AN ANALYSIS OF THE DIGITAL DIVIDE AMONG ELEMENTARY STUDENTS
AND ITS EFFECT ON THEIR EDUCATION

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Of the
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By
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Dissertation Approval

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Approved by the Dissertation Committee: December 13, 2019
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Jennifer L. Hutchings
December 14, 2019
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ABSTRACT

The purpose of this study was to identify the digital divide that exists among elementary students and to identify teacher and student perceptions of how Internet access at home affects an elementary student’s education. This study investigated the digital divide among elementary students at home and at school, and its effect on their education. Parents and students completed surveys, and teachers and students participated in focus group interviews. This study also looked at the ratio of computers to students at elementary schools in an East Tennessee district. This study revealed that a digital divide exists among elementary students regarding Internet access at school and in the home. It also revealed teacher and student perceptions of how Internet access, or lack thereof, affects an elementary student’s education. Research clearly showed that a digital divide continues to exist with regards to Internet access in the homes of school-age children. It also revealed that access to the Internet, or the lack thereof, affected student achievement. The findings in this study showed that while many students may have Internet access at home, it is often by way of a Smartphone. Students reported that many of the things for which they need the Internet are not accessible using a Smartphone. Therefore, even if students have Internet access at home, inequality still exists regarding access to the Internet both at school and in the home.
ACKNOWLEDGEMENTS

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I would also like to express my deepest appreciation to my parents and husband for always encouraging my continued pursuit of higher education and for refusing to allow me to quit. My amazing husband has grown accustomed to the constant presence of my laptop during the past several years. Thanks for understanding and supporting my need to work -even on the boat or at the campground - and for assisting in my endless quest for a decent Wi-Fi signal.
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CHAPTER ONE: INTRODUCTION

Background Information

Although computer access is seemingly widely available in elementary schools in East Tennessee, some schools may have many computers while others have few. In addition, elementary students often have no access to computers and the Internet at home. If one assumes that academic achievement is facilitated by access to computers at schools and at home, the gap in access to technology is cause for concern (Judge, Puckett, & Bell, 2006). Schools help bridge the digital divide as many disadvantaged students only have access to computers and the Internet while at school (DeBell & Chapman, 2003). When teachers assign homework or projects that require Internet use at home, many students are unable to access the tools necessary to succeed both inside and outside of the classroom. This creates an uneven playing field among students (McLaughlin, 2016). Digital equity is a social justice goal that should ensure that all students have access to information and communication technologies for learning (Judge et al, 2006). Equitable access is at the root of the digital divide.

Statement of the Problem

For this study, the digital divide referred to the gap between those who have and do not have computer and Internet access. According to Dolan (2016), research reveals that the digital divide among K-12 students in U.S. schools is not only becoming more complex, but may actually be widening. This study considered the digital divide that exists among elementary school students in an East Tennessee school and the impact it has on their education.
Purpose and Significance of the Study

The purpose of this qualitative study was to address the digital divide that exists among elementary students in a school district with regards to computer and Internet access at school and at home. This study used the ratio of computers to students at an elementary school, along with surveys and focus group interviews. This study revealed that a digital divide exists among elementary students regarding Internet access in the home. It also revealed teacher and student perceptions of how Internet access, or lack thereof, affects an elementary student’s education.

Theoretical Foundation

The theoretical foundations of this study included technology access and phenomenography. Technology access informed the research questions as a student without equitable access to computers and Internet at school and at home also experienced a greater digital divide than his/her peers with ready access.

Phenomenography is the study of how a particular phenomenon affects other things or people. This study used phenomenography to examine how the digital divide affects elementary students.

Research Questions

1. What kind of digital divide exists among elementary students? This question referred to student access to the Internet. This study looked at the ratio of computers to students at school. It also looked at the number of students who do not have access to the Internet at home.

2. What teacher and student perceptions of how the digital divide affects elementary students’ education? This question examined how teachers and students
believe the digital divide affects a student’s education regarding assignments that require Internet access and how students obtained Internet access when it is necessary for the completion of schoolwork, homework, specific assignments, or projects.

**Definition of Terms**

- **Digital Divide:** The economic, educational, and social inequalities between those who have computers and online access and those who do not. (Digital divide, n.d.)

- **Ratio:** The included quotient of two mathematical expressions; the relationship in quantity, amount, or size between two or more things. (Ratio, n.d.)

- **Student achievement:** Measurement of the amount of academic content a student learns in a set amount of time (Carter, 2017).

- **Focus Group Interview:** A data collection method in which data is collected through a semi-structured group interview process (Cohen & Crabtree, 2006).

- **Survey:** To query (someone) in order to collect data for the analysis of some aspect of a group or area (Survey, n.d.).

- **Internet Access:** The process of connecting to the Internet (Internet Access, 2019).
CHAPTER 2: REVIEW OF LITERATURE

History of the Digital Divide

Historically, the digital divide has been examined, discussed, investigated, and researched for years. The term first appeared in a report by the U.S. Department of Commerce in 1996 and was used to describe a divide between the “haves” and the “have nots,” those who did or did not own a computer (Dolan, 2017). When it was initially defined, the digital divide focused on access to technology. Today, the digital divide can encompass numerous aspects of computer access, including differences in software, broadband, various demographic groups, and if access is used as a producer or a consumer. In recent years, studies regarding the digital divide have begun to focus on computer users’ proficiency with technology and the differences among those who possess the knowledge to utilize computers and the Internet to their greatest capacity and those who do not. The definition of the term often depends on what is being studied or analyzed. For this particular study, the digital divide will refer to the gap between those who have access to the Internet and those who do not.

Improvements in Access

As mentioned, rather than closing the digital divide for K–12 students in U.S. schools, research suggests that it is not only becoming more complex, but may be widening (Dolan, 2016). Although Internet access has improved over the last 20 years, it remains that the poorest people, who would benefit the most from Internet and computer access, are often the least likely to have access to it. Even if access is available, users do not always understand how to use the Internet appropriately (Huffman, 2018). Many
schools across the country have been inundated with technological devices and Internet access. However, there are continued significant disparities across different groups of children in terms of Internet use and access (Judge, Puckett, & Bell, 2006). According to Dolan (2017), the digital divide continues to amplify, rather than abate.

In comparison with middle and high school students, many elementary students are not as likely to have their own device with Internet access. Though elementary students have access to the Internet at school, they often lack Internet access at home. Even if students have access at home, they may have to wait in line to use it as their parents or older siblings’ needs are deemed more important.

