The impact of computer-based assignments on student motivation to complete homework assignments for sixth-grade students

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A Dissertation

entitled

The Impact of Computer-Based Assignments on Student Motivation to Complete
Homework Assignments for Sixth-Grade Students

by

Mary Ann Cyr

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the
Doctor of Education Degree in Educational Administration and Supervision

Dr. Nancy Staub, Committee Chair

Dr. Cynthia Beekley, Committee Member

Dr. Dale Snauwaert, Committee Member

Dr. Mary Ellen Edwards, Committee Member

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College of Graduate Studies

The University of Toledo

May, 2013
An Abstract of

The Impact of Computer-Based Assignments on Student Motivation to Complete Homework Assignments for Sixth-Grade Students

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Submitted to the Graduate Faculty as partial fulfillment of the requirements for the Doctor of Education Degree in Educational Administration and Supervision

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The purpose of this qualitative study was to examine the engagement of 11 middle school-aged students from a southeast Michigan public school, who were given laptop computers with twenty-four-hour-a-day Internet access in order to complete homework assignments. Specifically, this study examined the perceptions of sixth-grade students regarding the impact of computer-based assignments on homework activity engagement and completion. These students brought home computers provided by their school district to complete the assignments. The researcher used Strong, Silver, and Robinson’s (1995) theoretical model, SCOR-E, in order to shape the protocol for this study. There were four primary themes that emerged from the student responses: Organization, Learning as Fun, Voice, and Person-to-Person Connection. From these four themes, 14 sub-themes were also revealed. These included Improved Time Management, Increased Organization, Increased Ease, Appreciation of Increased Accessibility to Information, Appreciation of Deeper/Better Understanding of Content and Assignments, Appreciation of Freedom to Explore for More Information, Pure Enjoyment, Confidence in Sharing during Discussions, Frequency in Discussions, Increased Collaboration, Enhanced Relationship
with Teacher, Increased Assistance from Teacher, Enhanced Current Student Relationships, Increased Number of New Friendships.

Overall, all 11 participants responded favorably to the use of laptops for the purpose of computer-based homework assignments. Further research exploring middle-school-aged students and technology is needed. The challenge of motivation, technology and social media in schools continues to exist. This analysis proves to be essential to understanding middle school-aged students and computer-based homework assignments. “Keywords: computer-based homework, motivation, middle school-aged students.”
This dissertation is dedicated to my family. First to my parents, Rosemary and Tom Serbu, who served as role models and nurtured within me a life-long appreciation of learning, a tenacious work ethic, and incredible drive. Secondly this dissertation is dedicated to my two sons, Daniel and Michael, and my sister, Stephanie, who have offered their encouragement, love, and support. I am so blessed to have my family.
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I also need to give a special thank you to Dr. Michelle Baker-Herring and Dr. Ryan McLeod. For the past five years, the three of us helped to keep each other on track and muddle through some real challenges. I cannot thank them enough for their support and friendship, which have helped me to persevere.

Since I first became an educator, I have been blessed to have found many colleagues who share my dedication to the profession. There are far too many to mention, but these individuals have assisted in shaping my mental models and philosophy of education. The rich conversations are invaluable and will be treasured forever. Thank you for everything you have given to me personally and professionally.

Finally, I have a handful of life-long friends who have been there to encourage me and cheer me on when I was not sure the end was possible.
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BYOD .................. Bring Your Own Device
NCLB .................... No Child Left Behind
TRC ...................... Technology-Rich Classroom
Chapter One

Introduction

Obstacles for Learning

The pressures of state and local accountability have had a significant impact on classroom activities and on student achievement. In order for students to achieve academic success, they must have opportunities to practice their learning. Homework is one opportunity for students to demonstrate their understanding of new knowledge outside the classroom; however, homework is not always an activity desired by students. Often, there is family discord because parents and children argue over the execution and merits of homework. Children who have put in a full day at school are not motivated to do additional work at home outside of school hours (Warton, 2001; Xu 2007). Educators create homework so that students develop mastery of their learning through practice and application. When students fail to do their homework, teachers become frustrated and concerned about the possible lack of knowledge acquisition on the part of their students. Xu (2007) states that motivation seems to be a considerable determining factor for students who struggle to engage in their daily homework activities. Furthermore, Kara-Soteriou (2006) says that the homework is being prepared by teachers who did not grow up in a digital era, so their assignments are often lacking a technological component. These aforementioned homework assignments are competing against an array of technological activities that many digitally native students literally have at their fingertips.
Bempechat (2004) and Warton (2001) suggest that teachers assign homework because they expect it to enhance learning and achievement, parental involvement, study skills, work habits, and motivational dispositions. The homework that teachers assign is generally traditional in nature, generated with paper and pencil activities that support the work that was taught in the classroom. Although it seemingly has merit, homework continues to be a delicate, controversial, and conflict-inducing subject for students, parents, and teachers. Xu (2001) suggests that homework is a major battleground for families. While parents want to push their children to do homework to get the best grades possible, the children often want to relax after a long day at school. Nonetheless, many educators and parents believe that homework is beneficial to student learning because it reinforces learning and maximizes potential success. Xu (2003), Corno (2001), and Cooper (1998) confirm that homework has long been viewed as a difficult family issue but an important vehicle for developing good study habits, desirable self-regulatory strategies, and greater self-direction. Unfortunately, according to Xu (2007), students find that homework is boring, too easy or too hard, and not relevant to their lives. His findings further suggest that students claim that homework interferes with activities such as watching television, working on the computer, listening to music, and playing with friends.

There seems to be a disconnection with how teachers are supposed to educate and motivate students who are technology driven. Many of these teachers were brought up, educated, and raised in an educational environment that did not have technology at the forefront of lesson design. The National Center for Education Statistics documents that in 2011, 53 % of teachers were between the ages of 40 and 50 years old. Prensky (2001)
refers to students who are currently in school as digital natives. These are students who interact with digital technology from an early age and have a greater understanding of its concepts than their parents, teachers, or other adults. This technology gap between teachers and learners is a factor that plays into a lack of interest and motivation on the part of students when they are considering doing their homework. A further problem is that during school hours, schools offer students access to computers, the Internet, and other technologies, but not all students have access from home, and if they do, they do not have a personal device dedicated to individual learning.

**Researcher’s Perspective**

As an elementary school principal, I am concerned with the academic success and achievement of all of the students in my school. My school improvement team and I noticed that district-wide, the sixth-grade students, were not scoring as well as we had hoped and, in many cases, not performing at grade level. Many students received grades on their state standardized tests that were in the low range of “satisfactory” or just missed the mark for satisfactory ranking. Further examination resulted in the discovery that students were not completing many of their homework assignments and thus were not getting the necessary practice to be able to apply newly learned skills. Teachers also mentioned that students appeared more engaged in activities in the classroom when they were able to use technology devices, such as computer laptops with Internet access. As I reflected on the feedback from the teachers, questions began to develop regarding the connection that exists between student achievement, homework, and the use of technology.
Upon reviewing the literature involving homework and the use of technology in education, it became evident these technological influences and opportunities might have an influence on student motivation. However, the literature is lacking in the areas of how technology is experienced by students or how students’ experiences could be tied to homework. The focus of this study is to examine student perceptions regarding their experiences when they are provided with a laptop computer to complete computer-based homework assignments via the Internet. The following question guided this investigation: “What is the impact of computer-based assignments on student perceptions to complete homework assignments for sixth-grade students?”

**Statement of the Problem**

The problem addressed in the research is that students do not seem motivated or engaged to do their homework. When considering overall student grades, teachers believe that students’ homework grades directly influence all their grades. In other words, there is a connection between students’ homework grades and their overall grades because when students engage in homework, there is greater opportunity for them to practice their learning. When conducting lessons, holding discussions, and collecting homework assignments, teachers report that students often do not complete their assignments. They are not maximizing their academic potential because they are not practicing their learning outside the classroom. According to verbal feedback from students in the classroom, students find homework boring and intrusive to their daily lives after school hours. Students are more exposed than ever to technology and are thus less inclined to complete their homework because most of the activities are textbook and paper/pencil-driven as opposed to technology-oriented. These digital natives do not seem motivated by the type
of homework activities designed by their teachers. For the most part, students have access to computers at school; however, not all students have computer access from home. Although not all homework has to be computer-based, the Internet certainly offers immediate information. Those who do not have access to computers or the Internet are significantly disadvantaged. It is possible that students who do not have access to computers at home do not have instant information from the Internet to assist them when completing homework assignments. Therefore, they may not be able to complete the assignments as readily as those students who do have access. There must be a way to improve this situation that offers an equal opportunity for all students to have access to technology and the Internet and that encourages more students to complete their homework. This study examines the perspectives of students regarding their experiences with computer-based homework assignments when they are provided with a laptop computer and Internet access on a daily basis, 24 hours a day.

