).

Guerra-Nunez (2017) discussed existing research on the introduction of educational technology into the classroom, including preamble steps toward the integration of technology, and ensuring access and equity with technology. Guerra-Nunez suggested examining the level of student digital literacy before adopting any new classroom technology in an effort to ensure the academic gap experienced by Latinx students was not widened. Digital literacy with students was about developing cognitive and technical ability in using digital technology to effectively communicate ideas, search for information, evaluate media, and create content using accessible technology (Lamb & Weiner, 2018; Magana, 2017; Pina et al., 2018). Beyond mere consumption of content, students should engage and collaborate with others online and develop a deeper meaning of learning, thereby increasing higher order thinking (Magana, 2017). Magana (2017) further referred to the necessary skills as the 4Cs (collaboration, critical thinking, communication, and creativity) with some educational leaders adding an R (Relationship building).

Little research existed on how much access non-dominant youth had with technology outside of the classroom, but experts stressed the need for Latinx students to develop social, academic, critical, and civic skills through exposure and practical use of digital literacy with technology (Bussert-Webb & Henry, 2016; Pina et al., 2018). Unfortunately, many parents of

Latinx students experienced a lower socioeconomic status (SES), as compared with White families (Cruz-Nichols, LeBron, & Pedraza, 2018; Pina et al., 2018). The lower SES experienced by Latinx limited the family in the ability to purchase technology or online learning tools for the family or students, making prior schema and the acquisition of digital literacy skills difficult (Pina et al., 2018). Educational experts believe technology skills need to be developed through innovative teaching methods which benefit both students and families (Machado-Casas & Flores, 2014). Thoughts like these puts a great responsibility on educators, and institutions of learning, to be the suppliers of emerging skills necessary for future success. To meet the needs of the 21st-century student, a trend with school districts was in the sending home of Internet-capable computers with students in order to provide access and equity, and additionally increase the speed of overall learning and digital literacy skill acquisition (Lamb & Weiner, 2018; Magana, 2017; Zalaznik, 2018).

Language and literacy issues with technology. A further area considered how the intersection of language and literacy with technology could present barriers for Latinx students and student's families. Experts had espoused the need for students facing the workplace of the 21st century to develop reading, writing, communication, critical thinking, creative, and collaborative skills as a means by which to achieve future success (Bussert-Webb & Henry, 2016). Even though Hispanic/Latinx was one of the fastest growing racial groups, almost 22% of the group lived in the poverty range, with high percentages of non-high school graduation rates for both U.S.-born and foreign-born parents (A. Flores, Lopez, & Radford, 2017). Most Latinx students' primary language was Spanish and were faced with becoming more proficient in English, as a secondary language, in order to achieve academically in schools in the United

States (Allison & Bencomo, 2015). Holding a belief of language as the primary barrier of educational proficiency, overlooks how poverty is another powerful factor (Gandara, 2017).

Poverty plays a large role as a barrier for Latinx families, which could prevent members from seeking higher education. Fewer than 20 percent of low SES Latinx families have completed post-secondary education and almost 62 percent Latinx children live in poverty (Gandara, 2017). SES of Latinx students and families should be included when addressing barriers with the proficiency of language and literacy (Guerra-Nunez, 2017). Lower SES prevented experiential learning and limited purchases of things like books for pleasure reading which hampered learning opportunities (Morse, 2018).

While Latinx students born and raised alongside the dominant language of English in the United States had a strong advantage when examining overall literacy, foreign-born Latinx students had been found to have a few advantages. One advantage found with foreign-born Latinx students was in the adaptability shown when faced with new digital technology, even if these students had prior low access or low English proficiency (Gandara, 2017). The ability to speak multiple languages, and have experiences with multiple cultures, demonstrated cognitive flexibility and executive function which was advantageous for these Latinx youth in developing connections with the whole world (Gandara, 2017). The factor of adaptability might be working, in part, from a need to survive somewhere new, but was found to stem from a general knowledge of the rudiments of technology through pervasive aspects like video gaming (Guerra-Nunez, 2017; Lamb & Weiner, 2018). Whereas digital literacy could be strong in some Latinx students, reading literacy had been found to be negatively impacted as reading time has diminished due to a lack of interest and time to read as computer use had displaced traditional reading (Rosen &

Gustafsson, 2016). Challenges like these could have been problematic for Latinx students who needed to increase English proficiency. In contrast, other studies had shown there were positive effects for students who used computers as student engagement was exponentially increased. Increased engagement was especially evident with teachers who combined effective teaching strategies with technology, as opposed to those teachers who were missing one or both of these elements (Magana & Marzano, 2014).

Student achievement with technology. After determining why technology was being integrated into school curriculum, and an analysis was made regarding any possible barriers inherent between technology and Latinx people, there was a need to examine what success was actually occurring (Guerra-Nunez, 2017). While the technology itself was value neutral, technology could have a huge effect on the achievement success of a student if utilized by a teacher using effective pedagogical strategies (Magana, 2017). A classroom filled with technology could help bridge academic gaps experienced by Latinx students (Guerra-Nunez, 2017; Machado-Casas & Flores, 2014). Studies on schools with a high percentage of economically disadvantaged Latinx students correlated the number of at-risk students with those lacking exposure to technology, illustrating inequity to access of technology as well as learning opportunities with technology (Hughes & Read, 2018). At-risk students not only underperform other students, but might become distractions or behavior problems undermining classroom learning. There existed an understanding in which students do not perform well when not actively engaged in the lessons being taught in class (Hebern & Corippo, 2018; Magana, 2017). Students using computers might lead to higher levels of interest, engagement, and collaboration (Carney, 2015; Hebern & Corippo, 2018; Magana, 2017; Peterson, 2017). Mobile computers, as

opposed to desktops or no computers, had been found to offer many positive aspects to learning; these aspects included game-based learning for high engagement and collaborative possibilities with devices where multiple users, from anywhere in the world, might interact in real time (Sung, Chang, & Liu, 2016).

Though there could be many benefits for the Latinx student using digital technology, and by extension the family, there could exist a collectivist cultural norm and bidirectional learning which might be the biggest advantage in closing academic achievement gaps for Latinx students. Strategies aimed at empowering parent engagement helps to close the academic achievement gap and are a key component of student success, leading to a workforce which is better prepared, educated, and competitive (Araque, Wienstock, Cova, & Zepeda, 2017). The empowerment of families illustrated how having a strong family support base, which was a cultural norm of Latinx families, could be one of the greatest advantages for Latinx achievement success. Family empowerment supported the intersection of home and school as a serious dynamic when examining Latinx use and perceptions of technology (Guerra-Nunez, 2017; Pina et al., 2018).

There had been findings which indicated minimal levels of achievement success with the group and technology use (Corry, 2016). The study by Corry (2016) sought to determine if the U.S. national graduation data changed between Latinx students enrolled in traditional schools with technology against those Latinx students solely enrolled in online schools which used technology. The findings showed no difference in the achievement success of either group, but a significant lower dropout rate was discovered with the online students (Corry, 2016). Such findings sound beneficial, but there were negative aspects to consider for students using technology.

Negative aspects of classroom technology. As with any new initiative there was a need to analyze all aspects of the initiative including the negative aspects. With any new initiatives there were bound to be some negative aspects, whether real or perceived (Lamb & Weiner, 2018). One of the greatest negative aspects of technology in the classroom was how technology could be a distraction for students (Magana, 2017). In a classroom full of students on computers, there could be a difficulty for teachers to police what students were viewing (Berdik, 2018). Even though the teacher might give an assignment which made use of a particular website or application, students could open multiple browser windows and toggle back and forth between the directed site and inappropriate sites. Teachers had to constantly rove the classroom checking for off-task behavior as few districts had monitoring software (Berdik, 2018). Many students of all ages were bringing smartphones to school, creating another layer for distraction. These students might have had a school-provided laptop open to the application desired by the teacher, but students could further have had a personal smartphone hidden in laps, switching attention between the two devices (Berdik, 2018). Educators worried about situations like these fostering cheating on class assignments and tests.

There were many online platforms which allowed text messaging, making a hardship for districts to block these type of sites. There was an ease for students using an application like Google Docs to write a paper for class, but additionally, madke simultaneous use of the chat feature to converse with other students at any location worldwide (Berdik, 2018; Magana, 2017). such a There existed the possibility for students to hide multiple opened browsers, making cheating possible on tests by looking up information online and cutting and pasting text on a digital test platform (Morin, 2019). Compounding the problem was in the student's inability to

differentiate between reliable and unreliable sources of information, causing students to input inaccurate information on schoolwork or tests (Berdik, 2018; Morin, 2019). An additional problem arose whenever students disconnected from social interactions because of technology, yet there was a general thought the problem could be overcome by the collaborative aspects of technology applications in the classroom (Himmelsbach, 2019; Magana, 2017).

A larger problem regarding social interactions occurred was when cyberbullying took place, whether at school or at home. Cyberbullying could be represented through various online behaviors, but all of these had the same aggressive intent of using digital or electronic means by which to send hostile messages in an effort to cause discomfort or harm to the victim (Chan, Cheung, & Wong, 2019). Students who were victims of cyberbullying could lose the drive to do well in school, have mental health issues, suffer from depression, exhibit problems with self-esteem, suffer substance abuse issues, or in worst cases could commit suicide. Cyberbullying was one of the greatest plagues affecting how technology could be perceived negatively by some (Chan et al., 2019). Latinx students were not immune to cyberbullying. Approximately 17.2% of all Latinx students in the United States reported being the target of cyberbullying at school (Trevino, 2017). Latinx parents could have experienced difficulty in helping students to effectively deal with cyberbullying, but there exist online resources like Common Sense Media, a nonprofit group, committed to offering resources on digital citizenship and cyberbullying for both parents and educators in English and Spanish.

Teachers might have added to the problems Latinx students encountered by making assumptions based on the demographic group. Some teachers could have believed district Latinx families were low socioeconomically and Latinx students might not have had access to

technology at home (Bussert-Webb & Henry, 2016; Lamb & Weiner, 2018). These assumptions could cause teachers to not assign digital homework and make other demographic assumptions (Bussert-Webb & Henry, 2016; Lamb & Weiner, 2018). Overall teachers were found to be lacking in some skillsets and knowledge to know how to effectively make use of technology to enhance learning opportunities for Latinx students (Bussert-Webb & Henry, 2016; Lamb & Weiner, 2018).

Culturally relevant teaching. Another important aspect to consider with Latinx student achievement success and the use of digital technology was culturally relevant teaching, which acted as a part of culturally relevant pedagogy. Teachers who use culturally relevant teaching with digital technology could increase learning motivation when lessons were tied to a student's interests, strengths, hobbies, and concerns into class assignments (Mackay & Strickland, 2018; Pina et al., 2018). There were simple ways of accomplishing culturally relevant teaching including the offering of choice when having students create projects in which the content does not matter as much as the learning of a particular skillset. If a teacher was simply trying to teach the basics of how to make a dynamic Google Slides presentation, the teacher could have chosen a broad subject such as family or favorite foods and allowed the students to fill in whatever content desired while learning how to make a presentation (Hebern & Corippo, 2018). The idea was to bring relevance to any learning by allowing the learner to access preferred culture and bring past unique experiences into the learning as a means by which to better understand the modern world (Brown-Jeffy & Cooper, 2011).

The study by Aghasaleh et al. (2018) encouraged Latinx students to express personal experiences, interests, and concerns through the evaluation of a national or global issue and how

the issue related to Latinx personally. These students were learning basic coding using a program called Scratch. The students decided as a group to focus on President Trump and Trump's policies. These Latinx students were encouraged to reflect on how Trump's actions intersected with Latinx lives and culture. Several students in the study had actually witnessed deportations of friends and families at the hands of the Immigration Customs Enforcement (ICE) officers which represented a real fear in the lives of Latinx (Cruz-Nichols et al., 2018; Pina et al., 2018). Other students brought up Trump's treatment of women or aggressive talk about politics and affairs. The students identified three main issues pertaining to the Trump presidency to focus efforts on racism, misogyny, and aggressive political posturing. As the coding project was linked to issues of personal interest, the students showed enthusiasm, innovation, and creativity in delivering Scratch coded loops which reflected personal emotions and thoughts on the topic of Trump. These students interpreted how the Trump presidency impacted experiences in school and family life (Aghasaleh et al., 2018). Teaching in such a way showed how taking any issues relevant to Latinx students could help create greater engagement and productivity (Guerra-Nunez, 2017). Within such a culturally relevant teaching activity, creating a coded loop, the teacher was able to get students to collaborate, think critically, and be creative, which allowed the Latinx students to communicate ideas through dynamic storytelling and ensured the 4Cs were applied by all students (Hebern & Corippo, 2018; Magana, 2017). The study illustrated the successful intersection of culture and learning for students and the demonstration of the acquisition of digital competencies (Himmelsbach, 2019).

Cultural and Demographic Factors of Latinx Families and Technology

Latinx families have unique cultural characteristics which need to be understood in order to appropriately address and work effectively with the demographic group. Latinx children need to have access and mentoring of digital technologies at school, as well as within homes, in order to reach academic success (Bussert-Webb & Henry, 2016; Guerra-Nunez, 2017; Machado-Casas & Flores, 2014). There was a need to understand family dynamics and how parents play a role in influencing how Latinx students learn to use technology. An increasing amount of research existed on ethnic-racial socialization and parenting by ethnic families which imparted resiliency and other aspects of ethnicity and race (Ayon, 2018; Guerra-Nunez, 2017; Machado-Casas & Flores, 2014; Pina et al., 2018). The group often experienced factors which could affect the learning of Latinx people such as degree of acculturation, English proficiency, education, and socioeconomics. As a group, Latinx people believed in strong ties to family and close friends, and additionally value social networks which extended beyond immediate family (Gil, 2018; Pina et al., 2018). Latinx people tended to be a collectivist culture which was slow to trust anyone outside of family members and closest associates (Carteret, 2011; Pina et al., 2018). Decisions were made by the family as a whole and not by individuals, whose behavior was expected to be in accordance with pleasing the family. Latinx individuals were expected to contribute money to the family, but these individuals expected financial support, in return, when needed (Carteret, 2011).

Giving and earning respect, or *respeto*, was a big part of Latinx lives (Ayon, 2018; Carteret, 2011). Latinx individuals were expected to give hierarchical respect to others based on age, gender, economic status, title, position of authority, and social position. In giving respect as

dictated by Latinx culture, the individual expected to receive respect back. There were additional family hierarchies to contend with based on gender and age (Carteret, 2011). The family characteristics of respect and family hierarchy were important to understand how Latinx families made use of technology within homes. Pina et al. (2018) discussed the intersection of age and respect coming into play when Latinx students were expected to help elders in the family with technology use.

In the Latinx household, some families commonly ascribed to an ideal of *machismo*, or hyper-masculinity, in which males were viewed with honor as the main providers for Latinx families (Carteret, 2011). The ideal established the patriarchal hierarchy of the Latinx home (Cowan, 2017). Latinx women were expected to be subservient to husbands and show great respect. While these ideals could be changing due to acculturation in the United States, Latinx women often placed great value on being dedicated and supportive toward families and expected to teach Latinx children about family ascribed religion, culture, and beliefs (Ayon, 2018; Carteret, 2011). Carteret (2011) asserted Latinx people believed fate was unalterable and take life on a day-by-day basis, often without preparing for future problems. These unique kinds of cultural information could further compound the learning and use of technology and should not be overlooked.

Socioeconomic factors should not be ignored when analyzing the Latinx family (Guerra-Nunez, 2017; Machado-Casas & Flores, 2014; Pina et al., 2018). Approximately 22% of all people labeled as Hispanic or Latinx lived in the poverty range which was generally \$25,750 or less income per year. Families living in poverty had been proven to lack access to healthcare and education as compared to families with greater income (A. Flores et al., 2017). The high school

dropout rate had been significantly higher for Latinx students, yet efforts made over the last two decades had been significantly decreasing the graduation gap between Latinx and other groups (A. Flores et al., 2017). While some studies showed positive gains in the achievement success of Latinx students, Hernandez (2017) believed there were other factors to consider with the demographic group. Hernandez discussed how Latinx parents might often lose employment and were forced to move, which in turn forced students to change schools, resulting in more hurdles toward academic success. To ignore the effects lower or higher SES had on Latinx families was to risk the marginalization of the group (Pina et al., 2018; Zorn, 2018). There was a necessity to understand the group through the lens of CRT in order to make sense of how Latinx culture and perceptions intersected with increasing technology use in the Latinx home (Zorn, 2018). Many immigrant families experience a home-school disconnect which could be helped through a better understanding of how technology might help families to bridge the divide (Levinson & Barron, 2018). From a secondary standpoint of digital literacy, there was a need to have a deeper understanding in order to determine the most effective and beneficial ways to work with the demographic group to provide equity and access with technology to help Latinx close any remaining achievement gaps with other groups.

Family and social structure. To better understand the Latinx people, research on Latinx family and social structures could reveal intricacies which could influence learning and use of technology with the group (Ayon, 2018; Guerra-Nunez, 2017; Pina et al., 2018). Between 2009 and 2015, the Internet use gap between Latinx and Whites dropped from 16 percentage points to a new low of 5 percentage points, illustrating big gains in Internet use and Latinx families (Brown, Lopez, & Lopez, 2016). As of 2019, about 8 million children living in the United States

had at least one immigrant parent who often relied on the children's language, literacy, and digital skills to help solve problems and make decisions in the family. As Latinx students were exposed to technology, Latinx parents picked up some rudimentary knowledge of technology through interaction with the students (Guerra-Nunez, 2017; Machado-Casas & Flores, 2014; Pina et al., 2018). Latinx students transferred a working knowledge of technology, and application of such, to parents in a process known as technology brokering (Pina et al., 2018). The process was bidirectional as parents were learning from students, and students were likewise learning from family elders in an intergenerational exchange (Gil, 2018; Pina et al., 2018). Research by Ayon (2018) and Gil (2018) had shown a few differences in technology brokering between Latinx families of higher and lower SES. The main difference was in the manner of ways students helped parents. There was a further factor regarding whether the parents were recent immigrants or not (Ayon, 2018; Gil, 2018). While lower SES families, with less dominant language proficiency, might have relied on bilingual students to help navigate finance, health, and basic communication and online appointment making, higher SES families relied on students more for navigating emerging technologies, media, and applications (Ayon, 2018; Pina et al., 2018).

Pina et al. (2018) detailed research on how Latinx students experienced difficulty switching between personal needs and the needs of the family. While these students sought to complete homework or experience entertainment using the Internet, students were often besieged by familial requests for aid in conducting online searches to solve family problems. The difficulty in juggling work between family and self could cause frustration and anxiety for Latinx students (Pina et al., 2018). Interestingly, similar situations faced by Latinx students could have been in part due to the Latinx family hierarchy, based on age, in which the young were expected

to help elders and could mirror later expectations of familial obligations (Carteret, 2011; Gil, 2018). Even though young Latinx could have gotten frustrated with constantly helping parents, studies have found immigrant students or the children of immigrant students outperform subsequent generations of Latinx students academically through a motivation to lift families out of poverty (Gandara, 2017). The ideology of wanting to help the family fits with several cultural norms of Latinx, especially group collectivism and giving respect to elders. As Latinx students struggled to navigate education and acculturation, Latinx family norms were still reinforced in how these students behave (Ayon, 2018; Gil, 2018).

Family health concerns. A great concern for most families regardless of demographics was on health. The studies of Ayon (2018) and Pina et al. (2018) examined how Latinx perceive health concerns and made use of the Internet and digital technology. There existed unique perspectives uncovered by health experts which enabled a greater understanding on the intersection of technology with the demographic group. In one study related to how Latinx children engaged in collaborative problem solving for the family by using technology, the findings showed there existed startling health concerns for Latinx families (Ayon, 2018; Pina et al., 2018). As mentioned previously, Latinx children often had to conduct online searches for parents in English or act as translators or representatives for non-English-speaking parents (Ayon, 2018; Gil, 2018; Pina et al., 2018). In one part of the study, the language barrier made for a difficulty with these parents to know the right words or spellings when searching online for health advice (Pina et al., 2018).

The problem further occurred when the parents tried to relate symptoms to children in an effort to receive help in conducting online searches. As some of these parents were

undocumented and had been facing increasing issues in regard to ICE and possible deportation, these undocumented Latinx parents were having extreme difficulty in obtaining proper healthcare (Cruz-Nichols et al., 2018; Pina et al., 2018). There was a greater need in these situations to rely on children, which presented additional problems if the parent was unable to properly explain what the needs were or if there was a belief the needs were too private to discuss with children due to issues of modesty (Pina et al., 2018). Not only were these parents faced with multiple cultural barriers, including language and digital literacy, but additionally with the added stress and anxiety stemming from the real possibility of being separated from family and deported to another country (Cruz-Nichols et al., 2018; Pina et al., 2018).