Over the past several years, several factors have influenced improvements in access to the Internet. Many Internet providers now offer special pricing for access in homes of students who qualify. Policies and funding initiatives have also encouraged increased access to schools. Educators, school administrators, parents, and students have played a role in initiated improvements with their continued demands for equitable access.

**Technology Use in the School**

Schools help bridge the digital divide, as many disadvantaged students use the Internet only at school (DeBell & Chapman, 2003). Research on implementation in K-12 schools shows that there is still a divide in the ways technology is used. Student use can be influenced by differences in socioeconomic status, teachers’ attitudes and beliefs about technology, teacher training, and the way that technology is restricted or supported by the administration (Dolan, 2017). Also, teachers may hold erroneous perceptions that students do not have access to technology and, as a result, may not provide engaging
online assignments. Teachers must get to know their students so that technology instruction can be tailored to individuals (Dolan, 2017). While most schools provide access to computers and the Internet, placing computers in classrooms is not enough. If students are using technology in a consumer-driven way, rather than as a producer, then Internet access can serve to exacerbate the digital divide (Dolan, 2017). Ultimately, teachers are vital to the successful use of technology and the Internet in the school.

Internet Access and Student Achievement

For students who already find success within the school environment, their use of in-school technology can be well developed, creative, and engaging. However, for students who are already struggling in the school environment, the lack of opportunities to use technology in productive ways further exacerbates the educational gaps that may already exist (Dolan, 2017). As previously mentioned, if access to computers at home and school facilitate academic achievement, any gaps in computer access are cause for concern (Judge, Puckett, & Bell, 2006).

Associations between socioeconomics and access to digital learning resources exist. In 2015, the average National Assessment of Educational Progress (NAEP) reading scale scores for 8th graders were higher for students who regularly used a computer at home (268) than for those who did not use computers at home (247). Also, scores for 8th graders who had Internet access at home (267) were higher than for those who did not have Internet access (242) (United States Department of Education, National Center for Education Statistics (NCES), 2018b).

Researchers suggest that people live in a world with constant access to various technologies, apps, social media, and videos that allow for exploration, increased
knowledge, and human connections, and this is simply not the case for many people, particularly children and adolescents (Rowsell, Morrell, & Alvermann, 2017, p. 157). The more exposure and practice students have with various technologies, the more likely they are to gain both competence and confidence in dealing with 21st-century skills and texts (Rowsell et al., 2017, p. 158).

**Home Access**

While schools have made improvements in closing the digital divide, gaps still exist regarding Internet access for students at home. According to Huffman, the digital divide will not actually close until people have access to technology at home and understand how to use it (2018). Differences in Internet access exist among students with different demographics. For example, NCES data shows that the more education parents have and the higher their income, the likelier students are to have Internet access at home (2018a). In 2015, about 87 percent of U.S. households owned or used a computer at home, and 77 percent of U.S. households had access to the Internet. The number of homes with computers and Internet access varied by state. 78% of students obtained Internet access through a high-speed Internet service installed in the home, while 68% of children who used the Internet at home accessed it through a mobile Internet service or data plan (NCES, 2018b). The overlap in numbers shows that some students were lucky enough to have two different means of access. According to NCES (2018b), students who had Internet access at home showed higher average achievement scores than those who did not.

Although equality of computer access and use has improved for all schools, a digital divide still exists in home computer access (Judge, Puckett, & Bell, 2006).
Looking at specific grade levels in 2015, about 88 percent of 8th-graders and 83 percent of 4th-graders reported that they used a computer at home, and 80 percent of 8th-graders reported using a computer for schoolwork on a weekday. The percentages of students using a computer at home, and using a computer for schoolwork, varied by student and family characteristics (NCES, 2018a). In 2015, the main reasons children ages 3 to 18 lacked access to the Internet at home were that access was too expensive and that their family did not need the Internet or was not interested in having it (NCES, 2018b). Much of the disparity regarding ownership of home computers and Internet access in the home is directly related to family income (Judge, Puckett, & Bell, 2006).

The digital gap is real and has serious life-long implications. Numerous low-income students are unable to access the tools that are often necessary to succeed in and outside of the classroom (McLaughlin, 2016). There are many ways that a lack of Internet access can affect a student’s academic performance. Students without the Internet cannot make connections with teachers or classmates, complete research, or access online homework help. For parents and families, lack of Internet access can often mean missing out on information or losing out on a direct line of communication with schools and teachers (Lynch, 2017).

**Barriers to Access**

Gaps in Internet access continue to exist between different groups of children. According to NCES, students ages 5 to 17 living below the poverty threshold have lower rates of home Internet access than students living between 100 and 185 percent of the poverty threshold and students living at greater than 185 percent of the poverty threshold. (2018b). In 2015, the Pew Research Center analyzed data from studies on Internet access
and found that the problem is mainly in low-income families. 31.4% of homes with an annual income under $50,000 do not have Internet access. For households with an annual income of over $50,000, only 8.4% do not have Internet access (Lynch, 2017). The geographic location of a student's home can also play an essential role in home-based Internet service. Students living in households in remote rural and distant rural areas typically have more limited access to the Internet than students living in the suburbs, cities, or towns (NCES, 2018b).

The NCES reports that there is a disparity in access when considering race. American Indian/Alaska Native, Black, and Hispanic students have lower rates of home Internet access than their peers who are White, Asian, and of two or more races (NCES, 2018b). 88% of White households and 92% of Asian households with school-age children have high-speed Internet access. On the other hand, only 72% of Black and Hispanic households with school-age children have access to high-speed Internet (Lynch, 2017).

Conclusion

Research clearly shows that a digital divide continues to exist with regards to Internet access in the homes of school-age children. It is also clear that access to the Internet, or the lack thereof, affected student achievement. However, most studies focus on students within a broad range of age, with little to no research specifically for elementary students. Why don’t students have access to the Internet at home? How do they gain access when they need it? The question remains of how the digital divide – or lack of Internet access in the home – affects elementary students.
CHAPTER 3: METHODOLOGY

The purpose of this study was to explore how the digital divide – or lack of Internet access at home – affected elementary school students. Though research has shown that academic achievement is affected for students in middle grades and high school, the particular effect on elementary school students has not been fully addressed. This study used a qualitative methodology to gain a deeper understanding of how elementary students are affected by the digital divide.

Research Questions

In this qualitative study, data was gathered and analyzed to answer the following research questions:

1. What kind of digital divide exists among elementary students in Hamblen County?
2. What are teacher and student perceptions of how the digital divide affects an elementary student’s education?