**Significance of Study**

According to Penuel and Yarnall (2005), “The educational technology research community’s collective knowledge about one-to-one computer initiatives has not kept up with the rapid expansion of these initiatives or with their breadth” (p. 329). What is still left for interpretation is the determination of students’ motivation towards completing computer-based homework assignments using a laptop computer with Internet access on a daily basis. Therefore, the results of this study are important to a variety of constituents. For educators, the results of this study can assist in the integration of technology in lesson delivery. Teachers will be introduced to new opportunities to try to motivate students, giving students a chance to practice their learning via technology. For
students, the results of this study can assist by providing them with the potential to engage in homework using a tool that is familiar and engaging to them.

**Definition of Terms**

This study is intended to provide some additional information regarding the connections between homework, the use of one-to-one laptops with Internet access, and student motivation.

*21st century learning.* The skills students will adopt that focus on collaboration, digital literacy, critical thinking, and problem solving and that are necessary to work in today’s world.

*Digital citizenship.* Digital citizenship is the responsible use of technology by individuals in society.

*Digital divide.* Digital divide is the gap between individuals at different socio-economic levels and different age groups regarding access and use of the Internet.

*Digital immigrants.* Digital immigrants are those people who grew up before the digital age, during which time items such as home computers, the Internet, and mobile phones were either non-existent or not as widely available.

*Digital literacy.* Digital literacy includes the ability to locate, organize, understand, evaluate, and analyze information using digital technology.

*Digital natives.* Digital natives are students born after 1985, who have spent their lives learning with computers, listening to music on iPods, playing video games, and networking or socializing on cell phones or with instant-messaging devices (Prensky, 2001).
Ed Yes. Ed Yes is Michigan State’s accountability system to determine the performance of schools.

Geometer’s Sketchpad. This is a popular commercial interactive geometry software program for exploring Euclidean geometry, algebra, calculus, and other areas of mathematics.

Google Earth. This is a virtual globe, map, and geographic information program that maps the Earth by superimposing images obtained from satellite imagery, aerial photography, and GIS 3D globe.

FastMath. This is a library of fundamental 3D graphics, algorithms, and data structures.

Microsoft Excel. Microsoft Excel is a commercial spreadsheet application written and distributed by Microsoft for Microsoft Windows and Mac OS X. It features calculation tools, graphing tools, pivot tables, and a macro programming language called Visual Basic for Applications.

Microsoft Photostory. MS Photostory is an application that allows users to create a visual story (show and tell presentation) from their digital photos.

Microsoft PowerPoint. MS PowerPoint is a communication tool to present views and ideas effectively using diagrams, photos, clip art, sounds, designs, and animated special effects.

Microsoft Publisher. MS Publisher is an entry-level desktop publishing program from Microsoft, differing from Microsoft Word, whereby the emphasis is placed on page layout and design rather than text composition and proofing.

Microsoft Word. MS Word is a word processor designed by Microsoft.
**Mobile device.** This term refers to any pocket-sized computing device with a display screen and keyboard.

**One-to-one computing.** This term refers to an environment in which every student possesses a computer for the purpose of learning in an educational setting.

**Smartbook 10.** This term refers to a class of mobile devices promoted in 2009 and 2010 that combines certain features of both a smartphone and netbook computer.

**Technology-rich classroom (TRC).** This term refers to classrooms with access to technology.
Chapter Two
Literature Review

Introduction

This chapter is organized to provide a review of the related literature on homework, the use of technology in schools, and student motivation. It begins with an investigation of the literature related to homework and its impact on student learning. The second section uses the related literature to develop the concept of technology use in the classroom. The concept of student motivation is developed in the latter part of the chapter. Finally, the last section of this chapter highlights the need to examine the relationship between computer-based assignments, student motivation, and engagement to complete homework assignments at the sixth-grade level.

Homework

While conducting interviews with students from the ages of 10 to 13, Cooper, Lindsay, Nye, and Greathouse (1998) report findings confirming that students’ own attitudes about homework play an increasingly important role in how much homework they complete. Especially in an educational climate that demands increased standardized achievement scores along with an understanding of global competitiveness, the sense is that most Americans believe that “the more homework that is assigned to students, the better the chances of academic success” (Cooper, Lindsay, Nye, & Greenhouse, 1998, p. 5). Epstein and Van Voorhis (2001) state that students’ personal investment in homework may be influenced by whether or not homework is interesting enough to entice them. One way to give students opportunities to reinforce their learning is through
homework activities that have meaning. Based on a series of interviews with middle school-aged students conducted by Epstein and Van Voorhis (2001) and Warton (2001), it is reported that some of the most significant purposes of homework include the practice of basic skills taught in class; the preparation of future lessons; the encouragement of student participation in learning; the development of time management skills, responsibility, perseverance, and self-confidence; the fostering of communication between parents, teachers and students; and the response to district homework policies. Boekaert and Corno (2005) and Corno (2001) state that an effective homework model focuses on self-regulation, activities of purpose, persistent striving, planning goal accomplishments, setting priorities, bypassing barriers, checking work, and managing resources. Bandura (1997) and Pintrich (2003) suggest that adolescents who set short-term goals, self-regulate their work, and challenge themselves have advantages in achievement and might thus expect to attain their aspirations.

Warton (2001) states that his studies reveal that educators and parents both believe that homework is beneficial to student learning. Teachers assign homework activities because they expect these activities to enhance learning and achievement, parental involvement, study skills, work habits, and motivational dispositions (Bempechat, 2004). Homework activities are integral to the development of self-regulated practice and the understanding of responsibility. However, Killoran (2003) states that trying to get students to complete their homework has become one of the most frequent and frustrating behavior problems for educators. Killoran says students typically prefer to study with friends. Surprisingly, more recent studies show that students, even those in high school, do not spend more than one hour per day on homework activities.
(Loveless, 2006). Xu (2007) confirms that American students do less homework than students in other countries. As an opposing viewpoint, Hancock (2011) contradicts the American concern for homework and shares a different educational philosophy, stating that in other countries, such as Finland, the school calendar is shorter than it is in America. She further reports that students spend a great deal of time playing outside and that assigned homework is minimal. Teachers in Finland spend fewer hours at school each day and spend less time in classrooms than teachers in America. Hancock interviewed a Finish teacher named Louhivuori, who speaks to the compulsory seven-year-old school-age requirement and the idea of homework. He states: “We have no hurry…Children learn better when they are ready. Why stress them out?” (p. 3).

**Attitudes towards Homework**

In a study of homework at the middle-school level, Xu (2007) interviewed 121 urban middle-school students from grades 6, 7, and 8. Xu found that these students reported homework to be boring, too easy or too hard, and not relevant to their lives. Homework is clearly not their favorite activity after school. Half of the students in this study reported that homework was in the middle of the list of preferred activities. These students did not like homework, but they felt as if they were learning something from it. Xu and Corno (1998) provide an interview response from one of the middle school-aged boys from their study:

> One boy said that among all the things he did after school, he liked playing with his friends the best because he “can get to talk to them…that’s fun.” If he had his choice, he said he would ‘play with my friends for the whole day,’ or at least ‘five
hours,’ and would like to spend only ‘two minutes’ doing homework every day. (p. 415)

Based on interviews with 100 middle-school students, Csikzentmihalyi (1997) confirms that students often do not enjoy homework. These students reported mood swings while doing homework. Csikzentmihalyi’s studies show that if students feel happier when doing homework, they are more likely to engage in homework and the learning process. In addition, Leone and Richards (1989) found that adolescents’ affect and motivation differed depending on the company they kept. In their studies, they found that adolescents were happier doing homework with their peers than they were when they were alone. In another separate study, Xu and Yuan (2003) found that students viewed homework as interfering with preferred activities, such as watching TV, spending time on the computer, listening to music, and playing with friends. Students reported that the most challenging areas for students in homework situations included arranging homework environments, finding quiet and adequate spaces, managing time to meet deadlines, handling distractions, staying motivated, and coping with negative affect and mood swings while doing homework.

A study conducted by Shumow, Schmidt, and Kackar (2008) revealed similar findings. For example, in their study of 331 adolescents in the Chicago area, these researchers report that students felt an array of emotions while completing their homework and categorized these emotions. These emotional categories included anger, sense of ability, self-esteem, happiness, interest, concentration, stress level, effort, joy of the activity, control, and involvement. Results confirmed that students reported a more positive affect when they did homework with friends or with family members present.
Homework and Achievement

Research at the middle-school level indicates that most students are taught in formal classrooms through traditional instructional methods, such as lecture, assigned readings, drills, and independent practice (Xu, 2007; Xu & Corno, 2003; Zimmerman & Kitsantas, 2005). Based on a study of 633 rural and urban eighth-grade students and the effects of homework and academic achievement, Hong, Peng, and Rowell (2009) found that homework is an activity frequently used to support academic learning and the development of academic skills acquired after teacher instruction. Homework serves different purposes across grade levels. According to Cooper (1989), homework at the elementary-school level focuses less on the academic content and more on developing basic skills in reading, math, and studying. This research suggests that there is a positive relationship between homework completion and student achievement. Furthermore, Cooper suggests that the higher the grade level throughout K-12 education, the stronger the relationship between homework completion and academic success. Cooper, Lindsay, and Greathouse (1998) also conducted a meta-analysis on the topic of homework and achievement. These researchers included 17 research reports that contained a total of 48 comparisons between students who did and did not receive homework. Approximately 70% of these studies found that homework was associated with higher achievement. Most of these reports were based on surveys that attempted to correlate students’ test scores with how much homework they did. Forty-three of 50 correlations were positive.