Changes made by health insurance providers had further altered policies and procedures in ways which might have prevented non-English-proficient Latinx adults from completely understanding personal health concerns with diagnosis or in the proper use and possible side effects of prescribed medications (Cruz-Nichols et al., 2018; Pina et al., 2018). In the past, adults were allowed to take children into office visits to act as personal translators. Health insurance providers related children were not properly trained in medicine or understood the nomenclature of medical terms to deliver a translation to parents and were no longer allowing children to assist parents in medical office visits (Pina et al., 2018). The inadequacy of information was forcing more Latinx parents to use online health information which could have been unreliable. The implications for the group and healthcare were not good and showed a potentially widening gap between Latinx families and those of other groups (Pina et al., 2018). In viewing the Latinx family's issues in regard to obtaining adequate healthcare through the lens of CRT, structural racism appeared in the healthcare sector (Zorn, 2018). While the racism could have been

unintentional and driven by politics, the racism existed and was a real concern for undocumented Latinx families.

Families and trust. To gain a deeper understanding on how Latinx people made use of digital technology, important aspects of Latinx characteristics could have factored into learning and usage (Guerra-Nunez, 2017). A major characteristic of Latinx was how trust was given and received with others. The study by Pina et al. (2018) illustrated a great problem faced by Latinx families when issues of trust came up. In the bidirectional collaborative exchanges Latinx children were having with parents, issues of trust often came up, to a greater extent within undocumented Latinx households. Due to the political climate of since 2018, undocumented Latinx people were increasingly afraid of giving out too much personal information or were trying to be as invisible within society as possible while still trying to navigate the necessities of modern life (Pina et al., 2018). A lack of trust was evident when Latinx families did not want to divulge personal information when dealing with healthcare, welfare, police, or other agencies (Cruz-Nichols et al., 2018; Pina et al., 2018). Attitudes with trust, and the experiences of Latinx living in the United States, was indicative of a changing dynamic in the group's experience as Latinx had moved from having beneficial dealings with organizations toward negative dealings resulting in a loss of trust (Cruz-Nichols et al., 2018).

Latinx families were found to not be too trusting of technology and held fears in regard to breakage of technology through the installing of applications, downloading of online content, or receiving a virus (Pina et al., 2018). The lack of trust extended to digital infrastructure as a whole, prohibiting some families from shopping online, doing Internet banking, paying family bills online, setting up appointments, and other online activities (Pina et al., 2018). These parents

tended to trust online social networks for some basic health or other information as long as the parents did not have to divulge personal information (Cruz-Nichols et al., 2018; Pina et al., 2018). The needs of Latinx and health issues could have proven dangerous as no regulation existed on digital information and Latinx parents could have been receiving unreliable information. The held lack of trust was an additional way Latinx families were missing opportunities which other groups had (Cruz-Nichols et al., 2018; Pina et al., 2018).

Gender and identity. Identity development was a central concern for students and the self-exploration of identity helped the development of cognitive ability (Gil, 2018). There existed gender and identity aspects with Latinx which could have factored into technology use. Latinx students of both dominant sexes were expected to maintain the ideals of the Latinx family (Guerra-Nunez, 2017; Machado-Casas & Flores, 2014; Pina et al., 2018). One study found Latinx students did not identify as individuals, but rather as a part of a larger family group (Gil, 2018). Teachers who made use of culturally relevant teaching strategies in teaching had experienced greater levels of the 4Cs and overall productivity with Latinx students. As students were made to share cultural experiences, by default these students were reinforcing the cultural ideology and values of Latinx families (Guerra-Nunez, 2017; Machado-Casas & Flores, 2014; Pina et al., 2018). Another factor was the educational stress felt from discrimination and the inability of schools to provide opportunities to promote a positive ethnic identity for Latinx students (Guerra-Nunez, 2017; Machado-Casas & Flores, 2014; Torres & DeCarlo-Santiago, 2017).

Latinx males. In any examination of gender and the intersection of technology, there was a necessity to look at the two dominant genders individually. Latinx males contended with

different perspectives than Latinx females and there were further differences between younger and older people of both genders. Just like adult males, young Latinx males contended with issues of *machismo*, expectations of family, friendships, support systems, and overall establishment of identity (Carrillo, 2016; Gil, 2018). Cultural identity often affected Latinx male students who might have struggled at navigating toward academic success due to a cultural perception of doing school work, or being intelligent, was not part of what constitutes a masculine male. With these young men, having strong masculinity could have even taken dominance over being academically gifted, preferring maleness over academic success (E. Martinez, 2018). Latinx males were praised for exhibiting *macho* behavior whether at school or at home (Cowan, 2017). Likewise, any poor academic ability could be overlooked by the individual male, fellow students, and family when masculinity was asserted (Cowan, 2017; E. Martinez, 2018). These Latinx male youths were faced with asserting maleness as well as a racial and cultural identity (Cowan, 2017; Gil, 2018). Research showed the importance of Latinx male students to find positive academic mentors to prevent street socialization from fulfilling a need for masculinity and validation amongst peers of a similar cultural group (E. Martinez, 2018). Ironically, when a Latinx male asserted intelligence academically, this assertion could have been seen as a surprising trespass on an area stereotypically outside of the cognitive ability and intelligence level of Latinx students. Situations of the type could have led to an attitude of resentment with teachers and educational institutions (Carrillo, 2016).

Further expounding the frustration experienced by Latinx males was the negative treatment experienced from authority figures once Latinx males transitioned from being a cute child to a grown man filled with resentment manifesting in behaviors perceived as menacing,

antiauthority, distracting, or violent (Carrillo, 2016; Guerra-Nunez, 2017; Hernandez, 2017). Due to negative experiences, research existed on high achieving Latinx males holding a commitment to social justice and having a strong activist stance with leadership positions (Carrillo, 2016). Teachers who utilized culturally relevant teaching strategies showed great results in productivity and engagement with Latinx males as these males had experiences with personal identities being valued and respected (Brown-Jeffy & Cooper, 2011).

Latinx students of both genders needed to see other successful Latinx students in order to visualize future participation, or success, in modern society (Hazelrigg, 2019). Latinx students taken to two different universities almost overwhelmingly stated being motivated to attend the university at which many Latinx students were encountered, but not at the university with a greater Asian student population. Students of color had indicated an easier ability to foresee taking place in academia or becoming a teacher or principal when there was a possibility to see people of color in those positions (Hazelrigg, 2019). As of 2018, Latinx students made up a full quarter of all students in the United States, yet only 8% of teachers in the United States identified as Latinx with the largest gap between Latinx students and Latinx teachers of 36.4% reported in California (Neil, 2018). There were efforts in many states to attract greater numbers of Latinx into teaching, even though the current political climate had the potential to disenfranchise up to 20,000 (90% were Latinx) teachers covered by the Deferred Action for Childhood Arrivals (DACA) policy, which could further the gap (Neil, 2018).

Latinx females. Latinx females were no different than Latinx males in regard to having unique perspectives, shaped by gender. There was a need to examine Latinx females and the unique cultural experiences of the group in order to understand how education and technology

operated within Latinx experiences. One study by Machado-Casas and Flores (2014) argued there existed differences in the education of Latinx females. As the newer generations were educated differently than the elders, differences in thinking and learning could have had an influence on how Latinx people interacted with each other (Machado-Casas & Flores, 2014). Female Hispanics, in particular, needed an abundance of family support and mentorship when transitioning from traditional homemaker roles toward women seeking education (Ainsa & Olivarez, 2017). Within the Latinx family was where Latinx females gained a consciousness toward moral, ethical, emotional, educational, and career development. As Latinx females were increasingly seeking careers, emotional and financial support was drawn from the family, which reinforced the collectivist nature of Latinx families (Carteret, 2011; Gil, 2018; Pina et al., 2018). Even though both parents were concerned with female Latinx seeking education and careers, the mothers were the ones who were mainly credited as the main source of emotional support and strength (Pina et al., 2018). In the reinforcement of Latinx cultural norms, Latinx females often suggested an assumed position as an inspirational role model role for younger siblings and understand there was an expectation to provide financial support to younger siblings as well (Pina et al., 2018). While family support and adherence to cultural norms might have been great, the family could have lacked the social capital with academics, technology, or other aspects, which might have provided additional barriers for Latinx female students (Gil, 2018; Villa, Wandermurem, Hampton, & Esquinca, 2016). Luckily for Latinx females seeking higher education, the isolation experienced by other demographic groups of females was not a part of the Latinx female experience due to the many connections with both immediate and extended families, which were relied on for support (Villa et al., 2016).

Unfortunately, many female Latinx students were sometimes not viewed the same within the family structure after the achievement of a degree (Prickett, 2018). Anecdotes were related which indicated Latinx females with degrees came back home to face jealousy or outright animosity from other family members who perceived character or personality differences from the degree holder. Some family members held the perception of the degree holder being superior in the family hierarchy when there was no previous perception as such (Pina et al., 2018). The misinterpretation could stem from how the female with a degree now acted behaviorally, whether linguistically, through dialogue, or actions (Prickett, 2018). In any case, such a misrepresentation furthered the cause of employing CRT as the theoretical framework to better understand all aspects of the Latinx culture (Zorn, 2018).

As for the technology usage by Latinx females, the group fell under the same gender stigmas as non-Latinx females when looking at how technology was designed for females (Oudshoorn, Neven, & Stienstra, 2016; Villa et al., 2016). Technology and engineering had been male dominated for decades and most technology devices and video games were created from a masculine perspective even though females made use of technology in equal numbers (Oudshoorn et al., 2016). Technology companies had been found to ignore female voices altogether and relied on gender stereotypes which not only marginalized females, but further marginalized females not of the dominant racial and ethnic demographic (Oudshoorn et al., 2016).

There were movements within education to gain access for females, especially females of color, into the realms of technology and engineering (Latinas in Tech, 2019; Shein, 2018; Villa et al., 2016). Programs like Girls Who Code tried to encourage all girls, but especially girls of

color, to get into the field of technology, which was adding over 1.7 million jobs. As of 2016, women held only 26% of all professional computing jobs, which was why organizations like Girls Who Code had made such a direct effort to encourage young girls in school to aspire to careers in technology or engineering (Shein, 2018). Another group which was aimed specifically at encouraging Latinx females into the technology sector was called Latinas in Tech. The group was founded in 2014 and had quickly expanded nationwide in the United States and into Mexico. The group was concerned with Latinx females in all technology situations and offered Latinx females mentorship and strived to push recruitment of Latinx females into technology careers and offered professional development through workshops offered (Latinas in Tech, 2019). Besides these two examples, there were several other emerging groups aimed specifically at the demographics of the female of color (Latinas in Tech, 2019; Shein, 2018). While these groups were striving to make a difference in the lives of Latinx females, family cultural beliefs or lack of social capital could still pose a barrier to achievement success (Gil, 2018; Villa et al., 2016). There had been many cases where Latinx females had received scholarships to universities far from the Latinx home and parents forbidding the acceptance of scholarships. Culturally, there existed a belief that females should not be too far away from Latinx family responsibilities, such as helping provide income for the family or taking care of elderly family members (Pina et al., 2018; Prickett, 2018). There was a necessity to examine the female Latinx perspective, as related to the overall Latinx experience with technology use and application, in order to develop a better understanding of how to work effectively with the demographic population (Guerra-Nunez, 2017; Machado-Casas & Flores, 2014; Pina et al., 2018).

Latinx Technology Use

When examining the intersection of Latinx people and technology, several contradictions could be found and should be analyzed (Morse, 2018). Little research existed on how Latinx families were actually using technology, yet Latinx were encountering increased access with technology (Guerra-Nunez, 2017; Levinson & Barron, 2018; Machado-Casas & Flores, 2014). Even though almost one fourth of all Latinx families lived below the federal poverty line, Latinx tended to surround the family with technology within homes (Levinson & Barron, 2018; Morse, 2018). The perception was consistent with research on lower SES families which exhibited greater levels of happiness through making purchases of material goods rather than spending on experiential things like trips or concerts. Lower SES families tended to value practical material goods, which could be resold if necessary (Morse, 2018). An example would be when a lower SES Latinx family tended to prefer the purchase of a new flatscreen television, or a new cell phone, over purchasing tickets to a play or paying for yoga lessons (Lee, Hall, & Wood, 2018).

Mobile technology. Latinx families preferred to purchase multiple forms of mobile technology (laptops, iPads, cellphones, etc.) to navigate daily life, yet the group tended to not have a home-based Internet connection (Morse, 2018; Pina et al., 2018). In a five-year study from 2010 to 2015, non-Latinx groups increased overall Internet connectivity from 64% to 73% while Latinx groups only increased by 1 percentage point (Morse, 2018). One overarching reason found for the lack of connectivity was found to be in the need for saving money. Many Latinx families relied on the personal hotspot feature of owned smartphones and data plans to provide Internet connectivity, some families allowed multiple users to tether to a single personal phone (Levinson & Barron, 2018; Pina et al., 2018). Some families were even found to rely

solely on public Wi-Fi hotspots (Pina et al., 2018). Reflective of the collectivist nature of Latinx families could be seen in some instances when close neighbors shared the cost of a single Internet connection and even went as far as to share devices amongst multiple users (Pina et al., 2018).

There were reports and research indicating Latinx being characterized as early adopters of technology (Levinson & Barron, 2018; Morse, 2018), especially mobile technology, and more likely to use emerging technology than other demographic groups (Morse, 2018; Pina et al., 2018). Latinx as a group watched more online video content through cellphones than the national average (Morse, 2018; Pina et al., 2018). In urban Latinx areas, cell phones had given rise to Latinx family texting as a preferred means of communication and information; even receiving personal health updates and physician notes through cell phones. Cell phone texting was permeating the Latinx generations and parents and children were increasingly communicating, and learning new information, through emerging technology as well as through social network platforms (Smaldone, Stockwell, Osborne, & Cortes, 2015). Because of Latinx reliance on smartphones for online connectivity, Latinx did most online searching and shopping on cellphones (Levinson & Barron, 2018; Morse, 2018; Pina et al., 2018). In relation to Latinx cultural characteristics, Latinx people used technology to frequently contact family and friends and stay up on current events relating to the Latinx demographic group (Levinson & Barron, 2018; Pina et al., 2018). These were all important characteristics which helped shape how Latinx people made use of technology (Levinson & Barron, 2018; Morse, 2018).

Perceptions of technology. The perceptions of technology and usage should be considered as related to Latinx people to further understanding on any effects with these people.

Machado-Casas and Flores (2014) argued technology use was perceived by Latinx people as a detriment to families for several reasons including how technology caused a loss of cultural practices, decreased communication between family members, and other concerns. Findings in the studies by Guerra-Nunez (2017), Kreitz (2017), and Pina et al. (2018) indicated Latinx parents believed technology played an essential role in advancing both adult lives and the lives of students. Latinx parents expressed the need to set limits regarding technology use with children (Levinson & Barron, 2018). Some movements were encouraging Latinx parents to talk about technology use with families and encourage children to contribute to or create new content, rather than just be consumers (Machado-Casas & Flores, 2014; Pina et al., 2018). Holding an understanding of how digital tools have a revolutionary potential for constructing and disseminating knowledge has led to further understanding of how important developing the characteristic of creativity is for students interacting with technology (Kreitz, 2017).

Even though the expressed potential was primarily in relation to work in the field of humanities, the ideology further permeated modern pedagogy and the 4Cs, of which creativity was a major skill for all student's future success (Hebern & Corippo, 2018; Magana, 2017). The idea of using technology for advancement and intentional purposes (such as preserving family history and culture, learning the history of ancestors, analyzing media regarding issues important to Latinx people, etc.) was spreading with Latinx families (Pina et al., 2018; Rivera, 2017).

Perceptions of social media. With mainly positive perspectives regarding the use of technology, coupled with the value placed in social networks, these aspects served to add to the understanding of why Latinx people used mobile technology to access social networks more than any other demographic group (Mathiyalakan, Heilman, White, & Brusa, 2016; Pina et al., 2018;

Smaldone et al., 2015). One study by Mathiyalakan et al. (2016) found Latinx made use of social media platforms to advance personal academics. Even though Latinx used social media (more than other demographic group) for learning and academic advancement, the group held the perception of social media as having a negative impact on personal achievement success (Mathiyalakan et al., 2016). The belief could have been due to the perception of social media being created mainly as a social networking platform and not as an academic platform. Latinx simply did not view digital social networking platforms as a means by which to acquire knowledge, unlike higher SES groups who might have seen some benefit in using social media (Mathiyalakan et al., 2016). In contradiction to the lack of faith in the academic uses of social media, Latinx were found to hold a high regard for social media when issues of health, safety, and finance were discussed (Pina et al., 2018).

The studies by Borman et al. (2017), Guerra-Nunez (2017), and Villa et al. (2016) indicated the more Latinx students were exposed to technology, the better statistical chance these students had for continuing education in technology and ultimately finding careers in the tech field, leading to greater equity of Latinx university graduation rates in tech areas and equivalent salaries comparable to non-Latinx peers. Increased Information could help steer an understanding of the beliefs and learning modalities of Latinx students and families. The studies by Levinson and Barron (2018), Machado-Casas and Flores (2014), and Pina et al. (2018) sought to establish positive correlations between Latinx parents, other family elders, and children when examining the use of technology at home to provide learning through curated resources which were specifically driven by the family's interests and in the primary language of the family. The study presented by Stacy and Aguilar (2018) sought to leverage the Latinx cultural norm of

storytelling as a way to promote the acquisition of digital literacy skills. The study had Latinx women make use of Google Drive and applications like Screencastify to record family stories and experiences, which were then shared with children, creating opportunities for intergenerational learning (Stacy & Aguilar, 2018).

Latinx families were making use of digital technologies at an ever-increasing pace, but there was not enough culturally and interest relevant learning media to keep the pace (Levinson & Barron, 2018; Machado-Casas & Flores, 2014; Pina et al., 2018). While Latinx families under study exhibited digital use in ways which were inventive and ingenious, when high interest and culturally relevant media was created for Latinx, there still existed an inequality to access of Internet and devices within many Latinx communities (Levinson & Barron, 2018; Machado-Casas & Flores, 2014; Pina et al., 2018).

Gaps in the Literature

Educational technology, used both at school and at home, has the potential to erase any inequality between demographic groups, but additional research needs to be made to determine if there exists a concern for how technology might be altering (effect) Latinx family culture, but further if there existed any influence (affect) technology could be having on Latinx family culture (Guerra-Nunez, 2017; Levinson & Barron, 2018; Pina et al., 2018). Initiatives for school districts to send home Internet able digital devices were being done with little or no input from parents and with no research to support these initiatives (Bennet, 2017; Lamb & Weiner, 2018; Zalaznik, 2018). These forced initiatives, seemingly altruistic in intent, could be perceived as oppressive in scope from a social justice perspective (Hiraldo, 2019). Families were being forced to embrace technology in homes without having a choice in the matter, which was reminiscent of

past institutional and structural racism aimed at demographic groups of color (Hiraldo, 2019; Zorn, 2018). While many educational leaders assumed technology was a great benefit in people's lives, an equal assumption could be made for detrimental risks to a group's culture in adopting technology which only further research could reveal (Guerra-Nunez, 2017; Levinson & Barron, 2018; Pina et al., 2018).

Chapter Summary

The qualitative exploratory case study, using a theoretical framework of CRT, was important because of the timely nature of the study. Increasingly, school districts were sending Internet-capable computers home with students (Bennet, 2017; Zalaznik, 2018) and the benefits and detriments had yet to be determined yet there was some research suggesting benefits (S. Flores & Flores, 2018). There existed a possible perception of institutional and structural racism to contend with as Latinx parents were not given input on initiatives forcing technology into homes (Hiraldo, 2019; Zorn, 2018). The study could help to illustrate these aspects and create a body of research which could give insight into what might be expected in similar situations for similar school districts. As the research was exploratory, there might be avenues uncovered which could pave the way for future research (Bussert-Webb & Henry, 2016; Livingston, 2011).

The integration of technology in the classroom had been found to be mainly beneficial for the Latinx student and by extension Latinx families (S. Flores & Flores, 2018, Pina et al., 2018). Even though research indicated students learn better when parents were actively involved, families were mostly ignored when considering technology integration within schools (Machado-Casas & Flores, 2014). When issues of language and literacy were understood and bridges were made for learning, student engagement and authentic learning had been seen to increase and lead

to achievement success with Latinx students (Carney, 2015; Hebern & Corippo, 2018; Magana, 2017; Peterson, 2017). There were negatives in using technology, but a teacher might have been able to circumvent most of the negatives (distraction, cyberbullying, etc.) through the use of culturally relevant teaching (Brown-Jeffy & Cooper, 2011). In giving Latinx students the choice to include personal experiences and culture into schoolwork, there was an indication of increased productivity and higher levels of attention and engagement (Mackay & Strickland, 2018).