Qualitative Research

The purpose of qualitative research was to obtain an in-depth understanding of the perspectives and experiences of participants. Qualitative research methods were developed in the social sciences to enable researchers to study social and cultural phenomena (Myers & Avison, 2002). These methods enable researchers to understand people and the social and cultural contexts in which they live. Qualitative research was used in this study to explore the extent to which elementary students have access to the Internet at home. It was also used to explore how the digital divide affects elementary
students. Surveys and focus group interviews were used as the main sources of data. Triangulation was achieved through the examination of artifacts. Artifacts used to inform the analysis were the ratio of computers to students at the school and other district technology data.

**Phenomenography**

Phenomenography was used to determine the effect of the digital divide on elementary students. Phenomenography is a genre of qualitative research that studies how a particular phenomenon affects people or things. According to Beaulieu (2017), the underlying principle of phenomenography is that people do not experience the same thing or event in the same way. Phenomenography provides a means for analyzing a variety of perspectives (Beaulieu, 2017).

Different individuals experience various occurrences, events, relationships, interactions, and dynamics in numerous diverse ways. Phenomenographers attempt to identify and characterize how these phenomena appear to participants in their specific circumstances and settings. Phenomenography is a research process that purposefully applies thematic analysis to highlight this variety of perspectives (Beaulieu, 2017). In its totality, phenomenography seeks to understand the different ways in which people experience, conceptualize, realize, and understand various aspects of phenomena in the world (Ornek, 2008). This study used phenomenography to identify the various ways in which Internet access, or lack of access, directly affects elementary students.

**Participants and Setting**

The setting of this study was a small elementary school, established in 1951, located in a rural area of a town in East Tennessee. The school consisted of one
administrator, 39 teachers and staff members, and 294 students. The school was not designated as a high poverty school, but 67% of the student population qualify for free or reduced lunch. Students come from working-class families ranging from high socioeconomic status to very low socioeconomic status (SES). This school was representative of many schools within the district with regards to students’ SES, race, gender, and average student achievement.

This study focused on students in grades 3-5 and their access to the Internet. Students in grades 3-5 were the chosen focus because they are older, more familiar with technology, and able to provide more accurate information than younger students.

According to Jansen (2010), the qualitative survey studies the diversity of a topic within a given population. With all participants answering the same questions, diversity among the population was easy to identify. Student surveys were conducted with all students in grades 3-5 (See Appendix A). The parent survey used for this study was sent home with every student in grades 3-5 (See Appendix B). A reminder to complete and return the survey was also sent home to maximize participation.

Qualitative research emphasizes descriptions of the participants’ perspectives and uses sampling techniques producing predominantly small samples (Lunenburg & Irby, 2008). Two students from each grade level were interviewed for a total of six students. Participants for the focus group in this study included one teacher from each grade level for a total of three teachers. The second focus group consisted of one teacher and one student from each grade level for a total of three students. Random purposive sampling was utilized to select student participants. According to Lunenburg & Irby (2008), random purposive sampling randomly selects participants who were purposively selected
and who are too numerous for all to be included in the sample. Purposive sampling also involves selecting a sample based on the researcher’s experience or knowledge of the group to be sampled (Lunenburg & Irby, 2008). The purpose of qualitative research is to obtain an in-depth understanding of participants from their perspective. Thus, when conducting qualitative research, participants who meet the criteria should be purposively selected in order to provide a sample that is likely to yield the type of information needed to achieve the desired purpose (Lunenburg & Irby, 2008).

For this study, the researcher was the library media specialist at the school and saw all students at least three times a week. The researcher taught technology skills and was therefore experienced and knowledgeable about the group to be sampled and their practices and capabilities regarding technology. Random purposive sampling was utilized as students who were selected to participate in the focus group were randomly selected from a list of identified students who have little or no Internet access at home. The researcher selected the sample based on who had experience with the phenomena.

**Data Collection Procedures**

The researcher requested and obtained permission from the Carson Newman University Institutional Review Board to begin collecting data. The researcher obtained required approval forms from both the superintendent of the school district and the school principal (See Appendix C). For the focus groups, this study’s sample consisted of six students, whose guardians granted permission for participation, and three teachers who agreed to participate (See Appendices D–G). According to Rands & Gansermer-Topf (2016), the goal of the phenomenographic interview is to encourage the participants to reflect and thoroughly explain their own views of the phenomenon under study. Focus
group discussions included the use of semi-structured questions so that participants could thoroughly discuss their personal experiences with a lack of Internet access, their opinions of its effect on them academically, and how they obtain access when it is needed. According to Myers & Avison, group interviews can be particularly useful if students’ perspectives on a particular issue are being studied. Young people tend to be stimulated to talk more extensively when joined by others of their age (2002). Focus group responses were used as the primary source of data in this qualitative study.

The focus groups were conducted in the school library, which offered an environment that was familiar and comfortable for both teachers and students. The researcher began with the individual student interviews, followed by the focus group involving teachers and a focus group involving both student participants and a teacher participant. Student interviews with individual students were conducted during school hours. Both focus group interviews were conducted after school hours. Following the focus group interviews, each interview was transcribed, and the researcher analyzed the data.

All students and teachers in grades 3-5 were surveyed. Survey questions pertained specifically to Internet access at home, barriers to Internet access at home, how students obtain access when it is needed, and perceptions of how lack of access affects the education experience.

Artifacts were used to achieve triangulation. Artifacts included the ratio of computers to students at the school and other district technology data. The ratio of computers to students in the school was obtained from the researcher’s direct access to
the school’s technology inventory. District data was obtained from the district technology teachers.

**Ethical Considerations**

Parental permission was obtained for students being interviewed. Permission was obtained for participants to be recorded during the interview process. Specific students were not identified by name or other identifying characteristics when reporting the results of this study. The researcher transcribed the interviews verbatim, then asked participants to review the transcriptions for accuracy.

Bias was possible in this study. The researcher used reflexivity to help prevent bias from occurring. Reflexivity refers to the continuous act of self-reflection that researchers practice to generate awareness about personal actions, feelings and perceptions (Darawsheh, 2014). Reflexivity in research improves transparency, both in conducting research and analyzing data, and allows researchers to apply the necessary changes to ensure the credibility of their findings (Darawsheh, 2014).

**Data Analysis Procedures**

To protect the identity of interview participants, pre-assigned coding was used to identify participants. All participants in this study were referenced as Teacher and Student followed by an assigned number. The pre-assigned codes were used to protect the identity of participants.

The primary source of data analysis involved the spoken word. However, reflection about the interviews and the non-verbal communication expressed by members of the group added a valuable dimension to the analysis of data (Rabiee, 2004).
Therefore, the researcher kept a reflective journal in which observational and reflective notes were composed immediately after each focus group interview.