In a study of 633 middle-school students in New York, Minotti (2005) shares comparisons between the experimental group (whose teachers incorporated the use of individualized homework assignments and responses to individualized learning styles)
and the control group (whose teachers offered traditional homework strategies with a one-size-fits-all model). The study was conducted to assess the effects of achievement and attitudes towards homework. Data showed significant differences in achievement between the experimental and control groups. Findings supported significant improvement in reading, mathematics, science, and social studies as well as improvement in attitudes toward homework and attitudes toward learning styles among students in the experimental group. Warton (2001) indicates that a series of studies conducted at the elementary level found that students who studied through individualized learning styles, using computer-generated homework assignments, achieved statistically higher achievement scores than those who studied without computer-generated homework assignments that were not individualized. Zimmerman and Kitsantas (2005) contend that homework experiences have a positive impact on students’ use of learning strategies as well as student responsibility for academic outcomes. Many schools have made significant gains by providing failing students with individualized learning activities that match their learning styles (Xu, 2007).

**Technology**

**The digital divide in schools.** Prensky (2001) says, “Our students have changed radically. Today’s students are no longer the people our educational system was designed to teach” (p. 1). There seems to be a cultural divide between students and teachers, and the root of this chasm is technology. Prensky defines digital natives as students who were born after 1985 and who have grown up learning with computers, listening to music on iPods, playing video games, and using cellphones to communicate with others. He further suggests digital natives are used to receiving information at a fast rate. A particular
preference of this digital native group consists of immediate access to vast amounts of
information and functioning best when networked. They prefer games to “serious” work,
such as core content-related assignments (Prensky, 2001, p. 1). On average, during the
second quarter of 2010, teens sent or received 3,339 texts per month (Neilson Company,
natives. Their studies found that if Internet access is available to students, the average 8-
to-18 year old will spend seven hours per day viewing digital media on screens.

Technology is evolving at rapid speeds and will continue to affect the way
schools conduct business. Scherer (2011) shared a conversation she had with the director
of the Office of Education Technology at the U.S. Department of Education. The director
reported that she foresees the day when all students will come to school with digital
devices in hand, much as they came with their pencil boxes in the past.

Prensky (2001) places most teachers in the category of digital immigrants – those
who grew up before the digital age, where items such as home computers, the Internet,
and mobile phones were either non-existent or not as widely available. The general rule
of thumb is that digital immigrants are 28 years of age or older, born before 1985, and
adapt to these digital technologies as opposed to internalizing them from birth. Judge,
Puckett, and Bell (2006) suggest that digital immigrants are individuals who were born
before the existence of digital technology and adopted it to some extent later in life.

One of the struggles with students’ lack of engagement in learning is that the
digital immigrant teacher typically does not relate to the aforementioned new skills that
the natives have acquired. According to the Center for Public Education, a report in 2010
showed the median age in the United States had reached 37.2 years. Although many
digital natives are entering the teaching profession, there are still many digital immigrants left in the teaching field. Digital immigrants see these skills as foreign because they learned slowly, step by step, one thing at a time, individually and, above all, formally – that is, outside the potentially informal environment of the classroom (Prensky, 2001). Prensky suggests that many digital immigrant teachers can be heard saying things like, (and here we can fill in the blanks with words such as “study” and “work”) “My students just don’t ______ like they used to. I can’t get them to ______ or to ______. They have no appreciation for ______ or ______” (p. 3). He asserts that the digital natives have grown up on the “twitch speed” of video games and music videos. They have come to expect the instantaneous feedback of hypertext, downloaded music, cell phones, the Internet, and instant messaging. According to Prensky, these students have been digitally networked most or all their lives. Consequently, these natives have little patience or tolerance for lectures with step-by-step, teachers-teaching-to-the test instruction. Scherer (2011) claims that classrooms are currently predominantly print-based environments, with textbooks, teachers’ guides, assessment documents, and supplemental materials.

There is another dimension to this digital divide that focuses on the socio-economic status of students. Although the cost of computers has dropped significantly over time, many families are still without computers in their homes. Families who are already struggling financially may have an even more difficult time in the future because they are being excluded from the technology revolution that is sweeping our world (Attewell, Suazo-Garcia, & Battle, 2003). A perfect example rests in a newer idea brought forth from a technology company called Lightspeed that sells networking websites to schools. This idea suggests a “bring your own device” (BYOD) model.
BYOD is a concept that will allow students to bring a personal device to connect to the Internet. This may include a laptop, cell phone, iPad, iPod Touch, DSI (i.e., a Nintendo hand-held electronic gaming system), and other devices. This BYOD model would clearly help reduce the effects of the economic crunch that most school districts are facing throughout the United States; however, this model would rule out any student who does not own a device. Any approach to incorporating technology into the lives of student learners must give all students equal opportunities.

**Teacher attitudes and behaviors regarding technology.** Garthwait and Weller (2005) suggest that teachers who are digital immigrants should adhere to diffusion theory in order to fully understand the world of the digital native. Diffusion theory suggests that teachers’ attitudes evolve when adopting or rejecting technology. Teachers first hear about an innovation, form an attitude about it, decide to accept it (or reject it), implement it, and then create unique applications for it. Over the course of time, the digital immigrant teacher’s actions, decisions, and choices are influenced by the context of the social system. With an open mind and a sense of acceptance, the digital immigrant teacher can become immersed into the world of technology. With 21st century learning, it is important for teachers to veer away from a traditional approach so that they can better engage their students. Teachers also need to let go of the fear of being replaced by technology. Berry and Staub (2011) state that, “the computer was only as valuable as the software in making teaching pedagogy more engaging and learning more meaningful” (p. 5).

Researchers such as DeGennaro (2010) suggest that technology creates a way to connect with students, bringing authentic, hands-on experiences, motivation, and problem
solving into the classroom. This way, technology is viewed by all the stakeholders—students and teachers—as an integral part of teaching and learning. In turn, instructional strategies and student motivation could possibly be improved. Another shift in teacher attitude is the notion of letting go of the sole use of textbooks to support lessons and activities. DeGennaro suggests that one of the major characteristics of the technology-enhanced environment is the emphasis on self-directed, problem-based learning without the use of textbooks. Kara-Soteriou (2006) suggests that results in prior studies reveal a significant gap between technology-savvy students and their schools and teachers. If indeed the lives of digital natives are geared towards the infusion of technology, it would be fitting to incorporate technology with Internet access into teachers’ lesson designs. This would require technology training for teachers. Cuban (2001) points out that previous research has identified teachers’ beliefs regarding instruction and learning that affects levels of technology adoption. In particular, the more teachers believe computer and Internet access will enhance their teaching and student learning, the more likely they are to use technology as a teaching tool, incorporating it into their lessons. Russell and Higgins (2004) conducted a case study of a fourth-grade class using one-to-one computer devices with word processing. They found that the greatest change in instruction occurred among teachers who already had demonstrated a positive disposition towards the use of computers in educational settings. Wambach (2006) reported that after 10 years of study, researchers concluded that one-to-one computing eventually changed the roles of teachers. Of these teachers using laptop computers in their classrooms, 58% were more likely to act as coach or advisor than instructor. Kara-Soteriou empathizes with many teachers who indicated that technology is something they feel they have to learn in
addition to so many other challenges and tasks that they must complete in order to manage a busy classroom. Scherer (2011) suggests two basic strategies for effectively teaching “screenagers” (another term for teenagers who are digital natives): (a) embracing the tools in which students are immersed, and (b) using these tools to engage students in core curricular topics (p. 44). Based on a study of 252 middle-school students (grades 6 to 8), Tarasiuk (2010) states that in order for teachers to make responsive and meaningful changes to curriculum and pedagogy, teachers need to understand the young people who sit in their classrooms. Teachers need to know what students do outside school; they need to know what piques students’ interest and what does not. Berry and Staub (2011) state that students who are given the opportunity to learn with the support of technology are able to experience deeper learning: “Students went well beyond the teacher-directed facilitation of a lesson to contact friends via e-mail, engage in continuous instant messaging, and interact with classmates in a social network that had an educational benefit” (p. 8).