Understanding the Latinx family structure should be an important need whenever crafting technology initiatives aimed at the demographic group (Guerra-Nunez, 2017). Family dynamics of hierarchy by age, gender, social position, and SES should be explored in order to understand how these could intersect with how Latinx perceive and use technology (Ayon, 2018; Pina et al., 2018). There were unique concerns with the Latinx population when examining healthcare and trust and how these things were affected by the intersection of technology and politics (Cruz-Nichols et al., 2018; Pina et al., 2018). Gender and identity issues largely factored into how technology might have been utilized with the Latinx at school or at home. While Latinx people have been identified as early and heavy users of mobile technology, the group was the lowest demographic group to have broadband Internet connectivity within homes (Levinson & Barron, 2018; Morse, 2018). While socioeconomics played a major role in the decisions made by the group, there were still many other factors which could have compounded the need to better understand Latinx culture (Cruz-Nichols et al., 2018; Morse, 2018; Pina et al., 2018).

Research existed on the education of Latinx students, as well as on Latinx cultural norms and needs, yet there existed a gap in the literature as to the ramifications of having an Internet-capable computer in the home of Latinx students and families on a 24-hour basis. The study

employed CRT and was aimed at filling the literature gap by identifying any benefits or detriments Latinx were experiencing culturally with Internet-capable devices being forcibly sent into homes, through students, by school district initiatives (Bennet, 2017; Zalaznik, 2018). There could be a need to conduct more studies on the intersection of Latinx people and the use of technology in order to create a greater understanding of how to best meet the needs of the Latinx demographic group in ways which do no harm culturally (Ayon, 2018; Guerra-Nunez, 2017). Aspects of the study were unique, yet there could be those who believe research was not necessary as there existed no evidence matching a student's learning style to a particular activity could improve learning (Chick, n.d.), but until the lower education and income levels of Latinx were understood and made to equilibrium with more affluent races, there existed a need for further research (Livingston, 2011).

Chapter 3 serves to explain the methodology for data collection. Research questions were identified and the research design and rationale were constructed. The role of the researcher was defined as well as the procedures used in undertaking the research in regard to population and sample selection, instrumentation, data collection, and data preparation. Chapter 3 goes on to explain how data were analyzed from interviews and questionnaires and how reliability and validity were determined. Ethical procedures for conducting the entire research were stated as well.

Chapter 3: Methodology

Technology integration in public schools was not a new concept, but a trend was developing in the sending Internet-capable computers home with students in an effort to reach 24-hour access and equity with educational capability and meet the needs of the 21st-century learner (Zalaznik, 2018). Many school districts had purchased computers for students, with an increasing number of districts adopting 1:1 initiatives, yet there still existed a disparity between the technology use a student had at school and the technology available for educational use within the home. Technology has been known to be a force multiplier to improve learning performance and outcomes and further ensure a culture of digital literacy (Telfer, Howley, & Thurlow, 2019; VVUSD, 2018), but only recently have districts started offering 24-hour access for students by means of 1:1 take-home programs. Increasingly, school districts were making students take district purchased Internet-capable computer devices home, which could be dramatically changing the home learning environment (Fleischer, 2017).

The purpose of the qualitative exploratory case study was to determine any cultural effects of having an Internet-capable laptop in the hands of predominantly impoverished Latinx students, and families, who previously had no, or limited, digital access at home. The following questions were crafted to uncover basic data and find common truths:

Research Question 1: What do Latinx families explain as the affects to culture felt by increased digital access due to the Internet-capable computers being sent home with Latinx students?

Research Question 2: What changes do Latinx families experience with Internet-capable computers being used at home in ways which reflect a cultural difference from previous limited digital access to increased digital access?

Research Question 3: What cultural shifts are Latinx families experiencing, including benefits or detriments, in having Internet-capable computers brought home?

Research Design and Rationale

An exploratory case study was appropriate as there was no clear outcome of the program under evaluation (Baxter & Jack, 2008). Yin (2009) adds a further definition: “A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (p. 18). As the research study was to determine if there were cultural, or other, effects on Latinx students and families from having an Internet-capable laptop, and the resulting increased digital access, sent home by a recent school district initiative, adopting a case study design was best suited for the research.

Since there was an impossibility to separate the phenomenon’s variables from the context, a case study was best suited to a situation like the one which was researched (Yin, 2009). Both phenomenological and ethnographic research designs were considered, but ultimately passed over. The decision to pass on both phenomenological and ethnographic research designs was because there was no easy way to distinguish the phenomenon from the context, which required multiple data collection methods (Creswell, 2013; Yin, 2009).

Culture was viewed in the research as a collective set of beliefs, customs, values, behaviors, and attitudes which distinguished one category of people from another (Spencer-

Oatey, 2012). The choice to employ a qualitative exploratory case study approach was best suited whenever someone was studying a situation wherein there was a need to document and interpret meaning in order to understand the meaning of people under the situation of study (Denzin & Lincoln, 2005). Multiple sources of data were used in a process of triangulation in which collected data were compared and cross-checked in order to establish internal validity (Merriam, 2009). In-depth interviews, questionnaires, and focus groups were the main research tools conducted with 17 of the school district Latinx students' families as an exploratory case study. The active interaction process of conducting interviews led to results based on context and provided insight into participant's daily lives, which mirrored the research questions of the research study, and became the support for adopting interviews as a research tool in a study (Cicourel, 1964; Dingwall, 1997; Fontana & Frey, 2005; Gubrium & Holstein, 1997, 1998; Holstein & Gubrium, 1995; Kvale, 1996; Sarup, 1996; Seidman, 1991; Silverman, 1993, 1997).

Role of the Researcher

Austin and Sutton (2015) contended, in qualitative research, a researcher might be tasked with asking people to share information which could be of a personal nature. The idea was for people conducting research to get at the perceptions and thoughts of participants of the study. Besides the data collection tools which had been used for triangulation of data, a researcher acted as an additional tool in the overall collection of data (Merriam, 2009). Regardless how data were collected, a researcher's responsibility was to ensure the privacy of participants and security of shared data. The safeguarding procedures should be explained clearly to participants and approved by necessary review boards tasked with ensuring ethical treatment (Austin & Sutton, 2015).

The investigator of the study had no, or little, contact with the participants of the research prior to the study. All participants were comprised of the parents of students within the public school district under study. Some of the participating families knew the investigator of the study only incidentally through teaching or presenting to district students prior to the study. Although the investigator of the study was both Hispanic and Latino and works with educational technology, objectivity was maintained and no ethical issues or conflicts occurred. There was a fear language would be a minor issue. The investigator of the study understood Spanish, but did not speak the language fluently and there existed a need for a school district translator to assist with interviews as well as a digital translation device. While some nuances could have been lost in translation, these were thought to be overcome by using both translator as well as device when going over responses (Fontana & Frey, 2005). Besides the data collection tools mentioned, the person conducting research serves as an additional significant instrument in the collection of data (Merriam, 2009).

Research Procedures

Within the section on research procedures, the measures used to conduct the study are described and the population and participant selection is explained in detail. The instrumentation of the study is further detailed as well as steps for data collection, data preparation, and analysis of data. Data collection protocols were outlined for the questionnaire, interviews, and focus group. The section on data preparation explains preparation steps for the analysis of data.

Population and Sample Selection

The population under study were Latinx families with one or more students enrolled in the school district which had given approval for the study. An interest flyer was generated and

disseminated by paper copies and digital e-mail to district Latinx families in an effort to find families willing to participate. As all district students have a laptop sent home, families selected to participate were families who had to get Internet as a result of the laptop coming into the home. Eligibility was met by the participant families in the following ways: families had one or more students enrolled in the district, families had a home Internet connection for the student's devices, and families were first or second generation Latinx family in the United States. From the final list of interested families, participant families were selected by a stratified random sample from regular education classes at the three different levels; elementary, middle, and high school. Ultimately 17 families were chosen to participate in the study.

Each participating family unit was interviewed once and all interviews and focus group were conducted in person through the Family Engagement Center (FEC) run by district personnel. The FEC was run by the English Learner division of Education Services for the district. The FEC consisted of fully staffed offices and a large meeting room. All interviews were conducted in the meeting room of the district staffed building. Exploratory open-ended questions were asked in order to gain as much insight from the participants as possible (Yin, 2009).

All documents and interviews were presented in whichever language the participants preferred (English or Spanish). During the individual family interviews 20 questions were asked with all participants receiving the exact same questions. The participants were comprised of a saturation of 17 of the school district Latinx students' families. A few additional families, who indicated an interest in participating in the study, were kept as a reserve pool to use in the case of attrition. There was no need of substituting a reserve family for any family which dropped out of the study as all initially chosen 17 families completed all aspects of participation.

As participants were chosen randomly, some spoke only Spanish. Although the investigator of the study understood and spoke semi-fluent Spanish, accommodations for Spanish speakers were made through the use of a vetted district translator who was fully fluent in Spanish and signed a nondisclosure agreement. Participants were informed of all rights as aligns with voluntary, anonymous, and confidential participation and all ethical considerations per IRB requirements. All interviews took place at the district FEC.

Collected data were housed in both a personal and a backup hard drive, owned and accessible only by the investigator of the study, with a file labeled for the research study. The data collected was kept anonymous with no names or student identification numbers collected in order to ensure identities of all participants were protected per IRB guidelines. Although there was an anticipation of potential problems arising in various forms such as in participant families dropping out of the study or in establishing interviews times to fit around the schedules of the families, these problems did not occur. The reason and nature for the study was explained to all participants. Participants were informed about rights for voluntary, anonymous, and confidential participation and were asked to sign an informed consent form before participating.

Instrumentation

Three instruments were employed in the study: a pre-interview questionnaire, in-depth interviews, and a post-interview focus group formed from a subgroup of the participants. Questionnaire and interview questions were sent to five subject matter experts for review (Appendix C). Three of these experts held doctoral degrees in educational technology. The two other subject matter experts were Latinx experts, one of which held a doctoral degree with a dissertation on Latinx parent leadership and the other ran the FEC at the district used for the

study. The responses of these subject matter experts were used to refine all questions to be used in data collection.

The pre-interview questionnaire was given to families selected as participants for the study. The questionnaire was used to gather basic information about the views and perceptions of participant families regarding at-home technology use. The questionnaire was comprised of 20 questions which have been examined and approved by five subject matter experts, four of which held doctorate level degrees. All questions were exploratory open-ended questions as befits an exploratory case study (Yin, 2009). Once the questionnaire had been analyzed and interview questions were generated from data collected, the next instrument used was the in-depth interview.

Each participating family unit was interviewed once and interviews were conducted in person at the district FEC. The questions asked were carefully constructed, exploratory, open-ended, and without bias, in order to gain as much insight from the participants as possible (Yin, 2009). The interview was delivered in whichever language the participants preferred (English or Spanish). A district-vetted and -approved translator, who had signed a nondisclosure agreement, was used if requested by the participants. Digital translation tools were further used in the case of participants who preferred to answer in Spanish. Both the translator's translation and the digital translation were compared to ensure correct meaning of expressed ideas. Twenty questions were asked with all participants receiving the exact same questions. The interview process was delivered as a dialogue with rapport building as a means for both interviewer and interviewee to feel something was accomplished (Fontana & Frey, 2005).

All digitally recorded data were transcribed through the NVivo Transcription platform. After interviews were transcribed, transcriptions were shared with participant families as a member checking device to further reliability and validity by ensuring participant's thoughts, perceptions, ideas, and perspectives were accurately understood (Winters & Netscher, 2016). Afterwards, coding occurred to help identify common themes in the recorded responses (Saldaña, 2013). Inductive coding was employed as the research was exploratory. Codes were developed and similar nodes were placed into categories from which themes should develop (Saldaña, 2013). Coding was revised to ensure category definitions were as precise as possible to keep overall reliability high. The reliability of the coding was done through the test–retest method in which the investigator of the study completed an initial coding of the interviews and then did a second coding, without examining previous results, then compared the two codes to check for any differences. A coefficient of reliability was conducted as many variable factors could be taken into consideration when determining reliability (Gorden, 1992).

The final instrument was a focus group interview. The focus group was comprised of a subgroup of the participant families. The subgroup was comprised of only the participating Latinx mothers of district students. The focus group took the form of a short conversational interview between strangers who shared everyday experiences with the increased technology and Internet access within participant homes (Merriam, 2009; Yin, 2009). The formation of collective testimony enables women of color, who have been traditionally silenced, to have a voice. Taking the Latinx mothers away from other adult family members had the potential to yield further interesting data as the focus group interview provided a safe space from which to share ideas, attitudes, and perspectives (Denzin & Lincoln, 2005).

Data Collection

Although permission had already been granted by the school district of study (Appendix B), no data were collected until the research study was approved by IRB and permission was obtained from all participant parents of district students. All recruitment materials were sent to IRB for approval along with obtaining overall study approval. Once approval was obtained from IRB, the initial interest survey was sent home with district students in order to find families willing to participate in the study. The interest survey was in both English and Spanish and included instructions on how to fill out the form and in addition were included information on how and when to return the form by. The distribution and collection of interest surveys was done in collaboration with school site administrators, teachers, and the district FEC. All survey translations were done by the district-approved translator. Basic information and answers were analyzed and used in the creation of the pre-interview questionnaire. Families selected represented a random sample from all respondents and were stratified, by educational level (elementary school, middle school, high school) of students in the family.

After families were selected, families were presented with a pre-interview questionnaire. The questionnaire was comprised of 20 open-ended questions pertaining to the participant families' knowledge and use of computers, the Internet, and digital citizenship. The questionnaire was printed in both English and Spanish. The questionnaire was the same for all participant families and allowed families a voice for views regarding the research topic (Winters & Netscher, 2016). Answers obtained in the questionnaire were used in the creation of interview questions. All interview questions and protocols were first approved by the dissertation committee and IRB before being utilized for research.

In-depth interviews were arranged through the district FEC. All participants were assigned an anonymous numerical-based configuration (made up of the grade level of the family's student, random respondent number, and an abbreviated indicator of language) making data private and not able to be tracked. The district translator accompanied any interviews where the participating family indicated a preference for Spanish language. The interviews were digitally recorded and ran through a digital translation tool. The tool was a feature of the online transcription service NVivo Transcription. The district translator signed a nondisclosure agreement, and was reminded to be further bound by district privacy rules. Five questions generated from the pre-interview questionnaire were asked and all answers were coded for themes. After interviews were transcribed and coded, participant families were given copies of the transcriptions to read over for accuracy. Families were given an opportunity to revise any information perceived as inaccurate or misconstrued before the study moved forward (Saldaña, 2013).

The final data collection tool was a focus group interview created from a subgroup of the participant families. The subgroup was comprised of just the Latinx mothers of district students and the focus group provided a safe space from which to share opinions and ideas without being silenced in some way (Denzin & Lincoln, 2005). These mothers were given the anonymous resulting data from the in-depth interviews to read over. After a given amount of time for a reading over of the data, the focus group was asked to discuss any thoughts, feelings, perceptions, or ideas the group had about the data as well as any additional thoughts or ideas the group had regarding having a laptop and increased Internet access within homes. The three tools—pre-interview questionnaire, in-depth interview, and focus group—were all used to help

triangulate data in an effort to ensure greater reliability and validity of collected data (Fontana & Frey, 2005).

All collected data were housed on both a personal hard drive and backup drive (neither connected to the Internet), owned and accessible only by the investigator of the study. Files on the hard drives were labeled for the research study, but all data used the numerical-based code to ensure anonymity. All data collected was kept anonymous with no names or student identification numbers collected in order to ensure identities of all participants were protected.

Data Preparation

There was no preexisting data to be examined. Although all pre-interview questionnaire data were disseminated through an appropriate option of either a paper questionnaire or through digital e-mail, all respondents chose to fill out the paper version of the questionnaire. Participants were given a choice to communicate in either English or Spanish in order to satisfy the comfort and needs of the participants. Interview and focus group notes were taken in a personal and secured notebook. All interviews and the focus group interaction were recorded on a digital voice recorder. All data recorded was transcribed using online transcription service NVivo Transcription. The transcriptions from both the interviews and the focus group were then imported and coded for themes into NVivo 12 Pro. The NVivo 12 Pro software which was specially designed for storage, organization, and coding of transcriptions for qualitative research.

Data Analysis

Data analysis focused on the perceptions of participants in regard to cultural effects experienced from having an Internet-capable computer and increased Internet access established within homes. In order to establish internal validity, triangulation resulted from the use of

multiple methods of data collection as befits an exploratory case study research design (Creswell, 2013; Merriam, 2009; Yin, 2009). Triangulation through the use of multiple sources of data collection aided corroboration through the development of converging lines of inquiry (Yin, 2009). Three main instruments were used; questionnaire, in-depth interviews, and focus group. These data collection instruments were approved by IRB prior to the beginning of research. Furthermore, the systematic collecting and assessing of data improved the quality and validity of the findings of the research (Baxter & Jack, 2008).

Questionnaire

After recruitment and selection was established, the same pre-interview questionnaire, approved by IRB, were given to all 17 participating families. The questionnaire was developed in both English and Spanish and disseminated by both paper copies and by digital document in e-mails. All 17 participating families chose to fill out the paper form of the questionnaire. The questionnaire was the first step of data collection. Resulting data from the questionnaire was deconstructed and coded for understanding of emerging themes (Baxter & Jack, 2008). All data were synthesized to find similar ideas with a determination of relation of ideas and significant meaning. Emerging themes were categorized into groups to answer research questions (Saldaña, 2013).

Interviews

After the questionnaire was used to find major themes, five questions out of the initial 20 were chosen for use in the interviews. Interviews were the second point of data collection within the study. Interviews were conducted in either English or Spanish as indicated by preference of the interviewees. The translator used was one who had been district approved, vetted, and in

addition signed a nondisclosure agreement. All transcription and coding were accomplished using the online platform NVivo Transcription and the NVivo 12 Pro software. Analysis and coding of data occurred simultaneously with the collection of the data for greater depth of analysis (Castro, 2016), but could have been further repeated after participants replied to the accuracy of transcriptions through member checking. Member checking of transcriptions allowed the respondents a final opportunity to share any additional information or feelings and verify the accuracy of collected data and provided a final voice for participants (Winters & Netscher, 2016). Major themes and subcategories were looked for using inductive reasoning, as befits an exploratory case study approach, with pattern matching for better determination of major themes and subthemes (Baxter & Jack, 2008).

Focus Group

After the questionnaire and the in-depth interviews, the final data collection tool was a focus group. The third tool increased the reliability and validity of findings within the data by means of triangulation (Fontana & Frey, 2005; Schwandt, 2007). The focus group was made up of just the participating Latinx mothers of a district student, as a subgroup of the study. Once participants arrived for the focus group, the participants were given the anonymous resulting data from both the questionnaire and the in-depth interviews to read over before the focus group began. After sufficient time had passed for the reading of resulting data, the participants were asked to begin by commenting on the shared data. The focus group operated as a conversational interview in which participants discussed perceptions, thoughts and ideas regarding the data as well as any additional information on everyday experiences with the increased technology and Internet access within homes (Merriam, 2009; Yin, 2009). The conversational focus group was

kept to 40 minutes in length. The focus group should have provided a safe space for the Latinx mothers to share thoughts, perceptions, and ideas through collective testimony by Latinx women who traditionally have not had a voice (Denzin & Lincoln, 2005).

Reliability and Validity

Reliability and validity were insured by the triangulation of the three data collection instruments: questionnaire, interview, and focus group. All data collecting instruments were coded and used to look for emerging patterns and themes. After pre-interview questionnaires were collected, five main questions were selected and used as the basis for the in-depth interview questions. All Interviews were transcribed. Interviewees were given copies of interview transcripts to go over to ensure meanings were captured correctly. Allowing participants to engage in member checking of collected data allowed participants to verify the accuracy of transcribed words and further gave further voice to the participants (Winters & Netscher, 2016). Coding took place before transcriptions were reviewed and accepted by interviewees. Coding was to be repeated if there was any feedback received from the participants, but there was no occurrence of feedback given.

Any persons conducting research have a need to ensure the credibility of findings (internal validity) and show confidence in findings by adopting processes which demonstrate the ideal (Lincoln & Guba, 1985). Member checking is one tool which could be used to increase reliability and validity of collected data (Winters & Netscher, 2016). Data could be documented in an objective manner using digital recording devices to ensure all words and inflections were captured as accurately as possible. The integrity of the data collected could rely on triangulation

as a check for any truths which could emerge from the data (Fontana & Frey, 2005; Schwandt, 2007).

Ethical Procedures

To ensure the protection of human subjects of research, strict adherence to Title 45, Subtitle A, Subchapter A, Part 46, Protection of Human Subjects (U.S. Department of Health & Human Services, Office for Human Research Protections [USDHHS], 2018), which was based on *The Belmont Report* (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research [NCPHSBBR], 1976). Procedures consistent with sound research design and not unnecessarily exposing participants to risk were used (USDHHS, 2018) in an effort to minimize risk to participants and achieve IRB approval. Informed consent, and the basic ethical principles of respect for persons, justice, and beneficence were adhered to (NCPHSBBR, 1976) in all aspects of the study.