According to Rabiee (2004), the goal of the researcher is to become immersed in the details and understand the interview as a whole before breaking it down into smaller parts. The researcher can then identify themes that are beginning to emerge from the data. Familiarization with data was achieved by listening to and transcribing the interviews, reading transcripts in their entirety several times, and reviewing notes taken during and after interviews. After transcribing the interviews, member checking was used to ensure that responses were accurately recorded. Member checks enhance the credibility of the data and findings (Thomas, 2006).

The researcher indexed and charted the data. Indexing and charting can also be viewed as managing the data. According to Rabiee, one of the most important aspects of indexing and charting is data reduction, which is achieved through comparing and contrasting data and grouping similar quotes together (2004). The researcher used mapping and interpreting in the final stage of data analysis. The purpose of mapping and interpreting was to make sense of the individual quotes and to discover relationships between quotes.

**Limitations and Delimitations**

Limitations in this study included several factors regarding students, the school, and its location. The school was outside city limits in a rural area and was a small school with a student enrollment of fewer than 300 students. Other limitations included students’ socioeconomic status, gender, sex, age, and the fact that students were elementary students.
Delimitations include restrictions applied to the study by the researcher. Only students in grades 3-5 were included in this study. Also, only one elementary school in the county was used for data collection and analysis in this study.

Summary

Through the analysis of interviews and surveys, the researcher strived to identify the digital divide that exists among elementary students in Hamblen County. The researcher also attempted to describe teacher and student perceptions regarding how the digital divide affects elementary students’ education. Qualitative research was used to determine the digital divide, using focus group interviews and surveys. The research questions were answered according to focus group interview and survey data.
CHAPTER 4: FINDINGS

The purpose of this study was to identify the digital divide that exists among elementary students and to identify teacher and student perceptions of how Internet access at home affects an elementary student’s education. The researcher interviewed six students and three teachers, then conducted a focus group interview with three students and one teacher. Participants provided information about their Internet access at home and how it affects elementary students’ education. As outlined in Chapter 3, the data were collected via surveys and interviews. Data were analyzed to answer the following research questions:

1. What kind of digital divide exists among elementary students in Hamblen County?

2. What are teacher and student perceptions of how Internet access at home affects an elementary student’s education?

Surveys

The researcher conducted student and parent surveys for this study. Survey questions pertained specifically to Internet access at home, barriers to Internet access at home, how students obtain access when it is needed, and perceptions of how lack of access affects the education experience. All students in grades 3-5 completed surveys. The researcher asked students to complete the surveys while they were in Library class and instructed students not to put their names on the survey so that all surveys remained anonymous. Parent surveys were sent home with students in grades 3-5.
### Table 4.1
*Student Surveys Results*

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have a computer at home?</td>
<td>76%</td>
<td>24%</td>
</tr>
<tr>
<td>Do you have Internet access at home?</td>
<td>91%</td>
<td>9%</td>
</tr>
<tr>
<td>What kind of Internet access do you have?</td>
<td>Wi-Fi</td>
<td>34%</td>
</tr>
<tr>
<td></td>
<td>Hotspot</td>
<td>57%</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>9%</td>
</tr>
</tbody>
</table>

Table 4.1 shows student responses to questions regarding Internet access at home and types of Internet access. 91% of student survey participants reported having Internet access at home. Those students reported that their Internet service comes from having Wi-Fi or using a smartphone as a hotspot. 9% of students were unsure what type of Internet access was available at home.

### Table 4.2
*Parent Survey Results*

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have a computer at home?</td>
<td>64%</td>
<td>36%</td>
</tr>
<tr>
<td>Do you have Internet access at home?</td>
<td>96%</td>
<td>4%</td>
</tr>
<tr>
<td>Have you ever used the Internet to help your child with schoolwork?</td>
<td>77%</td>
<td>23%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Expense</th>
<th>Poor/no service in area</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you do not have Wi-Fi Internet access at home, what is the main reason that you do not have it?</td>
<td>49%</td>
<td>51%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>a Smartphone</th>
<th>Family members’ house</th>
<th>Free public Wi-Fi</th>
<th>Public Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you do not have Internet access at home and you need to use the Internet, how/where do you find access?</td>
<td>47%</td>
<td>49%</td>
<td>6%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Table 4.2 illustrates parent responses to survey questions. Parent participants reported that the main reason for lack of Internet access is either the expense of service or a lack of service in the area. Parents also reported ways in which they gain Internet
access if they do not have access at home. Most parents reported gaining access from a smartphone or a family member’s house, while the public Library and free public Wi-Fi were also sources of Internet attainment.

**Interviews**

Interviews took place in the school library to ensure convenience. To report findings and protect anonymity, the researcher assigned a letter and number to all students and teachers.

**Table 4.3  
Demographics of Participants**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Gender</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>F</td>
<td>3rd</td>
</tr>
<tr>
<td>T2</td>
<td>F</td>
<td>4th</td>
</tr>
<tr>
<td>T3</td>
<td>F</td>
<td>5th</td>
</tr>
<tr>
<td>S1</td>
<td>F</td>
<td>5th</td>
</tr>
<tr>
<td>S2</td>
<td>M</td>
<td>3rd</td>
</tr>
<tr>
<td>S3</td>
<td>F</td>
<td>3rd</td>
</tr>
<tr>
<td>S4</td>
<td>M</td>
<td>4th</td>
</tr>
<tr>
<td>S5</td>
<td>F</td>
<td>4th</td>
</tr>
<tr>
<td>S6</td>
<td>M</td>
<td>5th</td>
</tr>
</tbody>
</table>

Table 4.3 illustrates student and teacher demographics for this study. Teachers were assigned the letter T, followed by a number 1-3. Students were assigned the letter S, followed by a number 1-6. Students were assigned numbers according to order in which the researcher conducted the interviews. Each interview was conducted face-to-face and lasted between five and ten minutes. Interviews included semi-structured
questions so that all students would respond to the same questions with the option to discuss or further explain their personal responses.

The researcher conducted a focus group with the teachers that participated in the study. A second focus group interview consisted of one teacher and three students. Focus group discussions included the use of semi-structured questions so that participants could thoroughly discuss their personal experiences with a lack of Internet access, their opinions of its effect on them academically, and how they obtain access when it is needed. This researcher kept a reflective journal with notations regarding the researcher’s observations and reflections on body language, emotional reactions from the participants during the interview process, or distinctive phrases heard from more than one participant.