Teachers need to appreciate and use the sophisticated technological skills that students demonstrate, understanding how these skills can be incorporated and best used for learning. Teachers are not effective unless they are learning along with their students. Lanier (1997) encourages teachers to adapt and adopt new practices that acknowledge learning. She states that strong teachers create close relationships between a knowledgeable, caring adult and a secure, motivated child. Finally, Lanier states that the most important role for teachers is to get to know each student individually, recognizing his or her needs, learning style, social and cultural background, interests, and abilities. Since learning is an interactive process, teachers must use the knowledge that students
bring to the classroom so that teachers can learn from students and in that process understand them. With this approach, mutual respect is fostered. Furthermore, Kara-Soteriou (2006) insists that it is important for teachers to share experiences of introducing new technologies. In addition, Scherer (2011) states it is imperative to get beyond labeling teachers as digital immigrants. It is as if technology holds a certain code only young people can understand and decipher. Dunleavy, Dexter, and Heinecke (2007) indicate that teachers who have received professional development in the area of technology, including newly acquired technology skills in curricular planning, problem solving, and decision making, understand that technological equipment will continue to replace blackboards, overhead projectors, and other traditional tools.

The shift in technology-infused lesson design continues to be an area of focus for teachers. Leu (2004) affirms that teachers need to change the manner in which they teach by including the Internet and other technologies into their teaching and lesson design. It is no longer a question of whether or not teachers start this integration of technology but rather a question of how and when. Kara-Soteriou (2006) supports this suggestion, claiming that rapid integration of information and communication technologies in the lives of most middle-school and high-school students is a given, but teachers need to pace themselves with technology integration so that students and teachers alike are comfortable with this.

Although most signs point to the inevitable shift in education becoming even more digitalized, digital immigrants do have some room for concern. Wolf (2007) says, “Children need to have both time to think and the motivation to think for themselves, to develop an expert reading brain, before the digital mode dominates their reading” (p. 37).
Bauerlein (2011) speaks to the way digital natives read and is concerned that students tackle complex literature the same way they skim through text messages, Twitter, email, and Facebook. He is concerned that students who send up to 3,000 text messages per month and who spend their entire school day surrounded by technology tools will struggle when they are given the charge to read through more demanding pieces, such as a modernist poem or a classic piece of literature. Bauerlein is not completely opposed to the integration of technology and does appreciate its merits. However, he feels that educators should preserve a protected space for unwired, unplugged, and unconnected learning.

**Digital natives’ educational needs and benefits.** Scherer (2011) suggests that students thrive with the infusion of technology because of its quick pace and instant introduction to information. When technology is infused into lesson design, it can offer students more learning options. Teachers are able to meet student interests and ensure that assignments are at an appropriate developmental level. When technology is incorporated, students have opportunities to ask different and deeper questions because of access to the Internet and the information it contains. Prensky (2001) also says that students have acquired many reading skills, researching skills, critical thinking skills, and typing skills from using newer technologies, and these technologies have had a significant positive impact on student learning. He continues to say these skills are almost totally disregarded and discredited by teachers.

The integration of technology into the classroom has many benefits that lead to students’ academic progress and success. Classroom collaboration is significantly impacted. Kara-Soteriou (2006) suggests that adolescents who are asked to play the role
of the technology instructor are learning how to cooperate with others while at the same time gaining more confidence as valuable members of their class community. Consequently, if the more technologically knowledgeable students happen to be students who are usually characterized as poor readers, or weak students, this experience becomes even more important. For once, these students are the ones who are more knowledgeable; as a result, they are more motivated to actively participate in instructional activities.

Regarding teacher instruction and student learning, Windschitl and Sahl (2002) state that the infusion of technology into classroom discussions, particularly online discussions, is comfortable for students. They further state that these online discussions break down barriers that often exist in face-to-face situations in the classroom. Alvermann (2002) confirms this finding, suggesting that students use the Internet for most facets of their lives, including school work, communication with friends, chat-room discussions, instant messaging, gaming, listening and downloading music, exploring websites, and document sharing—all of which may or may not be related to homework. Berry and Staub (2011) state that new software available for computers can assist teachers in engaging and facilitating students in their learning. When technology is used daily, DeGennaro (2010) suggests that students see this infusion as integral to constructing knowledge. He further believes that the integration of technology also assists teachers in more objectively assessing students. DeGennaro responds to Warren (1995) and his concept of relational power in that technology infusion strengthens relationships and open communication on many levels: between teachers and students, between students and their parents, and between teachers and parents.
Teachers strive to assist their students in becoming independent thinkers. Fey (2001) describes the 21st century classroom as one that is a self-directed, technology-enhanced environment where students have autonomy and are open to exploration. Students understand that teacher support, resources, and guidance are available when needed. He further claims that students enjoy the autonomy of technology-infused lessons, particularly if they can explore the content without constant, direct instruction. Fey also suggests that one-to-one computing has increased student curiosity, excitement, and collaboration in the classroom. Further benefits of integrating technology into the classroom include higher student attendance, fewer documented behavioral issues, compact digital organization of student learning, and increased work production. Maniger and Holden (2009) indicate that the advantages of laptops for students include portability, flexibility, and ease of use. These authors also confirm that as the ratio of computers-to-students increases, teachers are becoming more open to accepting and grading electronic assignments. Students are able to submit their work with the click of a mouse. Students are also more apt to receive more immediate feedback because teachers can respond in the same fashion.

Freedom to learn and discovery of knowledge are also byproducts of the use of computer laptops and Internet access. The use of this technology for learning fosters incidental learning. Students who browse the Internet stumble across a vast storehouse of information and topics of interest. Burns and Polman (2006) confirm that students will assimilate learning much easier because their Internet findings are personally interesting and self-organized into smaller chunks of learning. When the information is not pertinent
to students, they can abandon a site and search for additional information elsewhere via the Internet.

Technology integration in the classroom. Implications from the work of Scherer (2011) suggest that now is the time for the educational system to financially support student access to a digital device, 24 hours per day, 7 days per week. The reason for this technological incentive is three-fold. First, digital and mobile devices are proliferating and are available at lower costs. Secondly, the amount and quality of digital content for learning are increasing. Third, interactive opportunities online are becoming more and more useful. According to Scherer, the increase in the number of mobile devices has created a shift in the educational culture of the 21st century, providing fast and easy access to the topics and issues teachers typically have spent a great deal of time teaching and testing. The focus is now less on the actual information, per se, and more on how to find the information, its importance, its usefulness, and its relation to learning.

Scherer (2011) outlines three parts of the approach to teaching digital literacy. Initially, teachers must ensure that they and their students access information, incorporate the knowledge, and analyze it for the purpose of problem solving. The next part of this initiative includes the ability to use media and digital technologies in order to communicate effectively. Finally, the development of digital citizenship is crucial. The United States Department of Education, Office of Educational Technology (2010) suggests eight national technology goals:

- With the use of technology, raise the percentage of young people with two- or four-year college degrees from 39% to 60% by the year 2020.
- Provide broadband everywhere to serve learners inside and outside school.
• Put an electronic information device in the hands of every student.
• Make online connectedness the hallmark of effective teaching.
• Create an online learning registry of content developed by federal government agencies.
• Fund the research and development of open-source educational resources.
• Fund the research about how online communities of practice can improve teaching and learning.
• Create a national initiative that defines success in education and establishes metrics for measuring.

It is crucial that educators strive to meet the aforementioned goals and close the digital divide that currently exists. Teachers need to organize and execute lessons with the 21st century learner in mind and respond to the learning styles of the digital natives. However, there is yet another problem with the digital divide. Although technology is more and more pervasive and readily available at the hands of many students, it is not the case for all. Celano and Neuman (2010) suggest that most middle-class students have access to computers and Internet service; however, this is not the case for low-income students. Lenhart, Simon, and Graziano (2001) report that many students use computers outside school time to enhance their learning, but there are still millions of children who are not as fortunate and do not have the same access. According to the National Center for Education Statistics (2010), only 15% of children from families with annual incomes of less than $20,000 own computers; 65% of all Americans have broadband connection to their homes, but only 40% of families with annual incomes of less than $25,000 have Internet access. This financial reality forces many students from low-income families to
rely on schools and libraries, fast-food outlets, coffee shops, malls, and other public places for Internet access. Hammond (2006) suggests that as the use of the Internet increases, the experience becomes an even richer opportunity for low-income individuals. The Internet may help create more equity among individuals for whom information is not easily accessible. Celano and Neuman are concerned that even when computer access is equal, its use is different. For example, the authors contend that among middle-class students, computers are introduced at a very early age with significant adult assistance and guidance. He further contends that economically disadvantaged students tend to use computer time more for entertainment than do their middle-class peers, who tend to use computers more for the acquisition of information. It is critical that all students in all schools, regardless of their economic status, use computers for virtually every lesson, not only in their classrooms but also in their homes (Wambach, 2006).