A high ethical standard was maintained throughout the research study in order to ensure objectivity was realized and participants were free from any harm from the study (Yazan, 2015). All participants in the study were consenting adults (no students) and were kept from any potential harm. Only adult parents of district students were interviewed. All participants signed an informed consent form, prior to participating. The informed consent form explained all participant's rights including anonymous participation, expectations as a voluntary participant, confidential treatment of information, and all ethical considerations as established by the American College of Education and IRB.

Recruited participants began the study by signing an informed consent document which outlined all participant rights per IRB requirements. All documents, including the informed

consent form and questionnaires, were made available in both English and Spanish. All documents had been approved by the dissertation board and IRB before being given to participants. Participants could choose preference of language, English or Spanish for the interviews and focus group. After the informed consent was obtained, the next step was for participants to complete the pre-interview questionnaire, created with questions approved by the dissertation board and IRB.

Five of the questionnaire questions were used as a basis for the interview portion. These interview questions, which had been approved by IRB as part of questioning, were asked to participants. The district-approved translator, who had signed a nondisclosure form, assisted in asking and answering questions in Spanish for the investigator of the study whose primary language is English.

All interviews were electronically recorded, transcribed and coded using the online program, NVivo Transcription. All respondents were given copies of transcriptions and further given the opportunity to check for accuracy as a form of member checking (Winters & Netscher, 2016). After the interviews, a final focus group took place with Latinx mothers of district students. The focus group provided a safe space for participants to freely share information away from other adults in the household in order to ensure these mothers were given a voice (Denzin & Lincoln, 2005). Participants were not forced (or coerced in any way) to participate in the study, but were rewarded with a means of appreciation at the end of the study as fitting and appropriate (Kaba & Beran, 2014). For the study, a gift card for \$50 was given to each participating family after completion of all data collection.

All IRB regulations were adhered to and participants were treated with dignity, humility, privacy, and respect. Informed consent was gathered from each participant family and all data collected was protected, with each adult participant only identified by a numerical-based system. All coding of data made use of the numerical-based anonymous configuration, instead of names, to identify the participant's answers. The participants were not harmed and all effort was made to ensure privacy and protect family personal data (Fontana & Frey, 2005). Collected data were housed on two personal hard drives; a primary drive and a backup drive. Both drives were owned and accessible only by the investigator of the study, with a file labeled for the research study. The data collected was kept anonymous with no names or student identification numbers collected in order to ensure identities of all participants were protected per IRB guidelines.

Some potential problems were anticipated to arise in various forms such as in participant families dropping out of the study or in establishing interviews times to fit around the schedules of the families. Neither of these potential problems occurred. If a family had elected to drop out of the study, another family could have been randomly selected from the reserve pool of families interested in taking part of the study. All interactions with participants were conducted with transparency and in a friendly demeanor in order to establish a sense of security and well-meaning with the research families. If asked, follow up resources were provided (such as digital citizenship materials) in both English and Spanish as to how the families could cope with situations which might arise from increased digital access.

The research was not concerned with the education level of the parents. The investigator of the study, who identified as Latino/Hispanic, had been working with the parents in the school district for 17 years and understands the population well. The population is a homogenous group

of lower SES with mostly eighth grade to some college education. Parents with college degrees were an extreme rarity. The school district used in the study has a Hispanic (labeled as such) student population of 76.5% and a poverty subgroup of 83.8%, based on free and reduced lunch needs (VVUSD, 2019). Most parents self-identified as first or second generation Latinx.

Although many district parents were undocumented there existed a rarity for these parents to be illiterate. Parent education level was not a barrier in collecting data as the aims and questions of the research were not difficult to understand and both the consent form and questionnaire were printed in English and Spanish. All questions asked were kept simple and easy to understand as a way of addressing the educational level of any potential participant. To further check for understanding, parents were given the option to have the consent form and questionnaire read out loud if needed.

All data generated by the study was retained for a minimum of three years before destruction per federal regulations (45 CFR 46). After three years has passed from the completion of the study, all data shall be destroyed. Any paper documents shall be shredded and disposed of, audio recordings and computer data shall be summarily erased and wiped clean from digital recorders and computers. Any, and all efforts were to be made to adhere to IRB rules and regulations regarding the ethical treatment of participants of a research study.

Chapter Summary

Chapter 3 provided an outline of the methodology which was implemented with the exploratory qualitative case study. There were three data collection instruments used to triangulate data: questionnaire, in-depth interviews, and focus group interview. Member checking took place after the in-depth interviews to increase validity. Outlined, in detail, were all

the instruments used in the study, the preparation and analysis of the data collected, as well as checks for the reliability and validity of the research. A final section was about how the ethical treatment of participants was maintained throughout the study as well as retention and destruction of data per IRB regulation. The termination of data collection, as outlined in the chapter, formed the basis and requirements of Chapter 4.

Chapter 4: Research Findings and Data Analysis Results

The purpose of the qualitative exploratory case study was to uncover if there were any effects on the Latinx household culture of students who were part of a daily laptop take-home program. Data collection utilized three instruments: a questionnaire, semistructured interviews with individual participating families, and a focus group discussion with the female heads of households. The following questions steered the qualitative exploratory case study:

Research Question 1: What do Latinx families explain as the effects to culture felt by increased digital access due to the Internet-capable computers being sent home with Latinx students?

Research Question 2: What changes do Latinx families experience with Internet-capable computers being used at home in ways which reflect a cultural difference from previous limited digital access to increased digital access?

Research Question 3: What cultural shifts are Latinx families experiencing, including benefits or detriments, with having Internet-capable computers brought home?

The results revealed effects on the Latinx household. Families were forced to adapt to and create limitations for Internet-capable devices being brought home daily by students. The main detrimental effect experienced was a perceived loss of interpersonal interaction between students with friends and families. While the devices enabled increases in communication and collaboration, there still existed a perception from parents of a loss of physical presence between students with peers and family. Additionally revealed was how all families acknowledged the need for technology for students and were glad of the increased access and equity. There were

some voiced concerns which centered mainly on student's loss of interpersonal interaction with others and the possibility of addiction to the Internet and technology.

The purpose of Chapter 4 is to explain how data were analyzed and what the research findings were within the qualitative exploratory case study. The chapter is organized into sections which explain data collection, data analysis, results, reliability and validity, and a summary of the chapter as a whole.

Data Collection

Data collection was first initiated with a questionnaire comprised of 20 open-ended questions given to each of the 17 participating Latinx families who had at least one student registered within the district of study. Seven of the families had an elementary student while another six had a middle school student and the final four had a high school student. Each questionnaire was analyzed for emergent themes from each participant group. After the questionnaire, individual semistructured interviews were conducted with each participating family. The final data collection step was a focus group made up solely of the female heads of the households. The group selection was done in an effort to provide a safe space from which these women of color would have a voice and safe space for collective testimony (Denzin & Lincoln, 2005). Data ceased being collected when saturation occurred with the alignment of themes after all emergent themes were evaluated and compared (Creswell, 2014).

In order to begin data collection, meetings were held with the manager of the FEC located within, and for, the public school district involved in the research study. There were various meetings between May 2019 and January 2020 in an effort to ready the FEC team as to the needs of the study and planning FEC involvement. Between January 10, 2020 and January

15, 2020, an appropriate e-mail was constructed between the investigator of the study and the FEC manager to disseminate to district parents who were involved with the FEC in some way. On January 16, 2020, the FEC manager disseminated an official e-mail from FEC to the potential participant families on the FEC e-mail lists. The e-mail explained the aims of the research study and criteria for participation, as established in Chapter 3. Attached to the e-mail were the informed consent letters (Appendix A) and questionnaires (Appendix D) in both English and Spanish. An additional 20 packets of the English forms and another 20 packets of the Spanish forms were distributed to site English Language Advisory Committee (ELAC) meetings at each of the three levels, elementary, middle, and high school. The e-mail from FEC and the ELAC meetings instructed participants to return the signed informed consent letters and questionnaires no later than February 3, 2020 in order to be included as participants in the study.

By February 3, 2020, 17.7% (17 out of 96) of district families invited to participate in the research study had turned in completed informed consent, with contact information, and initial questionnaire and had completed the individual interviews and focus group. Figure 1 illustrates the number of respondent families against the total of families invited and is not meant to provide any quantitative classification. Of these district families, seven families had a student at an elementary school, six had a student at a middle school, and the last four had a student at a high school. Five of these families responded in English and 12 responded in Spanish. Sixteen of the families responded as a result of the FEC e-mail while only one family of an elementary student responded as a result of a site ELAC meetings. All informed consent forms and questionnaires were collected by the FEC and given over to the research study on February 3, 2020.

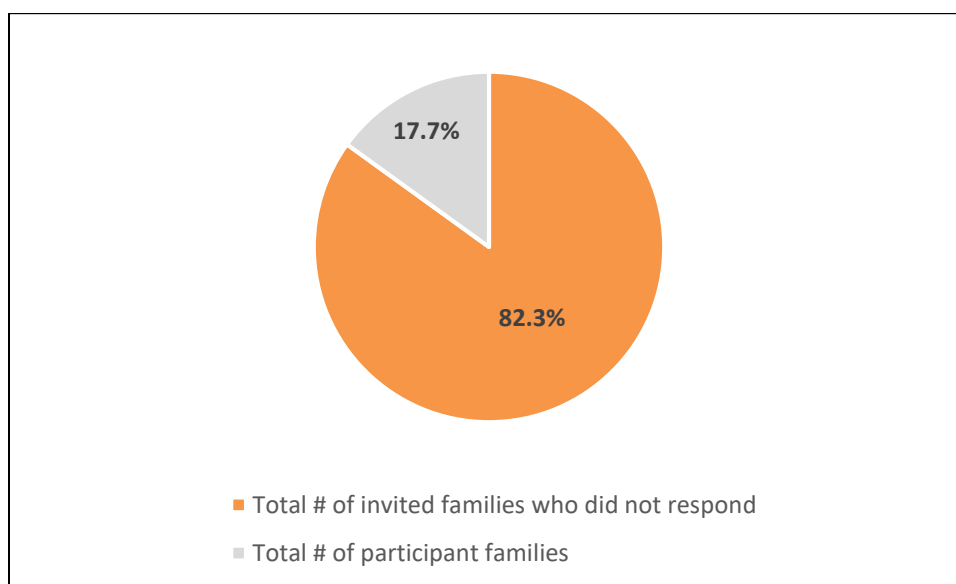


Figure 1: Breakdown of actual participant families.

Each participant family which responded with an informed consent and questionnaire between January 16, 2020 and February 3, 2020 was scheduled for an interview. No participants were interviewed until informed consent was turned in. Each individual family was scheduled for an individual interview on a date of family preference and convenience between January 22, 2020 and February 3, 2020. Respondent families took part in a semistructured interview just once, which lasted between 30 to 40 minutes in duration at the Student Services Conference Room (under guidance by FEC). The focus group took place, with just the female heads of households, at the Student Services Conference Room (under guidance by FEC) on February 3, 2020. All individual interviews and the focus group were conducted. A female district translator assisted whenever a family had a language preference of Spanish. A confidentiality agreement (Appendix E) was signed by the district translator prior to interviews taking place. All interviews and focus group data collection took place at the Student Services Conference Room (under FEC guidance) with a district employee translator as needed. Interviews and focus group data were

captured verbatim using a Sony ICDUX560BLK Digital Voice Recorder and transcribed through NVivo transcription software.

Written notes were made during all interviews and focus group and these notes were used to verify the accuracy of all transcriptions in instances where words or phrases were inaudible or not correctly translated and transcribed. Each individual interview and the focus group were transcribed using NVivo transcription service. Any words which did not transcribe properly were identified by listening to a playback of the digital recorder and transcribed by hand. After each interview was transcribed, a copy was e-mailed to each participating family (in language of preference) with a request for review for potential errors and feedback. All families who responded indicated the transcriptions were fine and voiced no concerns or additional feedback.

The focus group was conducted at the Student Services Conference Room on February 3, 2020 with 15 out of the 17 families participating. This group was solely for the Latinx female heads of households in an effort to give collective testimony to traditionally silenced voices of Latinas (Denzin & Lincoln, 2005). Focus group discussion was assisted by a district translator and lasted for 55 minutes in duration. Five out of the 20 questions asked on the initial questionnaire, which were representative of the most frequent emergent themes from the interview and pertained to the research questions, were used for the focus group. These questions were ones which specifically centered on the intersection of the participant family home culture and the increased access to technology and the Internet within Latinx family homes.

There was only one deviation from the original data collection plan as outlined in Chapter 3. In Chapter 3, there was noted a plan for only 12 families to participate in the data collection. Seventeen families came forward in response to the call for participants for the study and a

decision was made to not turn away any of the participant families. All 17 families were eager to participate and share information. All 17 were interviewed as a result. All interviews and the focus group data were collected by using a digital recorder as planned in Chapter 3. Nothing unusual occurred during data collection and all participating families were eager to be a part of the study.

Participant Selection

Selection of participant families was aimed at first or second generation Latinx families who had at least one student registered in the public school district of study located in Southern California. FF Figure 2 illustrates the percentage of immigrant families to second-generation families and is not intended as quantitative data. Although not specifically asked, 16 of the families indicated an education level to be between middle school levels to some college. Only one family indicated as being college-level graduates. Immigration status was not asked but appeared to be a concern with some of the families as discovered incidentally through the interview process.

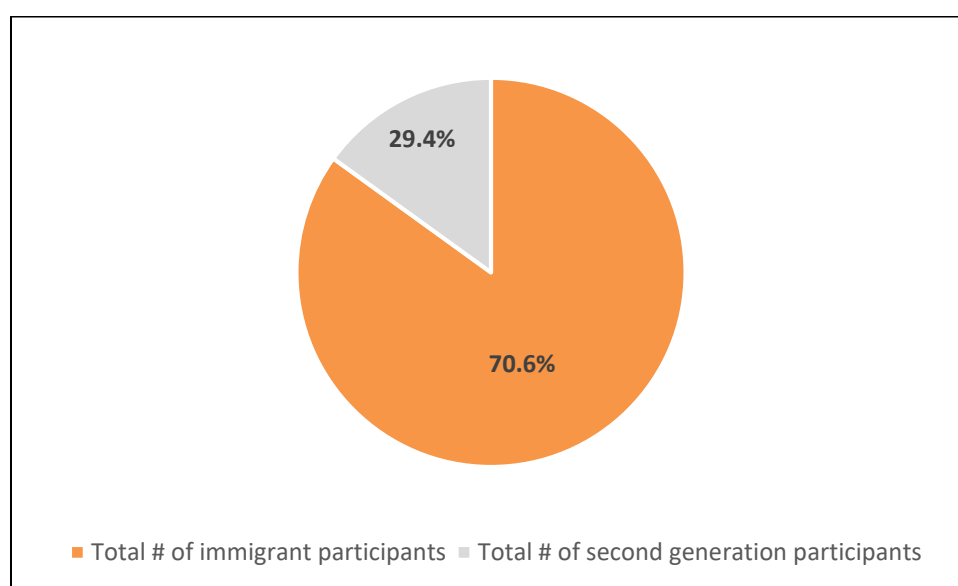


Figure 2: Breakdown of immigrant and nonimmigrant families.

Data Analysis

Data is secured for confidentiality in accordance with IRB standards and as planned and detailed in Chapter 3. All data is to be stored securely for three years after the completion of the research study before being destroyed (45 CFR 46). Hard copy data is stored in a locked filing cabinet owned solely by the investigator of the study. Digital data is being stored on an external hard drive owned solely by the investigator of the study and accessible by password known only to the investigator. No names or identifying marks were used when collecting data from families other than what level of education the registered student was at elementary, middle, or high school level. Any names mentioned of school sites or individuals during either the individual interviews or focus group was censored during the transcription process.

All participant anonymity was maintained through the use of codes. The code used a random number between 1 and 17 between the student education level and the family language preference used with these abbreviated initials: ES = elementary school, MS = middle school, HS = high school, ENG = English language preference, and SPAN = Spanish language preference (ex. ES1SPAN = elementary school student, participant family 1, Spanish language preference). Protecting the anonymity of the population was a paramount concern and the codes were a necessity in identifying emerging themes while ensuring the confidentiality of the participant families.

Data Preparation Process

Data preparation was handled in two separate ways. All 17 families preferred turning in paper copies of the questionnaire instead of completing the digital copy of the questionnaire.

These paper questionnaires were first hand coded, and further inputted into NVivo software to verify and expand on coding. The emergent themes from the coding were used to determine which questions would be key to ask during the interview phase. All data from the individual interviews and the focus group were transcribed from mp3 files collected on a Sony ICDUX560BLK Digital Voice Recorder owned by the investigator.

The NVivo transcription service was used to further verify emergent themes and generate a Microsoft Word document which was e-mailed to each participating family for member checking and verification of accuracy and feedback for potential errors of syntax and meaning. Participant families were given a seven-day window in which to respond with any changes, questions, or concerns. Data saturation was obtained when no new information was collected from participants. Once all families responded, all interview responses were categorized based on student education level, participant number, and language preference. For example, a family with a middle school (MS) student, who were the 11th family to reply, and preferred responding in English (ENG) were coded as MS11ENG.

Coding and Identification of Themes Process

Once all participant data were collected from the three data points (questionnaire, interviews, and focus group) and analyzed, codes were developed which led to the establishment of categories from which emergent themes developed (Creswell, 2014). Through analysis and the use of thematic coding strategies, the investigator could describe, summarize and draw conclusions regarding the research (Creswell, 2014). The analysis process helped to achieve alignment of the themes through the analysis and helped to create greater focus on the major themes which emerged (Creswell, 2013).

The initial process began with examining the raw data from the questionnaire and the interviews to organize individual responses into statements which alluded to benefits or detriments of having the increased technology and Internet access. Once these statements were coded, the statements were connected and correlated to one another in a process which developed themes. The process of categorization was completed through inductive analysis (Merriam, 2009). The emergent themes answered the research questions and are explained in detail in the Results section of Chapter 4. The frequency of similar concepts was developed into emergent themes and the frequency of these themes were determined.

Participant replies to the questionnaire, interviews, and focus group were all hand coded and further coded using NVivo software to verify coding and analyze data in a consistent manner. NVivo transcription software was used to verify the emergent themes. The codes with the highest frequency were developed into the themes of the study.

Cutting and Sorting for Unique Perspectives of Identified Themes

The data were analyzed from all 17 participating Latinx families. All questionnaire responses were coded by hand and by NVivo software after all 17 were completed and turned in. Coding took place with all transcripts from individual interviews and the focus group immediately upon completion to determine themes and subthemes. The process was done with the idea data would be further coded, or themes altered, pending member checking from participants to give further voice in the research (Winters & Netscher, 2016). Member checking did not reveal any further necessity to change codes or emergent themes and subthemes. All themes and subthemes emerged through the actual responses collected from participants as adheres to research theory (Merriam, 2009).

Preset Codes and Discrepant Data

No preset codes were used in the study as coding and themes emerged naturally. Comparing and correlating data enabled the development of a greater understanding of the experiences with increased technology and Internet access of the Latinx families who participated in the study (Yin, 2009). Possibly due to the homogenous group of participants, little to no variance in perspectives was encountered. Although not a specific aim of the research, to interpret the views and perceptions comparatively between first and second generation Latinx families, interesting to note is how first generation families responded with answers at a slightly higher frequency against the encroachment of technology than second generation families. Metaphors were not a variant in the study due to the nonexistence of metaphors. The investigator entered the research study without bias and with no preconceived theories as the study was conducted as an exploratory study.

Results

Themes emerged from the inductive analysis of collected data and were sorted under the particular research question answered. There developed some overlap between the research questions and resulting data which created a need to analyze the results through the emergent themes. The main themes which emerged were technology as change agent, interpersonal interaction, and perceptions of technology. Through inductive analysis these themes were further explored through the subthemes under technology as change agent with family, student, and parents. The theme of interpersonal interaction was further examined with the subthemes of interpersonal interaction with family and with others. Two further subthemes emerged under the theme of perceptions of technology; access and equity, and causes for concern. The overall

frequency of these themes, collected from participants at all data collection points, is represented in Table 1 and is not intended as a quantitative measure or classification. There was no data found to be nonconforming to the original research questions and emergent themes.

Technology as Change Agent

The first theme examines how technology acts as a change agent within Latinx homes. Apparent through collected data were how all families experienced some change within homes. For some there was only a minimal adaption to a new element of daily life, while for others the change represented a greater shift in home culture. Although there were some aspects of having the Internet-capable device sent home which affected the family as a whole, there emerged three main subthemes: family technology use, student technology use, and parent technology use. Within these subthemes, *family* is analyzed as a collective group while *student* and *parent* are treated as individuals.