Upon completion of all interviews, the researcher began analyzing the data. According to Ary, all qualitative analysis attempts to comprehend the phenomenon under study, synthesize information, and explain the relationships that emerge (2014). The researcher listened to the recorded interviews multiple times to become familiar with the data and began looking for similarities within the data to develop themes or trends. All interviews were transcribed verbatim into electronic format. The researcher continued to read the transcriptions and reflective journal to correlate any researcher thoughts with interview data. The researcher used mapping and interpreting in the final stage of data analysis. The purpose of mapping and interpreting was to discover relationships between quotes.
Research Question One:
What kind of digital divide exists among elementary students regarding Internet access at home?

Table 4.4
Data sorted in levels of coding for Research Question one:
“What kind of digital divide exists among elementary students regarding Internet access at home?”

<table>
<thead>
<tr>
<th>Raw Data</th>
<th>Open Coding</th>
<th>Axial Coding</th>
<th>Selective Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>“We don’t have any Internet.”</td>
<td>No Internet access at all</td>
<td>No access</td>
<td>Students have limited data via Wi-Fi or when using a Smartphone as a hotspot but often have low data on phone</td>
</tr>
<tr>
<td>“We don’t have Internet at home...”</td>
<td></td>
<td></td>
<td>Students have no Internet access at all.</td>
</tr>
<tr>
<td>“...I have data on my phone so I can use the Internet on it if I need to.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I only have a smartphone and I have to use it for everything.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“We don’t have any Wi-Fi but we can use my mom’s phone as a hotspot. She has low data too on her phone plan so we aren’t allowed to use it very often.”</td>
<td>Data on phone plan</td>
<td>Use Smartphone as a hotspot but often have low data on phone</td>
<td>Students have limited data via Wi-Fi or when using a Smartphone as a hotspot, or else they have no Internet access at all.</td>
</tr>
<tr>
<td>“Once I run out of data, I can’t use it until it starts over.”</td>
<td>Data runs out</td>
<td>May have Wi-Fi but low data or unreliable network</td>
<td></td>
</tr>
<tr>
<td>“We don’t have the big package of data and we have to share it so we always run out.”</td>
<td>Small data package</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“We have Wi-Fi but its just a little data so we always run out pretty fast.”</td>
<td>Wi-Fi but little data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“She has low data too on her phone plan so we aren’t allowed to use it very often.”</td>
<td>Infrequent use due to low data</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unreliable network</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The researcher began with raw data, presented as direct quotes from participants. The researcher then moved on to open coding. According to Charmaz, open coding allows the researcher to remain open to all possible theoretical directions indicated by the readings of the data (2006). The researcher looked for consistency within the interviews to develop trends or themes within the data. Axial coding was then used to group the codes in categories. Finally, using selective coding, the researcher was able to translate how the data answered the research questions.

Table 4.4 illustrates how the data answers research question one: What kind of digital divide exists among elementary students regarding Internet access at home? Students reported limited data via Wi-Fi or when using a Smartphone as a hotspot, or else they had no Internet access at all. As the data showed, Internet access ranged from having no Internet, to using a smartphone as a hotspot, to having Wi-Fi access. However, the data also showed that those who used a smartphone for access or had Wi-Fi often had a low data package or an unreliable network. While survey data showed at least 90% of students with Internet access at home, focus group data explained the extent of Internet access among the same students. Even though 90% had access, that access may be limited or only available at certain times due to low data packages and unreliable networks.

The researcher used artifacts to achieve triangulation for research question one. Artifacts included the ratio of computers to students at the school and the ratio of computers to elementary students in the county. The researcher used direct access to the school’s technology inventory and student enrollment to determine the ratio of computers to students at the school. District technology teachers provided data for other schools in
the district. At the researcher’s school, the computer ratio is 1:2.2. In other words, there is one student computer in the school for every 2.2 students.

The researcher requested information from technology teachers at other elementary schools in the county. Technology teachers from four other schools in the county responded to the request. They reported various numbers of computers available to students and provided the student enrollment for each of the schools. To determine the ratio for the county, the researcher used data from her school as well as the four other responding schools, for a total of five schools. The schools that provided data included both small and large elementary schools in the county. The researcher considered the combined enrollment of each of the elementary schools and the combined number of computers available to students in order to identify the ratio of student computers to elementary students in the county. Figure 1 illustrates the information from the researcher’s school as well as the information received from technology teachers at four other elementary schools in the county. Data showed the ratio of computers to elementary students in the county as 1:1.97, or one student computer for every 1.97 students. Ratios at other schools ranged from 1:1.2 to 1:2.4.

This artifact helped to answer research question one regarding the digital divide that exists among elementary students. The data showed that although student computers are available at all elementary schools, there is still a discrepancy regarding equal access among elementary students in the school setting. Schools with only one student computer available for every two students will provide less computer and Internet access at school than schools that have one computer for every student. This information
indicated a digital divide among elementary students regarding computer and Internet access at school.

**Figure 1**
*Ratio of computers to elementary students at five elementary schools in the county.*

<table>
<thead>
<tr>
<th>School</th>
<th>Number of Student computers</th>
<th>Student enrollment</th>
<th>Ratio of computers to students</th>
</tr>
</thead>
<tbody>
<tr>
<td>School 1</td>
<td>130</td>
<td>294</td>
<td>1 : 2.2 (1 computer for every 2.3 students)</td>
</tr>
<tr>
<td>School 2</td>
<td>275</td>
<td>534</td>
<td>1 : 1.9 (1 computer for every 1.9 students)</td>
</tr>
<tr>
<td>School 3</td>
<td>102</td>
<td>224</td>
<td>1 : 2.1 (1 computer for every 2.1 students)</td>
</tr>
<tr>
<td>School 4</td>
<td>220</td>
<td>545</td>
<td>1 : 2.4 (1 computer for every 2.4 students)</td>
</tr>
<tr>
<td>School 5</td>
<td>230</td>
<td>290</td>
<td>1 : 1.2 (1 computer for every 1.2 students)</td>
</tr>
</tbody>
</table>

**County Ratio**

1 : 1.96 (1 student computer for every 1.96 elementary students in the county)

With regard to research question one, the researcher also investigated barriers to Internet access and how students get access when needed. Table 4.5 illustrates how the data answers research question one regarding the digital divide by looking at barriers to Internet access. The researcher used open coding, axial coding, and selective coding to determine that limited providers and satellite Internet are too expensive and provide limited data. When Internet access is needed, students obtain access via relatives, the public library, or free public Wi-Fi.
Table 4.5
Data sorted in levels of coding for Research Question one:
"Regarding the digital divide, what are the barriers to Internet access at home and how do students obtain access when necessary?"