A technology-rich classroom, as described by Rowland and Stanley (2008), offers teachers a blend of technology and training support that incorporate new technologies into instruction, helping engage today’s learners. The suggestion is that more and more, these technology-rich classrooms are replacing textbook-driven curricula that do not engage students. This type of approach allows for students to play a more active role in the learning process and prevents teachers from having to do all the work. Tarasiuk (2010) claims that as teachers infuse more and more technology into classrooms and become guides, students begin to lead the way. As students work with digital technologies, they enhance their reading strategies for authentic purposes. It seems that this type of learning would be more dynamic for all stakeholders in the classroom.
In order for technology to be integrated successfully, particularly with the use of one-to-one computing initiatives with Internet access, it has been found that there are critical factors that need to be considered. Maniger and Holden (2009) suggest the following:

- Leaders [in the school] must clearly communicate expectations to teachers and students, providing administrative support for planning and implementation.
- Financial resources for equipment, software, training, and follow-through must be available.
- Opportunities for teachers must be provided so they become comfortable with the technology before it is implemented with students. Furthermore, teachers must have a voice in this process.
- An academic climate that supports all students with access to technology must be established.
- Technology should support the curriculum (p. 9)

According to Fey (2001), the overall effect of computer use in elementary schools and middle schools is positive. Studies reveal that using computers in classrooms results in higher achievement scores in math and reading both for boys and girls.

**Motivation Theory**

According to Meyer and Turner (1997), “Motivation has been, is, and probably always will be at the heart of teaching and learning” (p. 112). Motivation is of significant importance to those who work with pre-teens, particularly teachers. There has been a significant decline in motivation and academic performance for many students who are
pre-pubescent and entering into the middle school age-group (Anderman & Midgley, 1998).

Self-determination theory is one type of motivational theory that can be associated with middle school-aged students (Levesque et al., 2004; Ryan & Deci, 1996). Within this theory, there are three categories of needs: (a) competence, (b) relatedness, and (c) autonomy. Competence is best described as the ability to complete tasks with the belief that the achievement of such tasks is attainable with a variety of outcomes. Relatedness refers to the initiation and regulation of one’s own personal actions (Anderman & Midgley, 1998). Lastly, a sense of autonomy for middle-school students is extremely important. With a deeper maturity and an increase in academic and cognitive abilities, a sense of autonomy would seem like a natural outcome. However, research suggests that students in middle school experience very few opportunities for self-determination and even fewer than in elementary school. This is because many teachers take on the bulk of the work necessary for student learning (Midgley & Feldlaufer, 1987). Anderman and Midgley (1998) claim that student autonomy is easily attainable without teachers making major changes to their classroom routines. For example, choice is crucial for students and can be offered in small ways, such as the choice to work with or without a partner or the opportunity to choose a genre or modality for a project or presentation. Teachers can easily assist students by offering reasonable choices and options and by providing guidelines for them to monitor their personal progress. Strong, Silver, and Robinson (1995) endorse the self-determination theory and combine it with a motivational model, which they name SCOR-E. According to this model, students who
are energized to engage in their work are motivated by four goals: Success, Curiosity, Originality, and Relationships. Each one of these satisfies a particular human need:

- Success (the need for mastery)
- Curiosity (the need for understanding)
- Originality (the need for self-expression)
- Relationships (the need for involvement with others) (p. 9)

These four goals form the acronym SCOR-E. The “E,” according to Strong et al., stands for “Energy. These authors suggest that under the proper conditions (i.e., success, curiosity, originality and relationships), students can build the necessary motivation and “energy” that is essential for a complete and productive life (Strong et al.). These goals and needs can provide students with the energy to deal with complexities, confusion, and ambiguities that often surface in middle school. This study focuses on students at the middle-school level.

**Connections between Computer-based Homework Assignments and Motivation**

Homework has been described as a construct (Cooper, Lindsay, & Greathouse, 1998; Epstein & Van Voorhis, 2001) that seems to increase student learning and motivation. According to Cooper (1989), the impact of homework on achievement increases as students move through the grades. In a study of homework at the middle-school and high-school level, for every 30 additional minutes of homework completed daily, students’ GPAs can increase up to half a point (Keith, 1992). Cooper, Lindsay, and Greathouse conducted research that included 17 research reports containing a total of 48 comparisons between students who did do homework and those who did not do homework. Approximately 70% of these studies found that homework was associated
with higher achievement and stronger motivation. Their research revealed that student test scores were directly influenced by how much homework they did and their attitudes about their work. Hong, Peng, and Rowell (2009) confirmed that in a study of 633 rural and urban grade 8 students, homework was a frequently used activity to support academic learning and the development of academic skills acquired after teacher instruction. Other studies suggest that elementary students should be assigned homework to establish good learning and study habits (Cooper, 1989; Cooper, Lindsay, Nye, & Greathouse, 1998; Gorges & Elliot, 1999). However, parents and educators continue to struggle to get students to complete homework, and motivating students is a key factor. In particular, motivation is important for teachers who work with pre-teens (Anderman & Midgley, 1998). Thus, motivation would appear to be an optimal way to connect students with their reasons for doing homework and the ability to complete it. In particular, self-determination theory contributes to student motivating factors along with emotions and personal agency beliefs, especially among pre-teens (Levesque et al., 2004; Ryan & Deci, 2000). Clearly, student interest level and sense of autonomy play a significant role for middle-school students (Anderman & Wolters, 2006; Midgley & Feldlaufer, 1987). It is entirely possible that students’ personal investment and motivation for homework may be influenced by whether homework is interesting enough to entice them. Consequently, their attitudes about homework play an increasingly important role in how much homework they complete (Cooper et al., 1998; Epstein & Van Voorhis, 2001; Xu, 2007). Researchers link motivation and interest, theorizing that when students are presented with learning tasks in which they experience success, curiosity, originality, and relationships, motivation will increase (Ford, 1992; Sansone & Harackiewicz, 1996; Strong et al.,
1995). However, there has not been a direct exploration of homework examining the motivation students experience regarding their interest in a particular context. Personal choice within the context must be physically and socially beneficial to the working environment, which in this case includes homework assignments. Further studies are needed to examine the possible relationship between homework and motivation; however, the final piece to include is one of technology. Students thrive with the infusion of technology because of its quick pace and instant access to information. Technology provides opportunities to seek knowledge because of the immediacy to Internet access and information (Prensky, 2001; Scherer, 2011). Students will assimilate information easier when Internet findings are (a) personally relevant, (b) highly interesting, and (c) organized in smaller bits of learning. Despite prior research that has been conducted on homework, motivation, and technology in the education environment, few studies in the literature have explored how these three areas intersect in the lives of pre-teens.
Chapter Three

Methodology

Research Design

**Introduction.** This study warrants an empirical research method. This method of research is most appropriate because the researcher describes experiences as perceived by the participants of this study. A researcher conducting an empirical study is concerned with the experiences of the individuals involved with the issue that is being researched (Greene, 1997; Holloway, 1997; Kruger, 1988; Kvale, 1996; Maypole & Davies, 2001).

Phenomenology as a research method in education tries to "ward off any tendency toward constructing a predetermined set of fixed procedures, techniques and concepts that would govern the research project" (van Manen, 1997, p. 49). While there is not a prescription for fixed procedures, van Manen suggests some hermeneutic phenomenological research activities in the human sciences:

1. Turning to a phenomenon which seriously interests us and commits us to the world.
2. Investigating experience as we live it rather than as we conceptualize it.
3. Reflecting on the essential themes which characterize the phenomenon.
4. Describing the phenomenon through the art of writing and rewriting.

(p. 30)

Stones (1998) suggests the operative word in phenomenological research is “describe” (p. 5). The aim of the researcher is to describe the phenomenon as accurately as possible and remain true to the facts. According to Kruger (1988), “The phenomenologists are concerned with understanding social and psychological phenomena
from the perspectives of people involved” (p. 189). Furthermore, phenomenology is described as an approach “toward the ways in which ordinary members of society attend to their everyday lives” (Gubrium & Holstein, 2000, p. 488). Finally, van Manen (1997) explains phenomenology as follows:

Phenomena have something to say to us — this is common knowledge among poets and painters. Therefore, poets and painters are born phenomenologists. Or rather, we are all born phenomenologists; the poets and painters among us, however, understand very well their task of sharing, by means of word and image, their insights with others — an artfulness that is also laboriously practiced by the professional phenomenologist. (p. 41)

Creswell (2009) describes a phenomenological approach as one that explores a central phenomenon. He notes that the phenomenon under study is usually tied to some type of feeling or experience rather than observations of facts. In this research study, the researcher chose the phenomenological approach to explore the perceptions of students’ experiences regarding their motivation to complete computer-based homework assignments using a computer laptop with which Internet access was available on a 24-hour basis. The primary data collection tool for this study was in-depth, personal interviews. During this study, the researcher asked participants broad, general questions based on the Strong et al.’s (1995) theoretical framework. Responses to these questions were collected in detail in the form of audio recordings and then transcribed into a word processing software application. The interviews were designed to carefully inquire into the participants’ experiences with the phenomenon under investigation and to allow participants the maximum freedom to respond from within the experience.
Gadamer (1984) suggests that when interviewing participants, the role of the researcher is to ask questions through conversations that promote understanding. Thus, researchers must accept participants’ viewpoints as valid to such an extent that researchers understand “not the individual but what he says” (p. 385). A non-biased approach is crucial for the researcher to truly listen to participants’ responses without personal judgment. Once the data is collected, it can be organized and analyzed to find themes related to the topic, which may lead to the development of theories regarding the participants’ experiences. In this study, these data were coded and analyzed, which enabled the researcher to explore the phenomenon of the use of laptop computers for homework assignments (Creswell, 2009).