Table 1

Frequency of Thematic Responses From All Collected Data

Theme/subtheme	No. responses
Technology as change agent	
With family	136
With student	238
Total	374
Interpersonal interaction	
With family	64
With others	36
Total	100
Perceptions of technology	
Access and equity	88
Causes for concern	90
Total	178

Family technology use. Data indicated how participant families had to adapt to the introduction of an Internet-capable device being sent home with students as directed by the school district. Some parents shared initial difficulties when the devices first started being sent home. Adaptation by families took a main form in how new rules and limitations had to be adopted by families who were experiencing new found problems with the discipline, health, and safety of students. Participant families agreed limits, rules, and expectations had to be established during the first year of the 1:1 initiative. These rules and limits dealt mainly with the amount of time and how the students were allowed to use devices.

Parents related how the Latinx family culture was being challenged by the infusion of the Internet-capable laptops within homes. The finding aligned with literature on how similar initiatives do not take the home learning environment into account and family culture might be altered (Fleischer, 2017). Some participants alluded to aspects of culture being eroded (loss of family and peer interaction). A few participants were more specific about addressing the Latinx experience with technology and the concerns Latinx families felt in regard to family culture.

- I remember the very first time that the Chromebooks went out, one-on-one, the parents . . . I remember we're sitting in a meeting in the Parenthood and they're, "Oh we didn't ask for this. We don't want this. This is keeping the kids awake all night long and they're just not being responsible with it." And I felt compelled to speak up and say all of what I've shared right now, is we are the people that can really manage that and we are the people that can really guide our students in the usage and it's actually a good tool and if we use it that way, you know, the students can gain a lot from it, but we need to be the one setting up those parameters and saying no. If the student is abusing the quote—

unquote Chromebook usage and they're staying up until two, well take the Chromebook away from that kiddo at nine. (Participant ES16ENG)

- At first it was difficult because I couldn't control them and they wasted time on something else and not on what they should. Sometimes my students like to watch YouTube. Chromebook activities in my house are limited and they are used only for homework . . . searching, when necessary. Set schedule. It is only used for research or homework or something relating to school. It is a tool. (Participant ES10SPAN)
- We have limits and hours when he can grab and use the device. I don't like that my son spends all his time on the device. (Participant ES11SPAN)
- I was very concerned. I just wanted to instill in the kids to make sure that they are respectful. Just what it's intended for, which is just homework and school business and so my little one who loves games, so she was using it for games for the first couple of months and so we had to set some parameters and absolutely no use for gaming or chatting or any of that stuff, which was not home work and school business. I've literally had a little device jail and I've used it every so often . . . I have . . . because it's in jail, and so it goes to jail at 8 and you get it back the next day, or for months. I've taken it away for months for different things. You know it's just a level of responsibility. There you go, that's Chromebook jail. Like take it away. You don't have to return it. You have the power to do this. I'm always shocked to hear that parents don't feel empowered to make these decisions you know. But it could be they're feeling like this was given to the child. Like "how can I take it away," you know. And it's like, I don't care . . . it's in my house I'm going to take it away. That's how I feel. (Participant HS17ENG)

- We always talk about respect and the fact that everyone is different. Different views in life. And this is what we value, this is what we honor, and this is the expectation, you know, but I always think I know that this is what we are but, they're going to adopt their own values they're going to adopt their own . . . you know, whatever they want to. Their own moral compass. So I come from a place, and I know this is very much Hispanic culture, we come from a place where, "No, you got to do this," very patriarch. This is what we're saying. So I always come from a place, this is what we believe in, and this is why, and this is what happens, this is the consequence. If you're watching things that you're not supposed to be watching this, these are the things that can happen. You're hanging out with people, these are the things that can happen. So they can truly understand why and act on that. (Participant ES16ENG)
- When we see real authentic Mexican families, like when we go to Mexico, it's just a factor there for parents. The respect is there for family. So whatever is said, that is the law. Respect for what we ask for and what we value. (Participant HS14ENG)

Parents further expressed how the student's device was a beneficial tool for the whole family in terms of easy access to the whole world through Internet access. Increased communication was discussed by many participants and is detailed in the section on Parent Technology Use. Families explained how technology gave economic benefit. The economic benefit was due mainly to the fact families did not have to purchase Internet-capable devices for students as some families shared an inability to afford the additional cost for education.

- We are only benefiting. I don't have to buy them a device and less supplies to buy. (Participant HS17ENG)

- Chromebook benefits . . . helps all families to have their own personal device from the first years they are in the district. The primary result was to help parents avoid, economically, the monetary cost. Economic benefit to the family. Totally positive. (Participant MS5SPAN)

Student technology use. In analyzing the collected data, the single greatest area of frequency was in how the increased technology and access affected district students. Participants discussed student benefit in terms of use for education. All 17 participant families made mention of how having an Internet-capable laptop sent home with students was a benefit toward student's research, homework and project completion. Parents expressed opinions on how the devices enabled students to complete school tasks easily without having to bring home additional resources. Participant families expressed how students now had broader access to research and information via the Internet. Access to the entire world via the Internet was discussed and how access offered unique opportunities to collaborate with others no matter what geographic location. Some participants further pointed out how the devices were helping students to build self-responsibility as students now had no excuses to get work done. A few other benefits for students beyond classwork were mentioned by some participants.

- It principally helps students with online homework . . . exams. It's nice to see my little girl access and resolve her activity with knowledge. The district has helped grow students with this device. I'm grateful to this system as it personally helps our children know how to appropriately use everything available by the district. (Participant MS5SPAN)
- Now my son can practice what he did at school. It's very practical and easy to use for homework. (Participant ES3SPAN)

- I love that my kids do not have to carry so many textbooks. They keep their homework and textbooks all in one place. I love that they can do all of their homework with one tool—all is organized in Google Classroom. (Participant HS14ENG)
- Just the fact it's readily available for them. Any time when needed, they just jump on there . . . do what they need to do to get their homework done. I do love that my kids participated in AVID [Advancement Via Individual Determination] at the elementary level and it was just a huge binder and textbooks and so I have seen that go away. That was a huge concern for my youngest daughter because she . . . her backpack was incredibly fat by third fourth and fifth. It was incredibly heavy and so just knowing that everything's in there, Chromebook and everything through Google Classroom, all their assignments and they don't lose paper, this is there, they turn it in, so that's definitely a plus. (Participant HS17ENG)
- It's still like you can use the Internet, you can use the resources on the Internet, but just to be productive another way. So an example, my daughter is learning how to play the piano through YouTube. So she's utilizing it for other things, because we are absolutely not okay with them on their devices all day long. (Participant HS17ENG)

Parent technology use. Parents shared mainly positive feelings about the interaction with the student devices. School district communication with families stated parents could make use of student's devices (M. Penner, personal communication, May 18, 2018). Parents felt the devices gave benefit to the family in several ways. The devices allowed parents to easily connect with the whole world in a way unlike parents were used to. Some participant parents stated how applications like Google Translate were used whenever parents had to deal with others online

who spoke a different language than the family. Parents related how there was a new possibility to look up information to benefit the family, sometimes with help from students. Many parents related learning how to do banking online or make appointments online. Parents expressed a feeling of greater power in interacting with doctors and institutions like the Department of Motor Vehicles (DMV).

- They help me research information when I ask them to . . . look for a recipe, shopping . . . finding the lowest priced items. I ask my kids to collaborate in traveling itineraries, shopping lists, birthday . . . Christmas wish lists. (Participant HS17ENG)
- The Chromebook is practical. It is good because we don't have such a thing [device]. My husband and I can access the Internet. He can make appointments at the DMV easy. We are learning to use our bank on the computer with the Internet. It is very practical and easy to use. (Participant ES3SPAN)
- I think it is the other way around. They help me out when I have to work with online activities like documents. They help me by writing documents, printing documents, or send those documents. I'm happy when I can help my kids and work together. (Participant HS14ENG)
- It is important to prepare parents, as well as our students, by using it and having [Internet] access. We learn together. It avoids us going to libraries to research and saves us time. We can research necessary things easily. We are provided information and we get support in case we have a problem. (Participant MS5SPAN)

- I agree with using technology. Technology is a good tool. Just like our students we are learning and have fast access to searching, research. We can make doctor appointments when necessary. (Participant ES10SPAN)
- We have not worked on a project this year, but my oldest son has helped me with scanning certain documents. It is a nice way to interact with our children. I took a district computer literacy class and it helped me a lot. (Participant ES16ENG)

Interpersonal Interaction

The frequency of the theme established the theme as an important one relating to the culture of the Latinx family and Latinx shared beliefs. Latinx people believe in having strong interpersonal interactions with family and trusted friends (Gil, 2018; Pina et al., 2018). Although Latinx value social networks, the group tends to be a collectivist culture slow to trust people outside of family and friends (Carteret, 2011; Gil, 2018; Pina et al., 2018).

Interaction with family. Through a process known as technology brokering, Latinx students might transfer knowledge of technology and applications with parents (Pina et al., 2018). As students and parents interact, intergenerational exchange takes place in which both sides learn together in a bidirectional process (Gil, 2018; Pina et al., 2018). Latinx families might rely on bilingual students to navigate technology, finance, communication, and health concerns (Ayon, 2018; Pina et al., 2018). Participant parents were quick to point out how the increased access to technology and the Internet was the cause of a loss of family communication time. There was a concern students were spending too much time on devices and online. Loss of time was a major concern to participant families who made mention of the importance of family time. Several parents voiced how family communication was suffering with the devices in homes.

Some parents mentioned how increased use of the laptop device was affecting family meal time or other interaction.

- It [the device] takes you away from family and there is less communication.
Communication has been lost. (Participant ES8SPAN)
- I don't like that my son spends all his time on the device. Sometimes we cannot share meals together because he is working on homework. I'm not okay with it. (Participant ES11SPAN)
- Technology is part of our daily life so, on my side, it is just to keep a balance where we can share together time without technology. When we are going out to eat, no electronics, but this applies to all of electronics. (Participant HS14ENG)
- No phones, no computer, no nothing. I set the rules when we are having dinner we are just having dinner. When we are having a conversation we are literally having a conversation . . . phones down no computers. The Chromebook is in their backpack until they need it. They do not use their Chromebooks until they're needed. (Participant HS17ENG)
- One of the rules is to use it only for homework. I monitor the time my daughters use it. We're watching a movie, and they're trying to multitask on the device, and we're watching a movie we're spending time together, meeting for spending time together, or we have family over, absolutely no devices We need to spend time, you know?
(Participant ES16ENG)

Interaction with others. As a group, Latinx believe in strong relationships with close friends and people perceived to be in the social network of the family (Gil, 2018; Pina et al.,

2018). Latinx families understand technology used at school and at home could lead to academic achievement success for students (Bussert-Webb & Henry, 2016; Guerra-Nunez, 2017; Machado-Casas & Flores, 2014). Even with such an understanding, participants were concerned about how students were interacting less with peers in face-to-face situations. Some participants voiced a concern about students not going outside to engage in play and sports. Loss of interpersonal interaction of any kind was seen by some families as not being in line with Latinx cultural beliefs. The concern was especially evident when there was a perceived loss of interpersonal interaction with peers and others from the family's community of support. Although some participants noted increased collaboration on homework and projects with peers online with the devices, there was a noted concern Latinx students were becoming too dependent on technology.

- I see him looking at other things like YouTube instead of playing outside. I would like it [device] to be left at school. As I mentioned, it takes more time from his playing. They are guided by their attention of it [device] instead of playing with other kids. (Participant ES6SPAN)
- I have too like put my daughter in detox sometimes. I have to take away her Chromebook because she will stay on it all day long. I see her doing productive things like trying to teach herself to play the piano from watching YouTube videos, but she will go all day without going outside if we let her. She won't go play with friends or even avoid family if we let her. I have to detox her from the Internet. (Participant HS17ENG)

Interaction with teachers was discussed. Several parents shared how the Internet-capable devices were allowing students an unprecedented ease of access to share work or communicate with

district teachers. The interaction between students and teachers was seen as a benefit. Parents related how the increased exposure to others and collaboration was a shared benefit.

- My students do not need parent help on their activities. They have independence. Students do the research and complete their work. My students often collaborate online with other students and their teachers to good result. (Participant HS2SPAN)
- There is collaboration between brothers and others. They learn together. It benefits teachers so they can receive student work on time and students can work at home. (Participant ES6SPAN)
- It [device] facilitates delivery of homework and helps teachers. Students can get ahead on their homework and saves them time from going to the library. (Participant ES8SPAN)
- It [device] helps with homework and projects and when we need to communicate with teachers. (Participant ES11SPAN)
- Communication has changed. Better communication and fast support with teachers. (Participant HS15ENG)

Perceptions of Technology

Overall, participant families were extremely positive about students bringing home the Internet-capable device as mandated by the school district. Parent comments alluded to the issue of access and equity as being a positive result of the district initiative to send the Internet-capable laptops home every day with students. None of the families mentioned if the school district mandate for students to take the devices home all year long was unfair. While there was some initial concern during the first year of the 1:1 initiative as discussed previously, the concerns did not carry over into the present. Participants shared a belief of the altruism of the school district in

wanting students to be prepared for a future with increased technology in both student's personal and professional lives. Parents felt having a device checked out to students in the family was teaching these students to be more responsible.

Access and equity. The concept of access and equity has been applied in the past to students having equity of access to educational resources. This concept defends the idea of students having an equal opportunity to achievement success in education. Technology has become an additional resource which should be taken into account as technology offers a richer and broader access to information and further resources. Responses by participant families illuminate how having access and equity with technology for students is necessary for future success.

- Technology has become an important part of my family and sometimes something that we need to balance. Those Chromebooks are ready to work and for me is a relief not to worry about having one for them. My kids are really prepared for school. They just need to have the device ready every morning. Makes me feel comfortable because I know there are people taking care of the security for this device on both software and hardware, so my kids can work on their homework. I believe the district wants that all the students have the same opportunity in learning all the advances in technology. (Participant MS13ENG)
- I believe the district wants to ensure our students have access and are prepared for this 21st century. (Participant HS17ENG)

- I believe the district wants our students to be technology prepared. I love the fact that each one of my students has their own Chromebook and are technology ready.
(Participant ES16ENG)
- Chromebooks definitely are quicker and easier to access, and so, when the district decided to give us our Chromebooks, or let them [students] borrow their Chromebooks, it was just like a dream come true because the kids to do their homework at their own time, they don't have to be sharing. (Participant HS17ENG)
- [The devices] make students responsible and prepare them for the future. (Participant ES8SPAN)
- The district gave the devices to hold students accountable and no excuses for not doing homework. (Participant HS2SPAN)
- The kids have been incredibly responsible. He's never broken and never lost it so it's been good. I always tell them it's a privilege. All of this technology at your fingertips, so use it wisely, you know. And so I'm not saying they're like perfect. I know that they are tempted and curious to see things and all that good stuff but they are also thinking about the consequence. (Participant HS17ENG)

Causes for concern. Some data collected did mention negative aspects of the district initiative. One family shared how a student would lie in order to have more time on the laptop. Participants shared how the family felt forced to adapt to technology use and accept the idea on how future generations should change to meet the needs of a technological world. Another negative shared was general feeling how students are becoming too dependent on technology. The information further relates to the idea represented earlier on how students are spending too

much time with devices on the Internet instead of having interpersonal interactions with others.

Culturally, the time students spent on devices was found to be a major concern with participants.

Some parents voiced concern about the ease of accessibility to inappropriate material.

- It is a beneficial tool if used for learning. It's not for me, but it is the future for my son. I don't think it is very good because my student says they have homework when they really want to play video games. I think we cannot forbid use of the device, because it is part of your future, but we need to limit its use. (Participant ES11SPAN)
- This effects the family relationships if we don't monitor the time they use it. I think we need to have certain control with technology, making sure our students don't become addicted to it. (Participant ES16ENG)
- There is a loss of family communication and personal interaction. Students stay away from family and communicate less. This is bad because our student is not talking or asking parents about things. Students are eager to view inappropriate sites. (Participant HS2SPAN)
- That definitely does bother me, that they have so much access to material that you and I didn't have access to as we were growing up. That definitely requires a lot of conversation with the kid. It's not okay and you could be in a lot of trouble if you're accepting these things, and it's on your phone, it's on your device, you could be liable for things that you have. So don't accept, don't be part of that you know, but they're teenagers and we have to understand that a lot of it is peer pressure. So that definitely has affected in a way that requires a lot of guidance, you know. It takes hours of conversation

with these kiddos so they know if it's truly . . . it's not like we're brainwashing them, it's reality you know. (Participant HS17ENG)

A few participating parents brought up cyberbullying as a concern. Nationwide 17.2% of Latinx students reported cyberbullying within schools (Trevino, 2017). The school district used in the study does provide digital citizenship training, which includes parts on how to deal with cyberbullying. Resources from Common Sense Media and Google's Interland are used as tools in training students and parents about cyberbullying. Even with such measures in place, several participants indicated students had experienced some form of cyberbullying. Cyberbullying might lead to students developing issues with mental and physical health and further negatively affect perceptions of technology and use with families (Chan et al., 2019).

- Yeah, you know what we're saying. . . . Most of our conversations are about digital . . . how to be responsible. That is, mostly. They'll come home and say "I saw this and they sent me this" and then we'll have this whole conversation about the consequences and the "this and the that," but mainly it happens . . . the bullying, the whole, cyberbullying, my kids have unfortunately been part of all that and I'm just walking them through. it just opens up another venue for . . . you know you're trying to protect them physically, and that goes very well, but then there's this other platform where they could be hurt and they could be you know just seeing other things. So I'm not one to say like . . . let's not talk about those things. I know you are going to see those things so let's just talk about all those things. (Participant ES16ENG)
- My child is open to tell me things. My child is treated as a college student. She has an openness to express what social media introduces. She waste some times on talking in

social media. My child expressed to me the boys in her class were chatting and sending invitation for sex at an early age. (Participant HS15ENG)

- Absolutely they do not talk these things over with their teachers. They are afraid their teachers will throw them under the bus, that's the feel especially when they're feeling like the whole cyberbullying and everything, just bringing it up to an adult at school they feel . . . I try to tell them you need to go talk you need to go say something I can only do so much here from home. You guys need to go do this, but they say "No, my teacher is going to say it in front of everyone and they're going to know it was me" . . . you know that kind of thing. So they absolutely do not address this with adults. Not normally, no. (Participant HS17ENG)

Latinx are sometimes found to not be trusting of technology. One of the fears held by Latinx families is the fear of technology breakage. Fears of breakage with technology might prevent some families from participating in online activities such as shopping, banking and making appointments. Technology breakage fears revolve around concerns with encountering computer viruses and the overall cost of repairs (Pina et al., 2018). A few parents shared concerns in regard to the fear of technology breakage.

- The main rule is to take exclusive care of the device. We are provided information about care, costs, and above all we get support in case we have trouble. As for care of the device, we are afraid to break it and having to cover the cost. (Participant MS5SPAN)
- We had a small problem with it. My son threw the Chromebook and it broke and I had to pay for it. We had no Internet access when it was being fixed and we had to go to the library for two hours when the students had homework. (Participant ES11SPAN)

A final aspect under the section was in the relation to how the Latinx culture of the participant families was being challenged. Most participants mainly alluded to aspects of Latinx culture being eroded (loss of family and peer interaction), but a few participants were more specific about addressing the Latinx experience with technology and the concerns felt in regard to family culture.

Reliability and Validity

Threats to credibility and dependability mentioned in Chapter 3 are described here along with the addition of the aspects of confirmability and transferability. In order to safeguard the dependability, validity, and thoroughness of research results, threats should be controlled or eliminated (Roberts, Priest, & Traynor, 2006; Souza, Alexandre, & Guirardello, 2017). In establishing validity, authenticity is further developed through the fairness of all views, concerns, claims, and perspectives of the participant families being included in the text objectively (Guba & Lincoln, 2005). Trustworthiness is imperative in research and in addition to how threats were dealt with, descriptions on how credibility, confirmability, dependability, and transferability were maintained throughout the research process are stated here.

Triangulation

Triangulation was met primarily through the use of three data collection instruments: open-ended questionnaire, semistructured individual interviews, and a semistructured focus group (Fontana & Frey, 2005; Schwandt, 2007). Besides these three data collection points, triangulation was enhanced in several ways. The questionnaire was reviewed prior to use by five subject matter experts (Appendix C), four of which hold doctoral level degrees. These subject matter experts each offered feedback and helped alter questions in ways which would receive the

information sought. For the semistructured interviews and focus group a district Spanish speaking translator assisted as needed. The translator, who signed a nondisclosure agreement prior to assisting in the interviews and focus group, served as another member to check the accuracy of participant statements and aided in determining the accuracy of Spanish transcriptions converted into English through the NVivo online transcription service. Participant members were e-mailed transcripts of the individual interviews and the focus group as a form of member checking (Winters & Netscher, 2016). These participants were asked to notify the investigator of any inaccuracies of words or meanings. These added elements are explained as part of credibility, confirmability, dependability, and transferability.