<table>
<thead>
<tr>
<th>Raw Data</th>
<th>Open Coding</th>
<th>Axial Coding</th>
<th>Selective Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;We moved houses so we can’t get wifi right now..... there’s only 3 providers and it’s really expensive to get it where we live”</td>
<td>Limited providers</td>
<td>Limited providers with limited data are expensive</td>
<td>Limited providers and satellite Internet are too expensive and provide limited data. Students get access to the Internet via relatives, the public library, or free public Wi-Fi.</td>
</tr>
<tr>
<td>&quot;The Internet doesn’t reach out where we live (No providers)&quot;</td>
<td>Expense</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;It’s way too expensive where we live and the data on mom’s phone is all we can afford&quot;</td>
<td>Limited data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;We have the Wifi, but we can’t afford the big package for Wifi so that’s why we don’t have much, just a little.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I live in this district as well and there are very few Internet providers.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Wifi Internet is not available where we live. We can only get satellite Internet and it’s way too much money.&quot;</td>
<td>Satellite Internet</td>
<td>Satellite Internet is expensive and have limited data</td>
<td></td>
</tr>
<tr>
<td>&quot;We can only get satellite Internet where I live and it is ridiculously expensive.”</td>
<td>Expense</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;They only provide satellite Internet service and the data is very limited.”</td>
<td>Limited data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;My mom makes a special trip to my aunt’s house for me to use her computer.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;We use the public Library. If it’s open.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“One time ... the Library was already closed so she had to drive somewhere with free Wi-Fi and get Wi-Fi in the parking lot on my mom’s laptop”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I guess my mom would just write a letter telling my teacher that I didn’t have Internet and ask if I could work on it at school.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I did have a parent send a note recently explaining that their child couldn’t complete make-up work from an absence because they ran out of data at home and couldn’t use the Internet.”</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Research Question Two:
What are teacher and student perceptions of how Internet access at home affects an elementary student’s education?

Table 4.6
Data sorted in levels of coding for Research Question two: “What are teacher and student perceptions of how Internet access at home affects an elementary student’s education?”

<table>
<thead>
<tr>
<th>Raw Data</th>
<th>Open Coding</th>
<th>Axial Coding</th>
<th>Selective Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Nowadays, even our Math series has an online portion that students can use for practice.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I think some of the educational platforms – like Math Prodigy – that they can utilize at home only helps to further their abilities.”</td>
<td><strong>Curriculum Support</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whether students are actually using the Internet for educational purposes at home, whatever they are doing requires them to read, to collaborate when online gaming, they're typing to send messages, they're researching things every time they look something up whether it is for school or not.”</td>
<td><strong>Fact-checking</strong></td>
<td><strong>Reinforcement and support for academic skills</strong></td>
<td><strong>Teachers and students believe that Internet access at home affects an elementary students’ education by providing curriculum support, reinforcement and support for academic skills, opportunities for self-improvement, and equal access to learning opportunities.</strong></td>
</tr>
<tr>
<td>“Yes, I could watch some of the things that we watch in class if I was confused”</td>
<td><strong>Homework Help</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I could look up anything I need to know”</td>
<td><strong>Skill reinforcement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I would use it for Office 365 assignments.”</td>
<td><strong>Assignments</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I could play some of the educational games we play to help me get better.”</td>
<td><strong>General knowledge</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I could do a lot better on the research projects that we do at school if I could work on them at home too.”</td>
<td><strong>Self-improvement</strong></td>
<td><strong>Opportunities for self-improvement</strong></td>
<td></td>
</tr>
<tr>
<td>“I would be able to get more practice and get better at finding information.”</td>
<td><strong>More practice</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“I could do all of the extra credit projects that you need the Internet for.”</td>
<td><strong>Extra credit opportunities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Students with Internet access can find help online that students with out Internet will not be able to access.”</td>
<td><strong>Equal Access</strong></td>
<td><strong>Equal access to learning opportunities</strong></td>
<td></td>
</tr>
<tr>
<td>“They have the ability to look up anything anytime they want and in general just gain knowledge.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Any student who has access at home and completes an extra project gains more knowledge and skill reinforcement than students who do not.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Internet access allows parents to find information that helps them help our students.”</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.6 illustrates coding that was used to determine teacher and student perceptions of how Internet access at home affects an elementary student’s education. The researcher began with direct quotes from the students and teacher in the focus group interview discussing the effect of home Internet access on an elementary student’s education. Students reported many ways in which Internet access at home would improve their education. Data from the focus group interview showed that teachers and students believe that Internet access at home affects an elementary student’s education by providing curriculum support, reinforcement and support for academic skills, opportunities for self-improvement, and equal access to learning opportunities.

Conclusions

This study determined several themes regarding the research questions. Not only did it identify a digital divide among elementary students regarding Internet access at home, but it also identified a divide regarding access at elementary schools within the county. Differences among the numbers of student computers available at different elementary schools accounted for the digital divide within the county. Equal access is not available for all students in the elementary school setting. In addition, this study identified barriers to home Internet access that included limited providers, limited data, and expense. Data also identified ways in which students obtain access when it is necessary. These include obtaining access from relatives, the public library, or accessing free public Wi-Fi.

This study also revealed teacher and student perceptions of the effects of home Internet access on an elementary student’s education. Both the students and teachers in the focus group agreed that Internet access at home would be beneficial to an elementary
student’s education. Internet access would benefit a student’s education by providing extra support for the curriculum by reinforcing and supporting academic skills. It would also provide opportunities for self-improvement and equal access to learning opportunities.
CHAPTER 5: CONCLUSION

Data collected in this study clearly showed that a digital divide continues to exist with regards to Internet access in the schools and homes of school-age children. Data also showed that access to the Internet, or the lack thereof, affected student achievement. However, most of the research analyzed for this study focused on students within a broad range of age with little to no research specifically for elementary students; therefore, this study focused on identifying the digital divide that exists among elementary students and how it affects their education. For qualitative research, the researcher conducted student interviews and focus group interviews to gather data. Data from recorded, transcribed, coded, and analyzed interviews determined common themes. The researcher administered surveys and determined the computer availability for several elementary schools in the district.

The researcher pursued the answer to the following questions:

1. What kind of digital divide exists among elementary students in Hamblen County?

2. What are teacher and student perceptions of how the digital divide affects an elementary student’s education?

Relation to Existing Literature

Participants in this study identified barriers to home Internet access as a lack of providers, low data packages, and expense. Participants reported that Internet access with an adequate data package is not affordable. They also reported that limited providers often result in satellite Internet as the only option for service, and it is costly. This data supports research from Judge, Puckett, & Bell (2006), that ownership of
computers and Internet access in the home is directly related to family income and cost of service. The data from this study also supported existing literature regarding Internet access and providers in rural areas. As previously mentioned, students living in households in remote rural and distant rural areas typically have more limited access to the Internet than students living in the suburbs, cities, or towns (NCES, 2018b). The school represented in this study was located in a rural area in East Tennessee. As research predicted, data in this study showed a lack of affordable Internet providers in their area.