**Research question.** Student perceptions about the opportunity to complete computer-based homework assignments will be explored through the use of interviews. The researcher intends to gain insight into sixth-grade students’ experiences and motivation on this topic. The following research question was used to guide this investigation: “What is the impact of computer-based assignments on student perceptions to complete homework assignments for sixth-grade students?”

**Sample and Population**

**Population.** A K-6 school in southeast Michigan was identified and was given a grant to use laptop computers during the 2011-2012 school year. It should be noted that the school’s total population was 478 students and 25 teachers. This student population was situated in a semi-rural community, and 38% of its student body received free and reduced lunch. The special education students made up 8% of the student body, and the ethnic minority students accounted for 10%. Ten years ago, the community was thriving because it was the home of major
economic corporations, including Fermi Nuclear Plant, Ford Automotive, and LA-Z-Boy
Incorporated. In 2001, the district housed over 9,000 students. Ten years later, with Ford Motor
Company closing its doors in the community and budget cuts creating fewer jobs in the other
aforementioned companies, the school district population was reduced by 3,000 students. Today,
the total district enrollment sits at 6,782 students.

The researcher chose to use convenience sampling (Creswell, 2009). In this case, the researcher
cannot say with confidence that the individuals were representative of the population; however,
the sixth-grade students were divided into three classes, and every attempt was made to have a well-balanced group. Before the incoming year, there were 90 students on the sixth-grade roster. The teachers, school counselors, special education teachers, and principal met to divide these students into three different classes. The groups were divided by separating equal numbers of high-achieving students, medium-achieving students, and low-achieving students. Social behaviors were also taken into consideration as well as student discipline history, students’ ability to make friends, and students’ problem-solving ability. In order to facilitate this process of creating class lists and determining the most balanced and equitable grouping of students, the teachers, school counselors, special education teachers, and principal gave the students a score from one to three, with one being the highest in the areas of academics and social behavior. Furthermore, the students were examined in light of low socio-economic status. The letter “A” for apartment or “H” for house was assigned, and this factor was also taken into consideration when dividing the groups. Within the community in question, most rental situations were associated with low-income housing. The educational team assigning students to these classes wanted to ensure that a socio-economic balance in all
three classes was equitable. Finally, the same process was used to categorize children who held individualized education plans (IEPs) and had special needs for learning. All these factors and scores were taken into consideration in order to best balance these three classes. In regards to this study, a classroom of students at the research site was selected. The classroom teacher asked her students to participate in this study. The classroom was well balanced and the total number of 11 students seemed to reasonably represent a typical sixth-grade group of students.

At a recent school improvement meeting for this school, the team discovered that the sixth-grade students’ scores did not reach the targeted school improvement goal for this grade level. Three sixth-grade teachers and the principal were concerned and frustrated because many of these students were not testing at proficient levels on state tests, they were not engaged in their daily school work, and they were not completing homework assignments. The district was awarded a grant that allowed a selected school to use laptop computers with Internet access. There were three sixth-grade classes in this school, and one of the teachers who was the most technology savvy, offered to conduct the pilot program and use the laptops for homework assignments. Therefore, only her class specifically used the laptops for the pilot. Furthermore, this teacher was highly qualified and had been teaching within the district for at least four years. According to the No Child Left Behind Act 2002 (NCLB), in order for teachers to be highly qualified, they must (a) have a bachelor's degree, (b) maintain full state certification or licensure, and (c) prove that they know each subject they teach. She had been exposed to educational programs and professional development endorsed by the school district. She had received training in the use of computers and software for school use. Finally, she was viewed as a
teacher leader by her peers and the principal. On several occasions, she had been asked by the school district in which she works to present best-practice teaching principles to a larger audience of teachers. The other two sixth-grade teachers were supportive of this teacher being the one to execute this pilot program.

Each one of the students was given a laptop computer for the second and third trimesters – 12-week periods, respectively – of that current school year. The actual laptops given to the students were Verizon Notebooks with wireless Internet access via Verizon service. The laptops had Microsoft Office 2010 with Word, PowerPoint, Publisher, Excel, Smartnotebook 10, Google Earth, Geometers’ Sketchpad, FASTMath, Google Earth, and Photostory loaded onto the hard drive.

The procedure for students accessing homework was implemented as follows. First, via the Internet, the teacher placed all homework assignments on a student portal entitled “My Big Campus.” The assignments were given in the areas of math, social studies, reading and writing. Using the portal, the teacher placed the homework instructions on the My Big Campus website and reviewed the homework in class each day before the school day ended. The teacher brought up the homework instructions and reviewed the homework assignments on the class computer with the students so the students knew what they were expected to complete on their laptops using the My Big Campus website at home. The assignments often contained links to other websites that the students accessed in order to read before the homework could be completed. Homework was accessed by the students via the Internet on a daily basis after school hours. They logged on to the My Big Campus website and completed all the assignments. Once the homework had been completed, they saved their work, which was automatically
sent to the teacher. The teacher graded the homework daily and provided the students with feedback via the My Big Campus website on a regular basis. Through this My Big Campus portal, students had access to the teacher as well as access to their peers through Skype and instant messaging. The access was always available, whether or not students were using it at the time.

**Sample.** A parental permission letter and a letter of participation were sent home to 27 parents of the students of the sixth-grade class chosen for the laptop pilot program (see Appendix F and Appendix G). Of the 27 letters sent home, the researcher received 11 positive responses from parents and students willing to participate in the study. The interviews were conducted by one of the members of the research team who was unbiased and had no attachment to the school. The students had not previously met her. During a two-day period in the summer, the interviewer conducted one-on-one interviews with each of the 11 students who agreed to participate. These interviews were conducted at the students’ school in a classroom setting. The only people in the interview were the interviewer and the student. Each interview was audio recorded and lasted no longer than 40 minutes.

**Inquiry Design**

For the purpose of this study, the researcher determined that a semi-structured phenomenological interview would be the best approach to explore the perceptions of students’ experiences regarding daily computer-based homework assignments. Because the phenomenon of daily computer-based homework assignments was not in keeping with the traditional pencil-and-paper homework activities, the researcher was interested
in discovering the students’ motivation for completing (or not completing) their homework assignments.

The semi-structured interview protocol was followed to ensure consistency. This protocol ensured that answers could be reliably recorded and documented. Corbetta (2003) suggests that an interview protocol in which all interview questions are the same for each participant provides the researcher with increased control over the topics and the format of the interview. This research protocol provided a common format, which made it easier to analyze the data and identify common themes.

**Interviewing**

The interview protocol for this study was based on Strong’s SCOR-E Theoretical Framework. The interview consisted of a total of 14 questions that were organized into four categories:

1. Success (the need for mastery)
   - How do you feel about using the laptop computer to do your homework assignments? Were there things you liked about using the laptop for your homework? Were there things you did not like?
   - Do you think overall using the computer made your homework easier or harder? Explain some of the ways using the computer might have made it easier for you. Explain some of the ways using the computer might have made it harder for you.
   - What technology is in your home besides the laptop that the school has provided? (Examples could include cell phones, other computers, tablets [e.g., iPad], online gaming systems)
2. Curiosity (the need for understanding)

- When you started using the laptop computer for homework assignments, were there things that you found particularly challenging or difficult for you?
- What other electronics besides the laptop computer would you use to do your homework? Do you use your laptop or other electronics to contact your friends about homework?
- What technology is in your home besides the laptop that the school has provided? (Examples could include cell phones, other computers, tablets [i.e., iPads], online gaming systems)

3. Originality (the need for self-expression)

- Can you think of any ways your attitude about homework in Trimester Two and Trimester Three changed when you got the laptop to do your work? Did your attitude about homework change when you completed your assignments using the laptop?
- Would you recommend that other schools use laptop computers for homework assignments? Why or why not?
What do you think about the possibility of no longer having this computer opportunity to complete homework assignments?

4. Relationships (the need for involvement of others)

- Describe some of the relationships with other people that you might have formed during the online group homework projects.
- How might your classroom relationships with your friends changed since you have access to them by using the computer?
- How do you think that your relationship with your teacher might have changed since you now have access to her using the Internet?
- Is there anything else you want to tell me that I didn't ask you?