Credibility

As mentioned in Chapter 3, credibility was established through triangulation and member checking. Internal validity was maintained by adopting a process for data collection and analysis which demonstrated the ideal (Lincoln & Guba, 1985). Converging lines of inquiry corroborate the data from multiple sources of data collection in a process known as triangulation (Yin, 2009). Triangulation enhanced the integrity of the collected data as there were three opportunities for truths to emerge (Fontana & Frey, 2005; Schwandt, 2007). Participant families took part in a 20-question questionnaire, individual interviews, and a culminating focus group. Each of these data collection points was coded for emergent themes. Individual interviews and the focus group were recorded by a digital recorder and transcribed. These transcriptions were shared with the matching respondents and each participating family was given seven days to check the transcriptions for accuracy of words and meanings and give feedback. Member checking was

done to increase reliability and validity and in an effort to give further voice to the participants (Winters & Netscher, 2016).

Confirmability

All data emerged from the actual collected responses of the participants and adheres to grounded theory (Merriam, 2009). The questionnaire questions and emergent data were checked and rechecked by the investigator, the district translator, member checking, and through inquiry audit conducted by five subject matter experts, four of which hold doctoral level degrees. The peer review aided in removing some potential threats and was done in a spirit of transparency with the research and data collection. Member checking gave another opportunity of voice to the participants, increasing validity (Winters & Netscher, 2016).

Personal bias could be a potential threat to validity in a research study (Yin, 2009). The investigator used a subjectivity statement to recognize if there were held any preconceived perceptions regarding the subject matter of the study. The statement showed there was no personal bias present as the investigator held an exploratory, fact-finding attitude seeking only the truth which emerged from participants. The investigator engaged in critical self-reflection at all stages of the research study to further be aware of any potential personal bias (Merriam, 2009). The investigator fully disclosed any history relevant to the study in Chapter 3. The disclosure included the investigator being of Latinx/Hispanic descent and working within the district of study. Another potential threat of sample size was overcome by maximum variation. The original research plan was for 12 participant families, but 17 families responded and were included for greater diversity and variation (Merriam, 2009).

Dependability

The dependability of the research was maintained by the use of multiple methods of data collection which fit with the research design of an exploratory case study (Creswell, 2013; Merriam, 2009; Yin, 2009). Whenever impossible to separate the phenomenon's variables from a given context, a case study design is best suited in these instances (Merriam, 2009). Merriam (2009) concedes although interviews are the most common form of collecting data from participants, interviews are a befitting tool along with the focus group and questionnaire. A basic inquiry audit was used to ensure the findings were supported by collected data and to confirm the accuracy of the findings. The inquiry audit was accomplished by having three doctorate-holding peers examine the process of data collection, data analysis, and check over the results of the study for alignment.

Grounded theory was adhered to as all theories emerge from the data. The development of grounded theory was aided by the use of open coding and axial coding (Merriam, 2009). All procedures for collecting and analyzing data were done as a normal procedures in line with exploratory case study research. As the exploratory case study was designed using data collection types which best suited the needs of research, there should be no difficulty in replication of the study under similar situations and should yield consistent results (Creswell, 2013; Merriam, 2009; Yin, 2009).

Transferability

As internal validity was maintained throughout the research study, transferability (external validity) should occur with a research study under a similar situation. The research data analysis and results emerged from the collected data establishing a methodology of grounded

theory (Merriam, 2009). Anyone seeking to conduct a study on an ethnic group experiencing a new variable infused into daily lives, should be able to accomplish replication of the research design and sources of data collection as laid out in the study. The investigator would first need to determine if the findings of the study could apply to whatever populations, situations, contexts, and time period the investigator hopes to conduct research on. In doing a like study, an investigator might apply these methods to a similar situation and collect new results (Lincoln & Guba, 1985). The future investigator should take care to align the thick description present in the collected quotes from interviews within the study, along with the setting, situation, and participants, in an effort to determine if the study's design areis applicable to any potential study (Merriam, 2009).

Chapter Summary

The qualitative exploratory case study had a purpose to explore the effects Latinx families were facing due to increased access to technology and the Internet. Three major themes and seven subthemes emerged as the results of the study. These themes and subthemes answer the research questions by explaining how technology acts as a change agent with Latinx families as a whole, with students individually, and with parents individually. The interpersonal interactions between Latinx students and families, as well as the Latinx student's interaction with others outside of the family, further addresses the research questions as to the effects of technology and Latinx people. The final theme of the Latinx perceptions of technology yielded further insight into how Latinx not only perceive technology, but views on the issue of access and equity with technology and causes for concern with technology use. All of these themes and subthemes were supported by verbatim responses from participant families. Chapter 5 further

discusses the findings, connections to the literature, limitations, recommendations, and implications for leadership.

Chapter 5: Discussion and Conclusion

A school district in Southern California is trying to remedy the lack of computers in impoverished homes by daily sending Internet-capable computers home with all district students. The student body of the district is comprised of 76.5% Latinx students (VVUSD, 2019). There exists a significant gap in the literature on 1:1 computer initiatives and little research on the resultant effects of Latinx families and technology use (Guerra-Nunez, 2017; Vaala, 2013). The purpose of the qualitative exploratory case study was to explore the effects on district Latinx families whose students were bringing an Internet-capable device home on a daily basis. The study intended to lay the foundation for further research by delving into the effects felt by Latinx families faced with increased Internet access through the district 1:1 initiative.

The study aimed to contribute to the under researched recent development of 1:1 computer initiatives and effects experienced by Latinx families faced with greater Internet access. The significance of the research study is to provide information on effects experienced by Latinx families, faced with increased technology and access to the Internet within homes, on a daily basis. The resultant research findings are aimed at advancing the knowledge about the research problem through providing insight into the effects experienced by these Latinx families experiencing increased technology use within homes. Extant literature suggested there exists a need for further research on Latinx people and access and use of technology.

The methodology adopted was a qualitative exploratory case study using an open-ended questionnaire, semistructured interviews, and a focus group discussion solely made up of the female Latinx heads of households. Through analysis, major themes emerged. These themes aligned with the initial research questions with some overlap. The first research question was

concerned with any effects to Latinx culture from the 1:1 initiative. All of the emergent themes related to the research question in some way. Although participants were not specific in detailing effects to Latinx culture, responses alluded to the effects.

The second research question examined effects Latinx were experiencing with the Internet-capable devices being sent home by students. The themes which aligned with the research question were technology as change agent and interpersonal interaction. Subthemes further supported alignment to the second research question. The third research question asked for specific information as to benefits and detriments felt by participating families. Again, all emergent themes aligned to the question in equal measure.

Findings, Interpretations, and Conclusions

Analysis of participant responses and how these aligned to the research questions and the emergent themes revealed positive and negative aspects of the 1:1 initiative as experienced by district Latinx families. Each emergent theme uncovered benefits and detriments for Latinx families experiencing greater access to technology and the Internet. The main themes which emerged are technology as a change agent, interpersonal interaction, and perceptions of technology. These themes were further analyzed through more specific subthemes. Technology as a change agent was further dissected by the effects as experienced by the family as a whole, the individual student, and the parents. Interpersonal interaction was divided into subthemes which analyzed how interpersonal interaction was affected between the student and the family and by the student and other people. Perceptions of technology were further examined in terms of access and equity and causes for concern. These themes and subthemes are explored within

the context of the theoretical framework of CRT and compared to the literature described in Chapter 2.

Findings in Comparison to the Literature

The findings of the research study further knowledge and are validated when comparing and contrasting the findings of existing literature, as described in Chapter 2, against the investigator's conclusions. The emergent themes and subthemes were assessed against the reviewed literature and the theoretical framework of CRT. Confirmations of claims were established when compared and contrasted against the literature and are outlined here. Findings which extend knowledge beyond information revealed in the literature are identified as well.

Technology as change agent. Literature reviewed in Chapter 2 discussed in detail how technology use with Latinx students, and by extension the families, could be of great benefit to the lives of the group. Correlations have been found between economically disadvantaged at-risk Latinx students and the lack of exposure to technology, illustrating the need for access to technology (Hughes & Read, 2018). Guerra-Nunez (2017) explained how an educational environment rich in technology could help bridge academic gaps experienced by Latinx students and lead to achievement success by the group. Interesting to note is how one fourth of all Latinx families live below the accepted poverty line, yet surround the household with technology (Levinson & Barron, 2018; Morse, 2018).

To understand how Latinx intersect with increasing technology use in homes, there exists an importance to view the group through the lens of CRT (Zorn, 2018). In holding such a view, there exists a potential for a better understanding on how technology bridges the home-school disconnect experienced by Latinx families (Levinson & Barron, 2018). Latinx parents experience

transfer knowledge through the technology brokering occurring between parents and students who make use of technology (Pina et al., 2018). A phenomenon of motivation exists between the parents and students as students strive to rise out of poverty status and help family to rise out of poverty as well (Gandara, 2017).

Latinx/Hispanic are one of the fastest growing racial groups with almost 22% of the group living in the poverty range and experiencing high rates of high school dropouts (A. Flores et al., 2017). Although Latinx families are encountering increased access with technology, little research exists on how Latinx people are actually making use of technology (Guerra-Nunez, 2017; Levinson & Barron, 2018; Machado-Casas & Flores, 2014). As the research is concerned with how the Internet-capable devices are being used by Latinx students and Latinx families, the resulting information furthers the known knowledge on the intersection of the group and technology use. All collected data supported the idea of technology being a positive change agent with the Latinx demographic population.

Interpersonal interaction. Latinx/Hispanic households tend toward being patriarchal due to the *machismo* ascribed to Latinx males as the male gender usually represent as heads of household (Carteret, 2011; Cowan, 2017). Although males are established as the patriarchal hierarchy within many Latinx households, Latinx women are expected to teach and establish culture and beliefs with children (Ayon, 2018; Carteret, 2011). In the study, women were the main voice in assisting students with technology and setting limitations and expectations with the technology sent home. Some participating females mentioned the “final say” in the household was from the males. These concepts are important to better understand the family dynamic as pertains to interpersonal interaction with family and others outside of the family.

Through a process known as technology brokering, knowledge with technology is transferred from students to parents through interactions (Guerra-Nunez, 2017; Machado-Casas & Flores, 2014; Pina et al., 2018). Evident in the research was how students were helping parents with online searches and other opportunities for adult learning with the technology sent into homes. The technology brokering aspect of the research was extremely positive as parents were excited to make connections to the outside world and enjoyed the interaction and deeper communication with students.

Latinx people increasingly use technology to contact family and friends and share information locally and abroad (Levinson & Barron, 2018; Pina et al., 2018). The increased communication was present in the multiple mentions of using the technology for collaboration on projects, communicating with teachers, and using applications (Skype, Zoom, etc.) for interpersonal communication with family members and friends who lived far away.

Perceptions of technology. All participants shared the perception of technology being beneficial and playing an essential role in advancing the lives of students and families (Guerra-Nunez, 2017; Kreitz, 2017; Pina et al., 2018). Latinx parents tended to put trust in social networks for basic health and home information as long as platforms used did not ask for personal information (Cruz-Nichols et al., 2018; Pina et al., 2018). Although all participants responded in ways which illustrated the perceived benefits of increased access to technology and the Internet, there were still causes for concern indicated by the group.

As a group, Latinx families are not trusting of technology and hold fears of breakage and other related problems with technology (Pina et al., 2018). The fear of breakage was discovered and noted during data collection. Besides breakage, cyberbullying was a voiced concern as

17.2% of all Latinx students reported instances of cyberbullying (Trevino, 2017). Latinx students who are the victims of cyberbullying could develop issues with mental health, self-esteem, depression, substance abuse, and suicide (Chan et al., 2019). Besides, cyberbullying and negative communications with others online, the greatest fear was expressed as a loss of communication and cultural practices between the Latinx students, families, and others (Machado-Casas & Flores, 2014). The concept of setting limits with Latinx students and technology was constantly repeated and reinforced previous research findings (Levinson & Barron, 2018).

Findings in the Context of the Theoretical Framework

CRT was utilized as the theoretical framework of the qualitative exploratory research study. The study aimed to explore and discover the physiological and psychological needs of Latinx families and the technology being forced into homes by a school district. The resulting data from the study aligns with characteristics of Latinx people as a racial group. Technology as a change agent was examined as to how CRT had an effect on the specific group in relation to Latinx cultural beliefs and norms. The data confirmed the group was experiencing change within the Latinx family dynamic which was contrary to normal familial expectations, and further held positive benefits along with negative benefits.

Interpersonal interaction between Latinx students, families and friends was explored. Data showed while there existed positives within interpersonal communication after the introduction of the Internet-capable devices, there were far more negative aspects experienced by Latinx families. As strong interpersonal interactions between family and friends are a strong cultural aspect with the group, these findings should not be taken lightly. Further research studies should revisit how technology is having an effect on Latinx families.

Aspects of institutional racism were explored, but no real data concerning the concept manifested. The 1:1 initiative was done in a sense of altruism, and even though Latinx stakeholders were not taken into consideration, there appeared to be little residual difficulty with Latinx families accepting and appreciating the initiative as evidenced in a statement from one participant of the study. As further research has been noted in literature with regard to technology and having an influence on the Latinx family, there is an important need to conduct research on the demographic (Guerra-Nunez, 2017; Levinson & Barron, 2018; Pina et al., 2018). Educational leader cannot merely assume beneficence from the infusion of technology as the detriments could be assumed similarly and only research on the Latinx demographic might reveal truths (Guerra-Nunez, 2017; Levinson & Barron, 2018; Pina et al., 2018).

Conclusions

Utilizing CRT was appropriate in creating greater understanding of the study and the research problems. The theoretical framework of CRT helped to frame the responses from participating families and assisted in greater understanding of the perceptions of the Latinx demographic group. Through the collected data, there was discovered how technology was a change agent for the population, the effects experienced in relation to interpersonal interaction, and the perceptions the population had in regard to technology infusion within Latinx households. All themes and subthemes were aligned to participant responses, analyzed and interpreted to convey meaning with the collected data. As the aim of the study was an exploratory study into how technology was causing effect with the Latinx demographic population, all opportunities to interact and collect data from the population were exhausted in an

effort to complete triangulation and an overall deeper understanding of the intersection of Latinx and increased access to technology and the Internet.

Limitations

After data collection was completed, the limitations of the research study remained as stated previously; setting and time. The study was limited to only one demographic group within a particular school district in Southern California. The limitation might make an exact replication of the study difficult as relates to validity and reliability (Wiersma, 1999). The process of data collection further presented time constraints which had to be overcome. The investigator had to make additional time from work and personal life in order to collect data in a timely manner. Although deadlines were given to participants to respond with member checking and giving feedback, deadlines did not present a problem.

There materialized one additional limitation to the study, which was not mentioned in Chapter 1. Prospective participants were initially sent e-mails inviting these participants to be a part of the study. None of the final participants came forward as a result of the e-mails and were recruited solely from face-to-face invitations at district ELAC meetings where paper copies of the informed consent and questionnaire were provided. The phenomenon is in line with research done on lower SES people who have a lower frequency of Internet and e-mail use (Harris, Straker, & Pollock, 2017; Pew Research Center, 2018).

Recommendations

The investigator recommends the inclusion of all stakeholders in future decisions affecting all students, and families by extension, within a given school district. While altruism and beneficence are pillars from which a district should operate, there is a need to be mindful of

all demographics and stakeholder populations which might experience effects from district office decision making. Although only one participant commented on how district parents were kept out of the decision to implement the 1:1 laptop take-home initiative, all families did voice, or allude, to the need to make active decisions for family and students when new technology was introduced within Latinx homes. Parents, as a stakeholder group, should be allowed voice in decision making which could have an effect on the home and family.

The research should serve as a basis from which to conduct further research and recommends district Latinx student and family populations are revisited on a regular interval to ensure the group's needs are being met appropriately and with intentionality. There is specific need to revisit aspects of interpersonal interaction within the Latinx family as technology increases within households. The highest frequency of data showed the loss of communication experienced between students, family, and others was having the greatest negative change within the Latinx household.

Future research should focus on the achievement success of Latinx students utilizing technology. Future research might be accomplished in comparison with districts who have a similar demographic percentage of Latinx students, but do not make use of technology. Furthermore, known dropout rates could be analyzed from before the advent of the 1:1 initiative to after the initiative. A quantitative, or mixed-methods study approach might be best suited for future research as a quantitative study has the possibility to provide important statistical data as well as insight into the intersection of technology with the Latinx population. A caution should be maintained if only a quantitative approach is adopted as the in-depth understanding, and other benefits, inherent in a qualitative study could be lost (Creswell, 2014).

Implications for Leadership

The significance of the study is in providing insights on how the Latinx student population, and families, could experience effects from school district decisions aimed at increasing technology and Internet use with the Latinx demographic population. The study could potentially benefit administrators who seek to improve technology access and equity in an effort to increase positive academic and social change. With the study, administrators might be more cognizant of the ramifications of decisions involving technology and how technology might intersect with lower SES and Latinx populations. The study should serve as a focus on the perceptions, attitudes, and beliefs of Latinx families when faced with increased technology and Internet access sent into Latinx homes.

Due to the limited research on the Latinx population and technology use, the study might serve as an important document toward the further understanding of the Latinx population and technology use. The educational experience of Latinx students, and by extension families, is a crisis in need of further research (Bussert-Webb & Henry, 2016; Guerra-Nunez, 2017). Administrators sometimes make assumptions about the beneficial aspects of technology as applied to a group's culture, but detriments could further be assumed to exist, as the study illustrates (Guerra-Nunez, 2017; Levinson & Barron, 2018; Pina et al., 2018).

The research study contributes to furthering knowledge as little research exists on Latinx people and how Latinx use technology (Guerra-Nunez, 2017; Levinson & Barron, 2018; Machado-Casas & Flores, 2014). Through the collecting of raw data from Latinx participating families, there emerged testimonials and anecdotal evidence on how Latinx families were making use of the increased technology sent into homes by the school district. With a limited

amount of research on the aspect, the research adds to the narrative of the Latinx experience in education and could offer insight on how to best work with the Latinx demographic population to ensure the achievement success of Latinx students.

Conclusion

The purpose of the qualitative exploratory case study was to explore the effects experienced by Latinx students and families from a school district initiative which sought to increase technology and Internet use with the Latinx demographic group. The qualitative exploratory case study examined a 1:1 take-home initiative sending Internet-capable devices into the homes of Latinx families within one particular public school district in Southern California. The participant families all identified as first or second generation Latinx families with at least one student registered within the district of study.

Three major themes were revealed through the results of the research: technology as change agent, interpersonal interaction with technology, and perceptions of technology by the Latinx demographic population. Additionally, subthemes emerged from further analysis of data which aligned under the major themes. The subthemes of family as a whole, individual students, and parents as individuals fit under the main theme of technology as change agent. The subthemes of interaction with family and interaction with others (outside the family) fell under the theme of interpersonal interaction. The final subthemes of access and equity and causes for concern aligned under the theme of perceptions of technology. These themes and subthemes were aligned with the initial research questions and were complimentary with some of the studies indicated through the literature review.

The emergent themes answered the original research questions. The first research question was on the cultural effects Latinx families were experiencing with the Internet-capable laptops coming into homes. In the theme of technology as change agent, there were examples of the loss of time spent between students and families and how the new technology was the change agent of the phenomenon. Having strong ties to family is a great part of Latinx cultural beliefs. There were examples given as to how families felt cultural erosion with the advent of increased technology in the home as students had increased screen time and access to Internet content. The greatest effect on Latinx culture was expressed under the theme of interpersonal interaction and subthemes of communication with family and others. Many participants shared the loss of communication being experienced between students, family, and others as negative aspects of technology which were having an effect on the Latinx family culture. Students were not interacting with others as much as before the introduction of technology. The theme of perceptions of technology and the subtheme of causes for concern held more examples which answered the first research question. There were specific statements made by participants on a feeling of loss of communication and helplessness in dealing with students addicted to the Internet. Examples included inappropriate behavior between students and parents and inappropriate use of the Internet. Time spent on the devices and away from family was a major concern shared by parents who felt a loss of interpersonal interaction time was against Latinx cultural beliefs.

The second research question was on the changes to Latinx family culture being experienced from having no, or little, home technology to increased technology and Internet access. The main changes were expressed in the theme of technology as change agent. Under the

theme there were many examples of how parents had to create new rules and limitations after experiencing new technology in the home. These rules had to be created as students had little discipline over the time used up in accessing the Internet, playing video games, or watching online videos. Under the theme of perceptions of technology, and specifically the subtheme of causes for concern, families indicated some further problems with increased technology at home. Fears with the group included the cost for technology repairs and cyberbullying. A few participants discussed the cost of breakage. Parents further shared issues with students being bullied or propositioned for sex while online and perceived inability to combat these things. There were several examples of these fears expressed by participants which helped to answer the second research question.