This study provided perceptions of teachers and students regarding the effect of Internet access at home on an elementary student’s education. Findings in this study support the literature in Chapter 2 regarding the availability of Internet access and higher student achievement scores. NAEP reading scale scores showed that students with Internet access at home scored higher than those without home access (United States Department of Education, National Center for Education Statistics, 2018b).

This study showed that a digital divide existed with regard to Internet access in the home and also at school. This study also indicated that access to the Internet, or the lack thereof, had an effect on student achievement. This study supplemented the body of literature by providing a study specific to elementary students.

**Researcher Reflections**

The main thing I learned from this study is that no Internet access at home equals inequality for students. A prime example of this inequality was identified in the interviews. A couple of students that were interviewed mentioned the option of extra credit projects that students have the option to complete at our school.
However, these projects typically require that students have Internet access at home in order to complete these projects. Though these projects are for extra credit and are not required, these students were adamant that they do not have the same learning opportunities as those with Internet access at home. One student stated, “Even though I don’t need extra credit, I still deserve the option of completing it just like the students who have Internet access at home.” Another student said, “The students who have Internet and get to do extra credit projects obviously have that extra opportunity to learn more than me.” No Internet access at home equals inequality among students no matter how you look at it.

The second thing that stood out most to me in this study were handwritten notes from two different parents when they returned their parent surveys. Basically, both parents talked about how academics for students are becoming more and more difficult and parents are not always able to help students at home because they do not have access to any kind of help for themselves. Both parents expressed the belief that if they had reliable Internet access at home, they could use it to help their children become better students. Internet access would allow them to look at homework examples or get homework help online for their children, or enable them to learn the skill that their child is working on and, in turn, use that knowledge to help their children. One parent reported, “I don’t know how to do the work that my child is doing and have no way to learn and help her. If I had Internet access at home, I could use it for numerous things that would allow me to be a better parent and help my kids be successful.” Equal access helps parents and it also helps
students. By the same turn, equal access allows parents to help their children as well.

Last, but not least, I was surprised by the number of students who reported Internet access at home. However, upon further research, it was discovered that for many of those students who reported Internet access, their access was available only by using a Smartphone. This type of access works for fact checking and looking up information. However, the online learning platforms, as well as other programs used at school, are not accessible to these students even though they reported having Internet access. These programs cannot be properly utilized without a laptop or desktop computer. Therefore, numerous students who report having Internet access do not have proper access to use the necessary programs for schoolwork or extra credit projects. It is safe to say that even for students who reported Internet access, there is still a disparity among the types of available Internet access and whether or not it can be used to meet the needs of students.

**Recommendations for Further Research:**

Researchers could continue studying the digital divide among elementary students looking at both the availability of Internet access at home as well as the divide that exists among schools in other counties, specific regions, or on a broader scale. Future studies should focus on overcoming identified barriers to home Internet access. Also, it may be beneficial if researchers studied policies and initiatives that have encouraged access in schools so that recommendations could be made for policies and initiatives that would increase adequate access at home.
As previously stated, if students are using technology in a consumer-driven way, rather than as a producer, then Internet access can serve to exacerbate the digital divide (Dolan, 2017). Research could be conducted regarding how students and teachers use the Internet both at school and at home. Also, researchers could study technology use and make recommendations for ways in which teachers can encourage students to become producers rather than just consumers. Ultimately, teachers are vital to the successful use of technology and the Internet in the school. Researchers, educators, school administrators, parents, and students must continue to play a role in initiating improvements with continued demands for equitable access.

Chapter 5 concludes this research study. The findings identified the digital divide that exists among elementary students regarding Internet access at home, as well as the digital divide that exists among elementary schools in an East Tennessee county. The findings of this study also identified teacher and student perceptions of how Internet access at home affects an elementary student’s education. This study is beneficial to administrators and educators in providing information regarding the digital divide among elementary students and the effect it has on elementary students’ education. Digital equity is a social justice goal that should ensure that all students have access to information and communication technologies for learning (Judge et al., 2006).
REFERENCES


APPENDIX A

Student Technology Survey
Student Technology Survey

What devices do you have at home? Circle the devices that are available to you:

- Smartphone
- Tablet
- iPad
- Laptop
- Desktop computer
- Gaming System
- Other __________________

Do you have a computer at home? Yes No
Do you have Internet access at home? Yes No
Are you allowed to use the Internet at home? Yes No

How do you use the Internet?
Circle the ways in which you use the Internet:

- Play games
- Find information
- Complete schoolwork
- Watch YouTube
- Communicate with others

Please rate your technology skills:

<table>
<thead>
<tr>
<th></th>
<th>Poor</th>
<th>Fair</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keyboarding/typing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using a smartphone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using a tablet/iPad</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using the Internet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creating videos</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making video calls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taking pictures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using YouTube</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using social media</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sending/receiving emails</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX B

Parent Technology Survey
Parent Technology Survey

What devices do you have at home?

Smartphone  Tablet  iPad
Laptop  Desktop computer  Gaming System
Other ________________

Do you have a computer at home?  Yes  No
Do you have Internet access at home?  Yes  No
Is your child allowed to use the Internet at home?  Yes  No
Do you think it is important for students to know how to use technology?  Yes  No
Have you ever used the Internet to help your child with homework?  Yes  No

If you do not have Internet access at home, what is the main reason that you do not have it?

If you do not have Internet access at home and you need to use the Internet, how/where do you find access?

Please rate your child’s technology skills:

<table>
<thead>
<tr>
<th></th>
<th>Poor</th>
<th>Fair</th>
<th>Excellent</th>
</tr>
</thead>
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<td>Keyboarding/typing</td>
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<td>Using a smartphone</td>
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<td>Using a tablet/iPad</td>
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<td>Navigating the Internet</td>
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<td>Creating videos</td>
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<td>Making video calls</td>
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<td>Taking pictures</td>
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<td>Using YouTube</td>
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<td>Using social media</td>
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<td>Sending/receiving emails</td>
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APPENDIX C

Permission to Conduct Research
Dear Administrator,

I am writing to ask for your permission to conduct a research project using your teachers and students in grades 3-5. With your permission, I will be surveying students in these grade levels and sending home parent surveys. I will also be interviewing 1 teacher from grades 3-5 and 2 students from each grade level. I will obtain permission from parents before interviewing students.