These questions addressed the topic of the research study and allowed the participants to share their thoughts about their experiences with the computer-based homework assignments for this laptop initiative. The questions in this interview attempted to identify the participants’ thoughts regarding this initiative in the three areas of study identified in the literature review.

Transcribing

Interviews were recorded and transcribed to facilitate the data analysis. The transcripts from the participants provided the researcher the opportunity to identify themes that emerged during data analysis (Creswell, 2009; Glesne, 2011). The researcher searched through the data to find any patterns or themes that were present.

A voice-recording device was used, and the researcher created an audio file for each student so that transcription of the interview questions was easily accessed. The interviews were transcribed verbatim and typed into a word processing document.
Analysis

The researcher employed a thematic analysis approach to analyze the data and to establish themes and patterns within the transcripts. After reading the transcripts, the data were categorized and checked for any patterns and themes. These themes were used to find relationships with other aspects of the research, such as how themes varied from subject to subject based on the demographic differences. Creswell (2009) suggests that the use of themes is another way to analyze qualitative data. Furthermore, because themes are similar, codes are grouped together to form a major idea in the database; they form a core element in the data analysis. Upon review of all the data, the researcher looked for any possible connections.

Thematic analysis of data is a technique that is typically used in grounded theory research (Glesne, 2011). Patterns and themes are identified in an attempt to build theory (Glesne, 2011; Moustakas, 1994). This research study is based on Strong et al.’s (1995) motivational theory that outlines four categories: Success, Curiosity, Originality and Relationships.

When making comparisons of the data, spreadsheets were created to view the various responses noted from each student participant. These comparisons assisted in identifying the relationship of themes and sub-themes between subject and ideas. These relationships led to patterns that indicated similarities and differences among the demographic groups as well as trends for the entire group of subjects. Patterns were identified along with contradictions included in the transcripts.

The thematic analysis combined and catalogued related patterns. Themes were defined as units resulting from patterns (Taylor & Bogdan, 1998). Furthermore, these
themes were identified by "bringing together components or fragments of ideas or experiences, which often are meaningless when viewed alone" (Leininger, 1985, p. 60). When comparing all the data, the researcher identified relationships that surfaced among the responses of the participants. Jasper (1994) states that “the purpose of phenomenology as a research method is to generate concepts and theories, which can then be tested using other methods” (p. 313).

**Validity**

**Bias.** The researcher is invested in the topic of computer-based homework assignments based on the recent school district funding and implementation of this laptop computer pilot program. The attachment the researcher has for the topic could lead to finding data to support the researcher’s personal beliefs regarding student use of laptops for computer-based homework. In conducting the interviews, it is possible that the researcher might have a skewed perspective and only heard what she wanted to hear.

It is also possible that students could skew their answers in order to please the interviewer, who happened to be their school principal. Therefore, an unbiased interviewer conducted the interviews, and the researcher examined the data once it was transcribed.

The interviewer shared with the participants that their answers would not be judged, that their responses would have no bearing on the student-principal relationship, and that all their answers were helpful for this study.

**Truth-value.** Schurink, Schurink, and Poggenpoel (1998) emphasize the truth-value of qualitative research and list a number of means to achieve truth. In this study, the phenomenological research design contributed to the understanding of students’
perceptions of the use of laptop computers for homework completion. The researcher made a conscious effort to understand (in terms of the perspectives of the participants interviewed) that the phenomenon that was being studied was “the focus on an insider perspective” (Mouton & Marais, 1990, p. 70). The audio recordings of each interview, along with the transcripts of the interviews, further contributed to truth since the responses were recorded during the interviews themselves and then transcribed verbatim to ensure the accuracy of the interview (Schurink, Schurink, & Poggenpoel).

**Limitations**

There were several limitations in this study. The first limitation was the number of students in the study. The smaller number of students does not allow for conclusions about individual sub-groups. There were only 11 students who participated from one class of sixth-grade students. If a larger number of participants had been available for this type of study, additional data also would have been available to defend the conclusions as well as offer more opportunities for further investigation.

The imbalance of the demographic sub-groups within the participants created an additional limitation of this study. The participation of students under the age of 18 in research studies is, in part, dependent upon the completion of the parental consent form. While the original group consisting of 27 sixth-grade students who were selected was balanced across all sub-groups, not all 27 responded with a consent form. Therefore, the final group of 11 students was not a true representation of the balance of the groups. Furthermore, since the students were minors and could not participate without parental consent, there was the possibility that the parents were the driving force behind the consent for this study and not the desire of the students to participate.
The teacher chosen to conduct the pilot program was a highly effective teacher with a strong ability to use technology in her lesson designs, which also may have created limitations for this study. She was enthusiastic about this study and dedicated to her students’ learning. It is possible that this study would not have been as successful if the teacher involved had been less committed, energetic, or competent.

In addition, it is also possible that the researcher’s position as school principal could have influenced the study. For example, although the students were moving on to another school after the conclusion of the interviews, they did have a respectful relationship with the researcher, and it is possible that they answered in such a way as to not disappoint the researcher.

Time constraints posed another limitation for this study. The students were able to use the laptop computers for homework completion during only two of the three trimesters. Results of this study may have differed if the students had been able to use the laptop computers for the entire school year.

The last limitation that was encountered during this study was the nervousness that may have occurred because the students did not know the interviewer. They assumed that the researcher (who also was their school principal) would conduct the interviews. To help ensure validity and an unbiased approach, the researcher hired a graduate student to conduct the interviews. Some of the responses that students gave were short, and it is possible that they were shy or uncomfortable during the interviews.
Chapter Four

Findings

Introduction

In this chapter, the researcher presents the results of this qualitative phenomenological study investigating the following research question: “What is the impact of computer-based assignments on student perceptions to complete homework assignments for sixth-grade students?” The review of literature indicates there is very little research about middle school students having the opportunity to have access to laptop computers 24 hours a day, 7 days a week, to complete their homework assignments. This researcher engaged in this study in an effort to analyze information from students who had 24-hour access to laptop computers and the Internet for the purpose of completing computer-based homework assignments. It was challenging to obtain research participants, as the study took place in the summer, after the students had been released at the end of the school year. The researcher mailed letters via the United States Postal Service in order to receive consent forms back from the parents and students. The summer is not the most conducive time to attempt to contact students and interview them since many families leave for summer holiday. Also, students are engaged in extra-curricular activities during this season which makes them more unavailable. Lastly, some families tend to relocate during the summer. Ultimately, it is not as easy to have access to them once school is over for the year. The researcher mailed 27 letters and received 11 signed consent forms. The female-to-male ratio of participants was approximately 1:1, with six females and five males participating in this study. The
students who participated in this study provided data representing a wide range of perceptions.

This chapter presents the findings based on an analysis of data collected during 11 comprehensive interviews. Participants were chosen based on the criteria defined in chapter three. As the research progressed, four primary themes emerged, including 14 sub-themes that were discovered through further analysis of the interview data (see Table 1.1): (1) Organization (2) Learning as Fun (3) Voice (4) Person to Person Connections. Below is the breakdown of the primary themes, sub-themes, and tallied responses from each student participant:

Table 1

*Primary Themes, Sub-Themes, and Number of Responses*

<table>
<thead>
<tr>
<th>Primary Theme</th>
<th>Sub-Theme</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td>Improved time management</td>
<td>22 total responses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(S1 through S11=11t; S1=2t; S3=1t; S4=1t; S5=1t; S6=1t; S7=1t; S8=2t; S10=2t)</td>
</tr>
<tr>
<td></td>
<td>Increased organization</td>
<td>17 total responses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(S1 through S11=11t; S3=2t; S4=2t; S8=2t; S10=1t)</td>
</tr>
<tr>
<td></td>
<td>Increased ease</td>
<td>49 total responses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(S1 through S11=33t; S2=5t; S4=3t; S6=3t; S9=2t; S11=3t)</td>
</tr>
<tr>
<td>Learning As Fun</td>
<td>Appreciation of increased accessibility to</td>
<td>16 total responses</td>
</tr>
<tr>
<td></td>
<td>information</td>
<td>(S1 through S11=11t; S2=2t; S4=1t; S5=1t; S7=1t)</td>
</tr>
<tr>
<td>Category</td>
<td>Percentage</td>
<td>Sample Responses</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Appreciation of deeper/better understanding of content and assignments</td>
<td>18 total responses</td>
<td>(S1 through S11=11t; S3=1t; S4=1t; S5=1t; S7=1t; S8=2t; S11=1t)</td>
</tr>
<tr>
<td>Appreciation of freedom to explore for more information</td>
<td>16 total responses</td>
<td>(S1 through S11=11t; S2=1t; S6=1t; S7=2t; S10=2t)</td>
</tr>
<tr>
<td>Pure enjoyment</td>
<td>25 total responses</td>
<td>(S1 through S11=22t; S3=1t; S7=1t; S9=1t)</td>
</tr>
<tr>
<td>Voice</td>
<td>Confidence in sharing during discussions</td>
<td>12 total responses</td>
</tr>
<tr>
<td>Frequency in discussions</td>
<td>16 total responses</td>
<td>(S1 through S11=11t; S1=1t; S2=1t; S8=1t; S9=1t)</td>
</tr>
<tr>
<td>Person-to-Person Relationships</td>
<td>Increased collaboration</td>
<td>13 total responses</td>
</tr>
<tr>
<td>Enhanced relationship with teacher</td>
<td>17 total responses</td>
<td>(S1 through S11=11t; S3=1t; S4=1t; S7=1t; S8=1t; S9=1t; S10=1t)</td>
</tr>
<tr>
<td>Increased assistance from teacher</td>
<td>17 total responses</td>
<td>(S1 through S11=11t; S2=1t; S4=1t; S5=1t; S8=1t; S9=1t; S10=1t)</td>
</tr>
<tr>
<td>Enhanced current student relationships</td>
<td>13 total responses</td>
<td>(S1 through S11=11t; S4=2t)</td>
</tr>
<tr>
<td>Increased number of new friendships</td>
<td>19 total responses</td>
<td>(S1 through S11=11t; S2=2t; S6=1t; S7=1t; S9=1t; S11=1t)</td>
</tr>
</tbody>
</table>