The third research question asked about the overall cultural shifts Latinx families were experiencing with the new technology being brought into homes. The question was best answered by the theme of perceptions of technology and the subtheme of access and equity. Many participants gave statements regarding how the new technology was preparing students for the future and was seen as a benefit for students and families. Parents overwhelmingly believed students needed access to technology to ensure career and future success. These statements illustrated how the Latinx parents felt a positive cultural shift in the concept of increased access and equity. Parents expressed feeling greater power of communication and overall access to the world from the increased technology and Internet within homes. Examples of online shopping, travel planning, appointment making, and much more were shared. The transformative ability of greater achievement success for students, and by extension parents, was mentioned by several

participants, indicating a cultural shift in regard to the new access and increased equity with the district technology initiative.

The limitations of the study were few, but setting and time were both limiting factors. As the study was only conducted within one particular demographic group, within one particular school district, there could exist a difficulty to make an exact replication of the study in regard to validity and reliability (Wiersma, 1999). Time was only a limiting factor for the investigator who had to adjust schedules to create larger windows of time in which to collect and analyze data. An additional limitation presented during the initial phase of data collection. E-mail recruitment netted no participants. Only face-to-face interaction, with paper copies of informed consent and questionnaire, netted families willing to participate. The phenomenon is in line with the lower frequency of Internet and e-mail use of lower SES peoples (Harris et al., 2017; Pew Research Center, 2018).

Overall, the data results indicate an overwhelming positive attitude about the essential and beneficial uses of technology for Latinx student achievement success and families by extension (Guerra-Nunez, 2017; Kreitz, 2017; Pina et al., 2018). Even though research indicated overall positive perceptions and benefits of Latinx students and families experiencing increased exposure to technology and Internet access, caveats were discovered as pertains to interpersonal interaction and causes for concern. Latinx families perceived increased technology as a threat to family cultural practices whenever there is caused a loss of communication between family members (Machado-Casas & Flores, 2014). Additional fears about the cost of technology breakage were discovered and are in line with findings in previous research (Pina et al., 2018).

Based on the findings of the study, there is a recommendation to continue research on the intersection of Latinx students, and families, in regard to increased technology use within homes as a necessary remedy toward access and equity (Bussert-Webb & Henry, 2016; Guerra-Nunez, 2017). A fuller understanding of the unique perceptions of the group has implications which could improve district initiatives crafted by district administrators. Leadership should be cognizant to include diverse populations of stakeholders in decisions which could cause effect to the students and families served by the district. Utilizing an understanding of diverse district populations when crafting district-wide decisions could yield an exponential positive social and achievement transformation for students and families.

References

- Aghasaleh, R., Enderle, P., Puvirajah, A., Boehnlein, A., Rickard, J., Bornstein, J., & Hendrix, R. (2018). Computational problem-posing with urban Latinx youth: Make science teaching great again. *Curriculum and Teaching Dialogue*, 20(1–2), 143–147. Retrieved from <http://aatchome.org/>
- Ainsa, P., & Olivarez, A. (2017). Online mentoring for Hispanic female pre-service teachers: Perceptions of use and performance changes. *Education*, 137(4), 381–388. Retrieved from <https://www.projectinnovation.com/>
- Allison, B. N., & Bencomo, A. (2015). Hispanic families and their culture: Implications for FCS educators. *Journal of Family and Consumer Sciences*, 107(2), 56–61. Retrieved from <https://www.aafcs.org/>
- Araque, J. C., Wietstock, C., Cova, H. M., & Zepeda, S. (2017). Impact of Latino parent engagement on student academic achievement: A pilot study. *School Community Journal*, 27(2), 229–250. Retrieved from <http://www.schoolcommunitynetwork.org/>
- Austin, Z., & Sutton, J. (2015). Qualitative research: Data collection, analysis, and management. *Canadian Journal of Hospital Medicine*, 63(3), 226–231. Retrieved from <https://www.ncbi.nlm.nih.gov/>
- Ayon, C. (2018). Latino Immigrant Family Socialization scale: Development and validation of a multidimensional ethnic–racial socialization measurement. *Social Work*, 63(3), 222–233. <https://doi.org/10.1093/sw/swy016>

- Bach, A., Wolfson, T., & Crowell, J. (2018). Poverty, literacy, and social transformation: An interdisciplinary exploration of the digital divide. *Journal of Media Literacy Education*, 10(1), 22–41. <https://doi.org/10.23860/JMLE-2018-10-1-2>
- Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, 13(4), 544–559.
Retrieved from <http://www.nova.edu/ssss/QR/QR13-4/baxter.pdf>
- Bennet, A. (2017). *10 tips for take-home Chromebooks*. Retrieved from <http://community.lightspeedsystems.com/uncategorized/take-home-chromebooks-tips/>
- Berdik, C. (2018, January 22). Dealing with digital distraction [Web log post]. *The Hechinger Report*. Retrieved from <https://hechingerreport.org/dealing-digital-distraction/>
- Borman, T., Margolin, J., Garland, M., Rapaport, A., Park, S., & LiCalsi, C. (2017). *Associations between predictive indicators and postsecondary science, technology, engineering, and math success among Hispanic students in Texas*. Retrieved from <https://files.eric.ed.gov/fulltext/ED577564.pdf>
- Brown, A., Lopez, G., & Lopez, M. H. (2016). *Digital divide narrows for Latinos as more Spanish speakers and immigrants go online*. Retrieved from <https://www.pewresearch.org/hispanic/2016/07/20/digital-divide-narrows-for-latinos-as-more-spanish-speakers-and-immigrants-go-online/>
- Brown-Jeffy, S., & Cooper, J. E. (2011). Toward a conceptual framework of culturally relevant pedagogy: An overview of the conceptual and theoretical literature. *Teacher Education Quarterly*, 38(1), 65–84. Retrieved from <http://files.eric.ed.gov/fulltext/EJ914924.pdf>

- Bussert-Webb, K., & Henry, L. (2016). Latino/a children's digital literacy access and online reading skills. *Journal of Literacy and Technology*, 17(3), 2–40. Retrieved from <http://www.literacyandtechnology.org/>
- Carney, A. (2015). Differentiation in the classroom using Chromebooks and Google applications. *Honors Projects*, 192(1), 1–31. Retrieved from <http://scholarworks.bgsu.edu/>
- Carrillo, J. F. (2016). I grew up straight 'hood: Unpacking the intelligences of working-class Latino male college students in North Carolina. *Equity & Excellence in Education*, 49(2), 157–169. <https://doi.org/10.1080/10665684.2015.1086247>
- Carteret, M. (2011, March 15). *Cultural values of Latino patients and families* [Web log post]. Retrieved from <https://www.dimensionsofculture.com/2011/03/cultural-values-of-latino-patients-and-families/>
- Castro, H. (2016). “Just one more thing I have to do”: School–community partnerships. *School Community Journal*, 26(1), 139–163. Retrieved from <http://www.adi.org/journal/2016ss/CastoSpring2016.pdf>
- Chan, T., Cheung, C., & Wong, R. (2019). Cyberbullying on social networking sites: The crime opportunity and affordance perspectives. *Journal of Management Information Systems*, 36(2), 574–609. <https://doi.org/10.1080/07421222.2019.1599500>
- Chick, N. (n.d.). *Learning styles*. Retrieved from <https://cft.vanderbilt.edu/guides-sub-pages/learning-styles-preferences/>
- Cicourel, A. (1964). *Method and measurement in sociology*. New York, NY: Free Press.

- Corry, M. (2016). Hispanic or Latino student success in online schools. *International Review of Research in Open and Distributed Learning*, 17(3), 251–261. <https://doi.org/10.19173/irrodl.v17i3.2257>
- Cowan, B. A. (2017). How machismo got its spurs—in English: Social science, Cold War imperialism, and the ethnicization of hypermasculinity. *Latin American Research Review*, 52(4), 606–622. <https://doi.org/10.25222/larr.100>
- Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: Sage.
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage.
- Cruz-Nichols, V., LeBron, A. M., & Pedraza, F. (2018). Spillover effects: Immigrant policing and government skepticism in matters of health for Latinos. *Public Administration Review*, 78(3), 432–443. <https://doi.org/10.1111/puar.12916>
- Delgado, R., & Stefancic, J. (2012). *Critical race theory: An introduction* (2nd ed.). New York: New York University Press.
- Delva, M. D., Kirby, J. R., Knapper, C. K., & Birtwhistle, R. V. (2002). Postal survey of approaches to learning among Ontario physicians: Implications for continuing medical education. *British Medical Journal*, 325(1), 1218–1222. <https://doi.org/10.1136/bmj.325.7374.1218>
- Denzin, N. K. (2005). Emancipatory discourses and the ethics and politics of interpretation. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 933–958). Thousand Oaks, CA: Sage.

- Denzin, N. K., & Lincoln, Y. S. (2005). *The Sage handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Denzin, N. K., & Lincoln, Y. S. (2017). Introduction: The discipline and practice of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 1–26). Thousand Oaks, CA: Sage.
- Dingwall, R. (1997). Accounts, interviews, and observations. In G. Miller & R. Dingwall (Eds.), *Context and method in qualitative research* (pp. 51–65). Thousand Oaks, CA: Sage.
- Eckstein, H. (1975). Case study and theory in political science. In F. I. Greenstein & N. W. Polsby (Eds.), *Handbook of political science: Volume 7—Strategies of enquiry* (pp. 79–137). Reading, MA: Addison-Wesley.
- Edwards, D. J. A. (1998). Types of case study work: A conceptual framework for case-based research. *Journal of Humanistic Psychology*, 38(3), 36–70. <https://doi.org/10.1177/00221678980383003>
- Eshet-Alkalai, Y. (2004). Digital literacy: A conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93–106.
Retrieved from www.aace.org/
- Fleischer, H. (2017). Students' experiences of their knowledge formation in a one-to-one computer initiative. *Education Inquiry*, 8(2), 123–1336. <https://doi.org/10.1080/20004508.2016.1275190>
- Flores, A., Lopez, G., & Radford, J. (2017). *Facts on U.S. Latinos, 2015*. Retrieved from <https://www.pewresearch.org/hispanic/2017/09/18/facts-on-u-s-latinos-current-data/>

- Flores, S., & Flores, L. (2018). Latinos: Higher education and technology. *Journal of Learning in Higher Education, 14*(1), 57–61. Retrieved from <https://jwpress.com/>
- Fontana, A., & Frey, J. H. (2005). The interview: From neutral stance to political involvement. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 695–727). Thousand Oaks, CA: Sage.
- Gandara, P. (2017). The potential and promise of Latino students. *American Educator, 41*(1), 4–43. Retrieved from <https://www.aft.org/>
- Gil, E. (2018). Leveraging technology toward family supports for and development of middle schoolers. *Middle Grades Review, 4*(1), 1–5. Retrieved from <https://scholarworks.uvm.edu/>
- Gorden, R. (1992). *Basic interviewing skills*. Itasca, IL: Peacock.
- Grewal, A., Kataria, H., & Dhawan, I. (2016). Literature search for research planning and identification of research problem. *Indian Journal of Anesthesia, 60*(1), 635–639. <https://doi.org/10.4103/0019-5049.190618>
- Groves-Price, P. (2019). Critical race theory. In *Oxford research encyclopedia of education* [Advance summary]. <https://doi.org/10.1093/acrefore/9780190264093.013.1>
- Guba, E., & Lincoln, Y. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 933–958). Thousand Oaks, CA: Sage.
- Gubrium, J., & Holstein, J. (1997). *The new language of qualitative methods*. New York, NY: Oxford University Press.

- Gubrium, J., & Holstein, J. (1998). Narrative practice and the coherence of personal stories. *Sociological Quarterly*, 1(39), 163–187. Retrieved from <https://www.tandfonline.com/>
- Guerra-Nunez, O. (2017). The use of digital educational technology and third spaces with foreign-born Latinos. *Journal of Latinos & Education*, 16(4), 323–337. <https://doi.org/10.1080/15348431.2016.1257426>
- Harris, C., Straker, L., & Pollock, C. (2017). A socioeconomic related “digital divide” exists in how, not if, young people use computers. *PLOS ONE*, 12, e0175011. Retrieved from <https://journals.plos.org/>
- Hazelrigg, N. (2019, July 15). *More Latinx students, stagnant Latinx presidents*. Retrieved from <https://www.insidehighered.com/news/2019/07/15/number-latinx-presidents-not-consistent-growth-latinx-student-population>
- Hebern, M., & Corippo, J. (2018). *The Eduprotocol field guide: 16 student-centered lesson frames for infinite learning possibilities*. San Diego, CA: Burgess.
- Hernandez, E. (2017). Redefining the experiences of students in continuation high schools: A narrative profile of a Latino youth. *High School Journal*, 100(4), 264–281. <https://doi.org/10.1353/hsj.2017.0012>
- Himmelsbach, V. (2019, July 15). *Technology in the classroom in 2019: 6 pros and cons* [Web log post]. Retrieved from <https://tophat.com/blog/6-pros-cons-technology-classroom/>
- Hiraldo, P. (2019). Future scenario: Praxis in critical race theory in higher education and student affairs. *The Vermont Connection*, 40(1), 141–147. Retrieved from www.uvm.edu
- Holstein, J., & Gubrium, J. (1995). *The active interview*. Thousand Oaks, CA: Sage.

- Hughes, J., & Read, M. (2018). Student experiences of technology integration in school subjects: A comparison across four middle schools. *Middle Grades Review*, 4(1), 1–30. Retrieved from <https://scholarworks.uvm.edu/>
- Kaba, A., & Beran, T. (2014). Twelve tips to guide effective participant recruitment for interprofessional education research. *Medical Teacher*, 36(7), 578–584. <https://doi.org/10.3109/0142159X.2014.907489>
- Kreitz, K. (2017). Toward a Latinx digital humanities pedagogy: Remixing, reassembling, and reimagining the archive. *Educational Media International*, 54(4), 304–316. <https://doi.org/10.1080/09523987.2017.1391524>
- Kvale, S. (1996). *InterViews: An introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage.
- Lamb, A. J., & Weiner, J. M. (2018). Extending the research on 1:1 technology integration in middle schools: A call for using institutional theory in educational technology research. *Middle Grades Review*, 4(1), 1–10. Retrieved from <https://scholarworks.uvm.edu/>
- Latinas in Tech. (2019). [Home page.] Retrieved from <https://www.latinasintech.org/>
- Lee, J. C., Hall, D. L., & Wood, W. (2018). Experiential or material purchases? Social class determines purchase happiness. *Psychological Science*, 29(7), 1031–1039. <https://doi.org/10.1177/0956797617736386>
- Levinson, A., & Barron, B. (2018). Latino immigrant families learning with digital media across settings and generations. *Digital Education Review*, 33(1), 150–169. Retrieved from <http://revistes.ub.edu/>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage.

- Livingston, G. (2011, February 9). *Latinos and digital technology, 2010*. Retrieved from <https://blackradionetwork.com/images/userfiles/LatinoDigitalTech.pdf>
- Machado-Casas, M., & Flores, B. (2014). Engaging Latino families in transformative home technology pedagogy and practices. *Psicologia, Conocimiento y Sociedad*, 4(2), 89–108.
- Mackay, H., & Strickland, M. J. (2018). Exploring culturally responsive teaching and student-created videos in an at-risk middle school classroom. *Middle Grades Review*, 4(1), 1–15. Retrieved from <https://scholarworks.uvm.edu/>
- Magana, S. (2017). *Disruptive classroom technologies: A framework for innovation in education*. Thousand Oaks, CA: Corwin.
- Magana, S., & Marzano, R. (2014). *Enhancing the art and science of teaching with technology*. Bloomington, IN: Solution Tree.
- Martinez, A. (2014). Critical race theory: Its origins, history, and importance to the discourses and rhetorics of race. *Frame*, 27(2), 9–27. Retrieved from <http://www.tijdschriftframe.nl/>
- Martinez, E., Jr. (2018). The education of Escobar Cruz: Sports, identity and masculinity in middle school. *Middle Grades Review*, 4(3), 1–13. Retrieved from <https://scholarworks.uvm.edu/>
- Mathiyalakan, S., Heilman, G. E., White, S. D., & Brusa, J. O. (2016). Facebook use among African American and Hispanic students: An exploratory investigation of perceived academic impact. *Journal of International Technology and Information Management*, 25(2), 101–118. Retrieved from <http://iima.org/>
- Merriam, S. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.

Morin, A. (2019, August 14). *How teens use technology to cheat in school* [Web log post].

Retrieved from <https://www.verywellfamily.com/how-teens-use-technology-to-cheat-at-school-4065364>

Morse, P. (2018, November 14). *The relationship between Hispanics and technology* [Web log post].

Retrieved from <https://www.mediapost.com/publications/article/328054/the-relationship-between-hispanics-and-technology.html>

National Commission for the Protection of Human Subjects of Biomedical and Behavioral

Research. (1976). *Belmont report*. Retrieved from <https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/index.html>

Neil, E. (2018, March 13). *Studies show lack of Latino teachers in the U.S. is a growing issue*

[Web log post]. Retrieved from <https://aldianews.com/articles/culture/education/studies-show-lack-latino-teachers-us-growing-issue/51982>

Neumann, M.M., Finger, G., & Neumann, D.L. (2017). A conceptual framework for emergent digital literacy. *Early Childhood Education Journal*, 45(1), 471–479.

<https://doi.org/10.1007/s10643-016-0792-z>

Osterman, M. D. (2012). Digital literacy: Definition, theoretical framework, and competencies.

Proceedings of the 11th Annual College of Education & GSN Research Conference, 135–141. Retrieved from http://education.fiu.edu/research_conference/

Oudshoorn, N., Neven, L., & Stienstra, M. (2016). How diversity gets lost: Age and gender in

design practices of information and communication technologies. *Journal of Women and Aging*, 28(2), 170–185. <https://doi.org/10.1080/08952841.2015.1013834>

- Padilla, Y. (2016, April 18). *What does “Latinx” mean? A look at the term that’s challenging gender norms* [Web log post]. Retrieved from <https://www.complex.com/life/2016/04/latinx/>
- Peterson, D. (2017). *Teacher attitudes towards integrating technology in literacy instruction* (Master’s thesis). Retrieved from http://digitalcommons.brockport.edu/cgi/viewcontent.cgi?article=1775&context=ehd_theses
- Pew Research Center. (2018, April 22). *11% of Americans don’t use the Internet. Who are they?* Retrieved from <http://www.pewresearch.org/fact-tank/2018/03/05/some-americans-dont-use-the-internet-who-are-they/>
- Pina, L., Gonzalez, C., Nieto, C., Roldan, W., Onofre, E., & Yip, J. (2018). How Latino children in the U.S. engage in collaborative online information problem solving with their families. *Proceedings of the ACM on Human–Computer interaction*, 2(1), 1–29. <https://doi.org/10.1145/3274409>
- Prickett, J. (2018). *Perceptions of American Latino families of their children’s education: Stories from one suburban middle school* (Doctoral dissertation). Retrieved from <https://digitalcommons.nl.edu/cgi/viewcontent.cgi?article=1303&context=diss>
- Rivera, M. (2017). Can Latino parents compete with technology—and do they need to? *Hispanic Outlook in Higher Education*, 28(1), 22–23. Retrieved from <https://www.hispanicoutlook.com/>
- Roberts, P., Priest, H., & Traynor, M. (2006). Reliability and validity in research. *Nursing Standards*, 20(44), 41–45. Retrieved from <https://rcni.com>

- Rosen, M., & Gustafsson, J. (2016). Is computer availability at home causally related to reading achievement in grade 4? A longitudinal difference in differences approach to IEA data from 1991 to 2006. *Large-Scale Assessments in Education*, 4(5), 1–19. <https://doi.org/10.1186/s40536-016-0020-8>
- Saldaña, J. (2013). *The coding manual for qualitative researchers*. Thousand Oaks, CA: Sage.
- Sarup, M. (1996). *Identity, culture, and the postmodern world*. Athens: University of Georgia Press.
- Schwandt, T. A. (2007). *The Sage dictionary of qualitative inquiry* (3rd ed.). Thousand Oaks, CA: Sage.
- Seidman, I. E. (1991). *Interviewing as qualitative research*. New York, NY: Columbia University, Teachers College Press.
- Shein, E. (2018). Broadening the path for women in STEM. *Communications of the ACM*, 61(8), 19–21. <https://doi.org/10.1145/3231170>
- Silverman, D. (1993). *Interpreting qualitative data: Methods for analysing talk, text, and interaction*. London, England: Sage.
- Silverman, D. (Ed.). (1997). *Qualitative research: Theory, method, and practice*. London, England: Sage.
- Smaldone, A., Stockwell, M., Osborne, J., & Cortes, Y. (2015). Adolescent and parent use of new technologies for health communication: A study in an urban Latino community. *Journal of Public Health Research*, 4(376), 13–18. <https://doi.org/10.4081/jphr.2015.376>

- Solorzano, D., & Yosso, T. (2001). Critical race and LatCrit theory and method: Counter-storytelling. *Qualitative Studies in Education*, 14(4), 471–495. <https://doi.org/10.1080/09518390110063365>
- Souza, A., Alexandre, N. C., & Guirardello, E. B. (2017). Psychometric properties in instruments evaluation of reliability and validity. *Epidemiologia e Servicos de Saude: Revista do Sistema Unico de Saude de Brasil*, 26, 649–659. <https://doi.org/10.5123/S1679-49742017000300022>
- Spencer-Oatey, H. (2012). What is culture? A compilation of quotations [PDF]. *GlobalPAD Core Concepts*. Retrieved from https://warwick.ac.uk/fac/soc/al/globalpad/openhouse/interculturalskills/global_pad_-_what_is_culture.pdf
- Stacy, J., & Aguilar, J. (2018). Connection, culture, & creativity using mobile technology as a medium for storytelling in an intergenerational classroom. *Multicultural Education*, 25(2), 28–35. Retrieved from <http://www.caddogap.com/>
- Starman, A. B. (2013). The case study as a type of qualitative research. *Journal of Contemporary Educational Studies/Sodobna Pedagogika*, 64(1), 28–43. Retrieved from <https://www.sodobna-pedagogika.net/>
- Sung, Y., Chang, K., & Liu, T. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers & Education*, 94(1), 252–275. <https://doi.org/10.1016/j.compedu.2015.11.008>
- Telfer, D., Howley, A., & Thurlow, M. (2019). Inclusive leadership: Breaking down isolated practice and developing a culture of inquiry to increase student and adult learning. In M.