The research project is regarding the digital divide among elementary students in our district. For this study, the digital divide will be defined as the gap between those who have and those who do not have computer and Internet access at home. The research will seek to determine the nature and extent of a divide. It will also identify how the digital divide affects an elementary student’s education based on teacher and student perceptions.

All information about the school that is shared and/or collected will be kept highly confidential. Identifiable information, including your name, and the school’s name, will never be disclosed. The identities of teacher and student participants will also be kept confidential.

By signing below, you agree to allow the research student, Jennifer Hutchings, to conduct the study.

Principal__________________________________________Date__________________
APPENDIX D

Parent Information Letter
Dear (Parent of Student Participant),

I am writing to ask permission for your child’s participation in a research project that I am conducting as part of my dissertation study at Carson-Newman University. The study pertains to the digital divide among elementary students and student perceptions of how the divide affects his/her education. Your child has been selected to participate in this study because he/she is in the targeted grade level for the study and because your child has reported limited Internet access at home. I would like to ask about your child’s Internet access and his/her perception of how it impacts his/her education. If you grant permission for your child to participate in this study, I would schedule a time to interview him/her during the school day. The interview would consist of guided questions pertaining to the subject and would last approximately 15-20 minutes. All information that your child shares would be kept highly confidential. Identifiable information, including your child’s name and school will never be disclosed.

If you choose to grant permission, you will be asked to sign an informed consent prior to the interview. The consent form is attached. Your child’s participation in this study is completely voluntary, and your child would be able to withdraw from the study at any time, for any reason, without penalty. The information that your child provides will be maintained in a secure manner. If you should have any questions about this study please feel free to contact me. Thanks for your consideration of this request. I would be greatly appreciative of your permission to allow your child to help me complete this study.

Thank you,

Jennifer Hutchings
Carson-Newman University Doctoral Student
APPENDIX E

Parent Consent Form for Student Interview
CONSENT TO PARTICIPATE IN INTERVIEW

An Analysis of the Digital Divide Among Elementary Students

Your child has been asked to participate in a research study conducted by Jennifer Hutchings as part of a dissertation study at Carson-Newman University. The purpose of the study is to investigate the digital divide among elementary students and perceptions of how the divide affects an elementary student’s education. The results of this study will be included in Jennifer Hutchings’s dissertation. Your child has been selected to participate in this study because he/she is in the targeted grade level for the study and because your child has reported limited Internet access at home. Please read the information below, and ask questions about anything you do not understand, before deciding whether or not to allow your child to participate.

• This interview is voluntary. Your child has the right not to answer any question, and to stop the interview at any time or for any reason. The interview will take approximately 15-20 minutes.
• Your child will not be compensated for this interview.
• Your child’s name will be kept confidential and his/her name will not be revealed when reporting the information provided.
• This interview will be recorded so that it can be used for reference while proceeding with this study. Your child’s interview will not be recorded without your permission. If you grant permission for this conversation to be recorded, you have the right to revoke recording permission and/or end the interview at any time.
• This project will be completed by May 17, 2019. All interview recordings will be stored in a secure space until May 2020. After that date, the recordings will be destroyed.

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to allow my child to participate in this study. I have been given a copy of this form.

(Please check all that apply)

___ I give permission for my child to participate in this interview.

Child’s Name: __________________________________________________________

___ I give permission for this interview to be recorded.

Printed Name of Parent/Guardian: ______________________________________

Signature of Parent/Guardian __________________________ Date ________

Signature of Investigator __________________________ Date ________

Please contact the following if you have any questions:
Jennifer Hutchings  423-277-6080
Steve Davidson (Chair)  sdavidson@cn.edu
APPENDIX F

Teacher Interview Information Letter
Dear (Teacher’s Name),

I am writing to ask for your participation in a research project that I am conducting as part of my dissertation study at Carson-Newman University. The study pertains to the digital divide among elementary students and teacher perceptions of how the divide affects an elementary student’s education. You have been asked to participate in this study since you are a teacher of one of the targeted grade levels and use technology in your classroom. I would like to ask you about your experience with the digital divide among your students and it’s impact on their education. If you volunteer to participate in this study, I would schedule a time to interview you using guided interview questions. The interview would last approximately 15-20 minutes. All information that you share would be kept highly confidential. Identifiable information, including your name and your school will never be disclosed.

If you choose to participate, you will be asked to sign an informed consent prior to the interview, which I need to obtain for the university in order to exhibit evidence that I have described the study thoroughly to you. The consent form is attached. Your participation in this study is completely voluntary, and you would be able to withdraw from the study at any time, for any reason, without penalty. The information that you give will be maintained in a secure manner that others will not be able to access. If you should have any questions about this study please feel free to contact me. Thanks for your consideration of this request. I would be greatly appreciative of your time and effort to help me complete this study.

Thank you,

Jennifer Hutchings
Carson-Newman University Doctoral Student
APPENDIX G

Teacher Interview Consent Form
CONSENT TO PARTICIPATE IN INTERVIEW

An Analysis of the Digital Divide Among Elementary Students

You have been asked to participate in a research study conducted by Jennifer Hutchings as part of a dissertation study at Carson-Newman University. The purpose of the study is to investigate the digital divide among elementary students and teacher perceptions of how the divide affects an elementary student’s education. The results of this study will be included in Jennifer Hutchings’s dissertation. You were selected as a possible participant in this study because you are a teacher of one of the targeted grade levels and use technology in your classroom.

Please read the information below, and ask questions about anything you do not understand, before deciding whether or not to participate.

• This interview is voluntary. You have the right not to answer any question, and to stop the interview at any time or for any reason. The interview will take approximately 15-20 minutes.
• You will not be compensated for this interview.
• Unless you grant permission to use your name, title, and/or quote you in any publications that may result from this research; the information you provide will remain confidential.
• This interview will be recorded so that it can be used for reference while proceeding with this study. Your interview will not be recorded without your permission. If you do grant permission for this conversation to be recorded, you have the right to revoke recording permission and/or end the interview at any
time.

- This project will be completed by May 17, 2019. All interview recordings will be stored in a secure space until May 2020. After that date, the recordings will be destroyed.

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

(Please check all that apply)

___ I give permission for this interview to be recorded.

___ I give permission for the following information to be included in publications resulting from this study:

   ___ my name
   ___ my title
   ___ direct quotes from this interview

Name of Subject ________________________________

Signature of Subject ________________________________ Date ______

Signature of Investigator ________________________________ Date ______

Please contact the following if you have any questions:
Jennifer Hutchings  423-277-6080
Steve Davidson (Chair)  sdavidson@cn.edu