- Mountford & L. E. Wallace (Eds.), *The contemporary superintendent: (R)evolutionary leadership in an era of reform* (pp. 117–121). Charlotte, NC: Information Age.
- Torres, S. A., & DeCarlo-Santiago, C. (2017). Culture and educational stress and internalizing symptoms among Latino adolescents: The role of ethnic identity. *Journal of Educational & Psychological Consultation*, 27(3), 344–366. <https://doi.org/10.1080/10474412.2017.1301819>
- Trevino, A. (2017, November 2). *David's law and what it means for Latinos* [Web blog post]. Retrieved from <https://salud-america.org/davids-law-and-what-it-means-for-latinos-and-cyberbullying/>
- U.S. Department of Health & Human Services, Office for Human Research Protections. (2018). *Title 45-Subtitle A-Subchapter A-Part 46, Protection of human subjects*. Retrieved from <https://www.hhs.gov/ohrp/regulations-and-policy/index.html>
- Vaala, S. E. (2013). *Aprendiendo juntos (Learning together): Synthesis of a cross-sectorial convening on Hispanic–Latino families and digital technologies*. Retrieved from https://joanganzcooneycenter.org/wp-content/uploads/2013/04/jgcc_aprendiendo_juntos.pdf
- Val Verde Unified School District. (2018). *1:1 student Chromebook device initiative*. Retrieved from <https://www.valverde.edu/chromebooks-8ab121d5>
- Val Verde Unified School District. (2019). *Where success begins*. Retrieved from <http://www.valverde.edu/>
- Villa, E., Wandermurem, L., Hampton, E., & Esquinca, A. (2016). Engineering education through the Latina lens. *Journal of Education and Learning*, 5(4), 113–125. <https://doi.org/10.5539/jel.v5n4p113>

- Warschauer, M., Zheng, B., Niiya, M., Cotten, S., & Farkas, G. (2014). Balancing the one-to-one equation: Equity and access in three laptop programs. *Equity & Excellence in Education*, 47(1), 46–62. <https://doi.org/10.1080/10665684.2014.866871>
- Wiersma, W. (1999). *Research methods in education: An introduction* (7th ed.). Boston, MA: Allyn & Bacon.
- Winters, K., & Netscher, S. (2016). Proposed standards for variable harmonization documentation and referencing: A case study using QuickCharmStats 1.1. *PLOS ONE*, 11(2), 1–15. <https://doi.org/10.1371/journal.pone.0147795>
- Yazan, B. (2015). Three approaches to case study methods in education: Yin, Merriam, and Stake. *The Qualitative Report*, 20(2), 134–152. Retrieved from <https://nsuworks.nova.edu/>
- Yin, R. (2009). *Case study research* (4th ed.). Thousand Oaks, CA: Sage.
- Zalaznik, D. (2018, August 27). Technology brings 21st-century learning to Princeville schools. *Journal Star*. Retrieved from <https://www.pjstar.com/news/20180827/technology-brings-21st-century-learning-to-princeville-schools>
- Zorn, J. (2018). Critical race theory in education: Where farce meets tragedy. *Academic Questions*, 31(2), 203–211. <https://doi.org/10.1007/s12129-018-9699-z>

Appendix A: Informed Consent Letter (English and Spanish)

American College of Education

101 W. Ohio Street, Suite 1200

Indianapolis, IN 46204

www.ace.edu

(800) 280-0307

Principal Researcher: Gregory McWhorter

Title of Study: An Exploratory Case Study on Increased Internet Access and Latinx Families

Project Description

You are invited to participate in a study that researches how the lives and culture of Latinx families may be changing, or affected, by having new or increased internet activity as a result of the student laptop take-home initiative. Your information will be kept confidential in the research study and you are free to leave the study at any time you feel the need to without explanation

Your participation in the study will entail the following three things:

- *An online (or paper) survey –Approximately 15 minutes to complete*
- *An interview conducted in-person that will be no more than 30-45 minutes in duration. You will be given an opportunity to review your answers and make corrections post-interview.*
- *An end-of-study focus group –Approximately 30-45 minutes in duration.*

In the interview, you will be asked about your thoughts, opinions, feelings, and attitudes regarding your experience as a parent/family member of a district student bringing home a laptop and having new or increased internet access and exposure to the internet as a whole. The interview will be conducted in-person at the district Family Engagement Center (FEC) by

Gregory McWhorter, a doctoral candidate at the American College of Education, and recorded and transcribed with your permission.

Risks and Benefits

Your participation in the study will contribute to research that investigates how increased internet access may be changing the life and/or culture of district Latinx families. The potential benefit is improvement to technology integration with students and their families and a greater understanding of the district's role in community change. The only risks to participation in the study are those associated with an online survey. In exchange for your participation in the study, you will receive \$50 upon completion of data collection.

Data Storage

You will not be identified by name at any point in the research findings. The data will be securely stored on an encrypted hard drive and coded. The only individual with access to the data will be the principal researcher.

How the research will be used

The research will be used for a dissertation submitted in fulfillment of partial requirements of a doctoral degree at American College of Education or academic publication.

If you consent to being a part of this study, please sign below (all adult members in the home who are consenting to take part in the study):

Relation to student

Relation to student

Relation to student

Relation to student

Relation to student

Relation to student

American College of Education

101 W. Ohio Street, Suite 1200

Indianapolis, IN

46204 www.ace.edu

(800) 280-0307

Investigador principal: Gregory McWhorter

Título del estudio: Un estudio de caso exploratorio sobre el aumento del acceso a Internet y las familias Latinx.

Descripción del proyecto

Usted está invitado a participar en un estudio que investiga cómo las vidas y la cultura de las familias latinas pueden estar cambiando, o afectadas, al tener una nueva o mayor actividad en Internet como resultado de la iniciativa de llevar a casa una computadora portátil para estudiantes. Su información se mantendrá confidencial en el estudio de investigación y usted es libre de abandonar el estudio en cualquier momento que lo necesite sin explicación.

Su participación en el estudio implicará las siguientes tres cosas:

- *Una encuesta en línea (o en papel): aproximadamente 15 minutos para completar.*
- *Una entrevista realizada en persona que no tendrá más de 30-45 minutos de duración. Se le dará la oportunidad de revisar sus respuestas y hacer correcciones después de la entrevista.*
- *Un grupo de enfoque al final del estudio: aproximadamente 30-45 minutos de duración.*

En la entrevista, se le preguntará acerca de sus pensamientos, opiniones, sentimientos y actitudes con respecto a su experiencia como padre / miembro de la familia de un estudiante del

distrito que lleva a casa una computadora portátil y tiene un acceso a Internet nuevo o aumentado y una exposición a Internet en general. . La entrevista se realizará en persona en el Centro de Participación Familiar (FEC) del distrito por Gregory McWhorter, un candidato a doctorado en el Colegio Americano de Educación, y se grabará y transcribirá con su permiso.

Riesgos y beneficios

Su participación en el estudio contribuirá a la investigación que investiga cómo un mayor acceso a Internet puede estar cambiando la vida y / o cultura de las familias latinas del distrito. El beneficio potencial es la mejora de la integración tecnológica con los estudiantes y sus familias y una mayor comprensión del papel del distrito en el cambio comunitario. Los únicos riesgos para la participación en el estudio son los asociados con una encuesta en línea. A cambio de su participación en el estudio, recibirá \$ 50 al finalizar la recopilación de datos.

Almacenamiento de datos

No se lo identificará por su nombre en ningún momento de los resultados de la investigación. Los datos se almacenarán de forma segura en un disco duro cifrado y se codificarán. El único individuo con acceso a los datos será el investigador principal.

Cómo se utilizará

La investigación La investigación se utilizará para una disertación presentada en cumplimiento de los requisitos parciales de un doctorado en el American College of Education o publicación académica.

Si acepta formar parte de este estudio, firme a continuación (todos los miembros adultos en el hogar que estén de acuerdo en participar en el estudio):

| Relación con el estudiante |
| |
| Relación con el estudiante |
| |
| Relación con el estudiante |

| Relación con el estudiante |
| |
| Relación con el estudiante |
| |
| Relación con el estudiante |

Appendix B: School District Permission Letter for Research Study

Permission Letter Template

Date: May 23, 2019

Michael McCormick

Superintendent



Dear Michael McCormick:

My name is Greg McWhorter and I am a doctoral candidate at American College of Education (ACE) writing to request permission to interview. This information will be used for my dissertation research related to An Exploratory Case Study on Increased Internet Access and Latinx Families. The purpose of the exploratory, qualitative case study will be to interview Latinx families, at a public school district in Southern California in which laptop computers are sent home with students, in order to determine any cultural effects of having an internet capable laptop in the hands of predominantly impoverished Latinx students, and families, who previously had no, or limited, digital access at home.

Additional information could include:

Carla De LaTorre
Iliana Dodge
ELAC parents

Important Contacts for this study include:

Principal Investigator:
Greg McWhorter
E-mail: gmcwhorter@valverde.edu
Phone: (951) 345-3620

Dissertation Chair:
Dr. Brian Bridgeforth
E-mail:
bbridgeforth@ace.edu

Thank you for your attention to this issue and prompt response. I appreciate your time and consideration of my request.

Regards,



Greg McWhorter

Appendix C: Subject Matter Expert Letter

Dear Subject Matter Expert,

As you may already know, I am working on my doctoral research and I need your help as an expert in your subject matter (Latinx culture or technology). My proposed research is to explore how having internet capable devices being sent home with students, via district initiatives, may be altering the culture of Latinx households. This research is necessary to understand the ramifications of school district initiatives where technology is sent home with students and how this might affect students' lives and the lives of their families who are also exposed to new or increased technology within their homes. I am sending you the following list of questions which I plan to ask district Latinx family members and I would appreciate any feedback you care to offer. Please know these questions were carefully constructed for qualitative data collection and must be open-ended in nature. I thank you in advance for your assistance.

Questions:

1. How does your family view technology use?
2. What do you like most about having your student(s) bringing home an internet-capable device?
3. How could your home experience of having your student(s) bringing home an internet-capable device be improved?
4. How could the school district improve on the take-home initiative (having your student(s) bringing home the internet-capable device)?
5. What is it like having increased internet at home from your student(s) bringing home an internet-capable device?
6. What online activities do you assist your student(s) with?
7. What online activities does your student(s) help you with?
8. How often do you and your student(s) work together online for some goal or task?
9. How often does your student use their internet-capable device at home?

10. What (if anything) are you doing differently as a result of the experience of having your student bringing home an internet-capable device all-year long?
11. What, if any, training did the school district offer you, or your student, on how to use the internet-capable device at home?
12. Describe anything your family had to do differently as a result of the school district initiative to send your student(s) home with an internet-capable device?
13. How has the experience of having the internet-capable device in your home had any effects on your relationships with others in the home?
14. Could you describe the greatest benefit you receive from having your student(s) bringing home an internet-capable device?
15. Could you describe any problems your family has experienced from having your student(s) bringing home an internet-capable device?
16. Can you identify any rules your family has had to establish because of having the internet-capable device sent home with your student?
17. How did the school district communicate with your family about the take-home initiative (having your student(s) sent home with an internet-capable device)?
18. What do you believe is the meaning behind the school district take-home initiative (having your student(s) sent home with an internet-capable device)?
19. Can you describe what it is like having an internet-capable device brought home every day by your student(s)?
20. Is there any additional information you would like to share?

Thank You,
Greg McWhorter

Appendix D: Questionnaire

QUESTIONNAIRE (ENGLISH)

Privacy Statement: Please complete this questionnaire. Please do not write any identifying marks on the questionnaire as participants are to be anonymous. All information will be kept confidential. Any questions or concerns can be communicated to Greg McWhorter, gmcwhorter@valverde.edu. Thank you for your time and cooperation.

Please answer the following questions as in-depth as you like. You may continue your answers on the back of the paper if needed.

1. Describe your family's view of technology use.
2. What do you like most about having your student(s) bringing home an internet-capable device?
3. What are some things you dislike about having your student(s) bringing home an internet-capable device?
4. Considering your experience at home with internet-capable school devices, in what ways could that experience be improved?
5. In what ways has having increased internet access from school devices affected your family life and relationships in your home?
6. What are some online activities that you assist your student(s) with?
7. What are some online activities your student(s) help you with?
8. How often do you and your student(s) work together online for some goal or task?
9. What are your experiences in working together online for some goal or task?
10. How often does your student(s) use their internet-capable device at home?
11. What (if anything) are you doing differently as a result of the experience of having your student(s) bringing home an internet-capable device all-year long?
12. Describe the training, if any, the school district offered you, or your student(s), on how to use the internet-capable device at home?

13. Describe anything your family had to do differently as a result of the school district initiative to send your student(s) home with an internet-capable device?
14. What do you consider to be the greatest benefit you or your student receives from bringing an internet-capable device into your home?
15. Could you describe any problems your family has experienced from having your student(s) bringing home an internet-capable device?
16. What are some rules, if any, your family has had to establish because of having the internet-capable device sent home with your student?
17. What messages did the school district communicate with you or your student about the take-home initiative (having your student(s) sent home with an internet-capable device)?
18. What do you believe is the intent behind the school district take-home initiative (having your student(s) sent home with an internet-capable device)?
19. Can you describe what it is like having an internet-capable device brought home every day by your student(s)?
20. Please share any additional information you have regarding your experience with your student(s) bringing home an internet-capable device?

CUESTIONARIO TECNOLÓGICO (ESPAÑOL)

Declaración de privacidad: complete este cuestionario. No escriba ninguna marca de identificación en el cuestionario ya que los participantes deben ser anónimos. Toda la información se mantendrá confidencial. Cualquier pregunta o inquietud se puede comunicar a Greg McWhorter, gmcwhorter@valverde.edu. Gracias por tu tiempo y cooperación.

Responda las siguientes preguntas tan a fondo como desee. Puede continuar sus respuestas en el reverso del documento si es necesario.

1. Describa la opinión de su familia sobre el uso de la tecnología.
2. ¿Qué es lo que más le gusta de que su (s) estudiante (s) traigan a casa un dispositivo con capacidad para Internet?
3. ¿Cuáles son algunas de las cosas que no le gustan de que sus estudiantes traigan a casa un dispositivo con capacidad para Internet?
4. Teniendo en cuenta su experiencia en el hogar con dispositivos escolares con capacidad de Internet, ¿de qué manera podría mejorarse esa experiencia?
5. ¿De qué manera el aumento del acceso a Internet desde los dispositivos escolares ha afectado la vida familiar y las relaciones en su hogar?
6. ¿Cuáles son algunas actividades en línea con las que ayuda a su (s) estudiante (s)?
7. ¿Cuáles son algunas de las actividades en línea con las que sus estudiantes lo ayudan?
8. ¿Con qué frecuencia usted y su (s) estudiante (s) trabajan juntos en línea para algún objetivo o tarea?
9. ¿Cuáles son sus experiencias al trabajar juntos en línea para algún objetivo o tarea?
10. ¿Con qué frecuencia usa su estudiante su dispositivo con capacidad de internet en casa?
11. ¿Qué (si es que haces) haces de manera diferente como resultado de la experiencia de tener tu estudiante lleva a casa un dispositivo con capacidad de Internet durante todo el año?
12. Describir la formación , en su caso, la oferta del distrito escolar ed usted, o su hijo, sobre la forma de utilizar el dispositivo de Internet capaz en casa?

13. ¿Describe algo que su familia tuvo que hacer de manera diferente como resultado de la iniciativa del distrito escolar de enviar a su (s) estudiante (s) a casa con un dispositivo con capacidad de internet?
14. ¿Qué considera usted que es el mayor beneficio que o su estudiante reciba s de llevar un dispositivo de Internet capaz en su hogar?
15. ¿Podría describir algún problema que su familia haya experimentado al hacer que su (s) estudiante (s) traigan a casa un dispositivo con capacidad para Internet?
16. ¿Cuáles son algunas reglas, si alguna, que su familia ha tenido que establecer debido a que el dispositivo con capacidad de Internet se envió a casa con su estudiante?
17. ¿Qué mensajes se la distrito de comunicarse con usted o su hijo acerca de la iniciativa para llevar a casa (después de su estudiante (s) enviado a casa con un dispositivo de Internet capaz)?
18. ¿Cuál cree usted que es la intención detrás de la iniciativa para llevar a casa del distrito escolar (enviar a su (s) estudiante (s) a casa con un dispositivo con capacidad de internet)?
19. ¿Puede describir cómo es tener un dispositivo compatible con Internet que su (s) estudiante (s) lleva a casa todos los días?
20. Por favor, comparta cualquier información adicional que tenga sobre su experiencia con su (s) estudiante (s) que traen a casa un dispositivo con capacidad para Internet.

Appendix E: Translator Confidentiality Agreement

Interpreter and Translator Confidentiality Agreement

Name of Interpreter/Translator: _____

To: Val Verde Unified School District (VVUSD) Interpreters/Translators

A. I am aware that in the course of any assignment by VVUSD as an interpreter or translator, I may have access to parent's or student's health, financial, legal and other personal and business confidential information; and that in order for VVUSD to maintain a position of community trust and benefit, any such information must be kept in confidence by me and used only in connection with the work assigned to me by VVUSD.

Therefore in consideration of my engagement as an interpreter/translator from time to time, by VVUSD, I agree:

1. I will hold in strict confidence, and will not use, assist others to use, or disclose to anyone, without the prior express written authorization of VVUSD or requester's administration, any information concerning any secret or confidential matter, except as such use or disclosure may be required in order to carry out any interpretation/translation assignment scheduled for me by VVUSD.
2. That I shall not derive any personal profit or advantage from any confidential information that I may acquire during my interpretation/translation services assigned to me by VVUSD.
3. That translated documents remain the property of the owner of the original documents and/or the requestor (VVUSD) of my services at all times.
4. At the time I terminate my relationship with VVUSD, for any reason, I will deliver to VVUSD all documents related to the business and to any confidential information referred to above, and I will not retain any such information for myself, including any and all means from which the information can be recovered or reproduced in any form.
5. That Individually identifiable data is confidential and is protected by various state and federal laws (e.g. RCW 42.17, 70.02 and 74.04.060).
6. That confidential data includes all personal information (e.g., name, birth date, social security number) which may, in any manner, identify the individual.
7. That confidential data may be used only for purposes directly related to the operation of the contractor's program(s).
8. That any personal use of confidential data is strictly prohibited.
9. Access to data must be limited to those staff whose duties specifically require access to such data in the performance of their assigned duties.

B. It is understood that with the exception of A-4 above, there is no time limit on any of the obligations under paragraphs A-1 through A-9, above.

C. I understood that my relationship with VVUSD as an interpreter/translator is that of a full-time, hired employee, unless specified otherwise in a separate document signed by VVUSD and me, and that this document is not intended, nor shall it be construed as, changing, in any way, my status as a full-time, hired employee for any past or future work assigned to me by VVUSD.

D. I certify that I have read and understand the foregoing Agreement.

Interpreter/Translator Signature

Date