*Note. *S=Student; *#t = number of times student mentions experience
Example: S1=2t indicates that student 1 mentioned 2 times that he/she had that experience.
The first part of this chapter presents demographic information about the students who participated in the study. Next, this chapter presents the primary themes along with the sub-themes that emerged as a result of the data analysis process. Finally, the researcher presents a detailed analysis of the sub-themes that were derived from analyzing the interview transcripts as well as demographic connections among the themes.

**Student Demographic Overview**

Of the 11 students who participated in this study, there were five males. One was African American, one was Hispanic, and three were Caucasian. Two of the Caucasian males were also students with special needs. Two Caucasian males were economically disadvantaged. Six females participated in this study. All six were Caucasian, and two were students with special needs. Two of these females participated in the free-lunch program and were considered economically disadvantaged.

These students were part of a sixth-grade class comprised of 27 students who took part in a pilot program whereby each student was given a laptop computer with Internet access 24 hours a day, 7 days a week, to complete computer-based homework assignments. No other students in the school were given this opportunity. The school district assumed the financial obligation of this endeavor for two full trimesters. Parents signed a permission form allowing their children to participate in this pilot program. Table 1.2 illustrates the demographic breakdown of the students who participated in the study.
Table 2

**Student Demographics**

<table>
<thead>
<tr>
<th>Student</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>Special Needs</th>
<th>Economically Disadvantaged</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>C</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>F</td>
<td>C</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>H</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>C</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>M</td>
<td>C</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>C</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>7</td>
<td>F</td>
<td>C</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>F</td>
<td>C</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>AF</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>10</td>
<td>F</td>
<td>C</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>11</td>
<td>M</td>
<td>C</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**Primary Themes and Sub-Themes**

Each interview consisted of 14 questions, and interviews lasted from approximately 20 minutes to approximately 40 minutes. The interviewer recorded interviews using two hand-held devices. A voice recorder was used as the primary recording instrument, and an iPhone recording application was used as a backup recording device. After all the interviews had been conducted, the audio recordings transcribed. The researcher replayed the interviews and transcribed them verbatim. The researcher studied the data and arranged the spreadsheets in such a way that one sheet contained all student responses to a particular question. From the interviewee responses,
the researcher grouped replies into four primary themes based on commonalities. From there, similar responses were broken down even further to identify more specific data within each theme, which resulted in 14 sub-themes. Primary themes that emerged were labeled according to a number associated with that theme. The sub-themes that were identified received another number related to the primary theme, and the coding system was created. For example, the primary theme was marked as “Organization 1,” and the sub-theme associated with the primary theme was marked as “1: Improved time management.” The label was then “1.1.” Each of the themes and sub-themes was organized in this fashion. Furthermore, students were reported as S1 to S11 to protect individual identities.

**First primary theme: Organization.** The first theme that emerged from the data analysis was Organization. In addition, three sub-themes emerged within the primary theme:

1. **Improved time management.** Students stated that using the laptops assisted them in improving their time management skills.

2. **Increased organization.** Students believed that using the laptops to complete homework assignments helped them to be more organized. There was less transporting of books back and forth from home to school and less opportunity to lose papers since the work occurred online.

3. **Increased ease.** Students overwhelmingly stated that the use of laptop computers for the completion of homework assignments made their homework easier to complete.

Each of the sub-themes is explained further below:
Improved time management. Within the primary theme of Organization, the sub-theme of Improved Time Management was reported by all of the students. They viewed the use of the laptops for homework as a great tool to improve their time management. One participant reported, “It was easier than bringing paper, and you could do so much more; so many more problems to do quicker with the computer [sic] like in math and do so much more than you could without it [sic]” (S6, August 15, 2012). Another student also discussed the speed with which he could complete the homework assignments using the laptops: “It was my first time logging on with this computer homework deal…it was really simple, fast, and easy” (S2, August 14, 2012).

Lastly, another student provided recommendations for the use of laptops for homework assignments based on her positive experience with time management:

I thought it was easier, and it really didn’t take that long…I would recommend it because a lot more kids did their homework because of the laptops. All kids did their homework more because there are links and websites, and you work at your own pace, whenever you want. You can go as fast or as slow as you want. (S7, August 15, 2012)

Increased organization. The second sub-theme linked to Organization is that students felt that once they had access to the laptop computers for homework assignments, they were significantly more organized. There seemed to be less need to bring books back and forth from home to school, and students lost or misplaced fewer papers. They were able to access all assignments, due dates, and deadlines, along with teacher notes, by logging on to My Big Campus, the web portal used for their homework. One student said, “I liked it because it was easier to use and I would remember the assignments easier [sic] because it was just on the Internet” (S2, August 14, 2012). The same student also reported the following:
This was easier because if I forgot it (referring to the homework). I would not go back to it until the next day and then have to get it done before school. With the laptops, I would remember because it was in a big bag, and I would just see it [sic]. (S2, August 14, 2012)

A similar comment was shared by another student regarding personal management and organization: “I felt good [sic] because it seemed a lot easier than having to keep track of a whole bunch of papers and take care of them. It seemed a lot more organized on the computer” (S1, August 14, 2012).

**Increased ease.** The third sub-theme linked to Organization is that students found their homework to be extremely easy once they had access to the laptop computers to complete their homework assignments. Every student revealed several times throughout the interviews that the homework was easier in trimester two and trimester three once they had access to the laptop and the computer-based homework activities. One student stated,

At first, I thought it would be hard because I wasn’t very good with the computer and I got behind. I was slow at typing, and I never really wrote papers or Power-Points, and I thought I would never get any papers done, but then I started using the laptops and started typing way faster [sic]. I got better, and then I liked it. Then we got really into it, and I learned a lot, and it got really easy, like [sic] when we got into the process of it, and it got easy, and I like it a lot [sic]. (S10, August 15, 2012)

Another student shared the same opinion: “It was easier when I didn’t have to write anything down. I didn’t have to worry about losing my work on the computer” (S6, August 15, 2012). Finally, a similar comment and recommendation was made by another classmate:

Yes, I would recommend it because it is easy. Mostly it is easier; it is more fun, way more fun [sic]. What can I say, it makes it easier. If you don’t have the Internet, it comes with the Internet card. You just bring it home, and it is ready to
go. It is just better to have the laptop than worry about losing stuff. I really like computers. (S4, August 14, 2012)

Second primary theme: Learning as fun. The second primary theme that arose from the data collection was Learning as Fun. Throughout this theme, there was an overall sense of students having fun while simultaneously learning. There were four sub-themes that emerged from the primary theme Learning as Fun:

1. Appreciation of increased accessibility to information: Students reported that with the use of the laptops to complete their computer-based homework assignments, they appreciated the increased accessibility to information, particularly since the laptop had wireless Internet access.

2. Appreciation for deeper/better understanding of content and assignments: Students reported that they developed a deeper and better understanding of the curricular content and the assignments. They were able to easily and readily access notes electronically, access tutorials, and ask for help via an online chatting/email system. They experienced a sense of joy while they were learning.

3. Appreciation of freedom to explore more information: Students reported that they were able to explore more information because they had Internet access readily available to them. Many reported that they were not limited to the information in their textbooks and could search the Internet for the additional information or for information that enhanced the area of study when completing the homework assignment. Each of the sub-themes is explained further below.
Appreciation of increased accessibility to information. Within the second primary theme, Learning as Fun, an appreciation for increased accessibility was reported among all of the students. In other words, they viewed the use of the laptops for homework as a fun tool that fostered increased information access. One student stated, “I liked that I could use the Internet. I was able to learn way more stuff [sic] about the topic” (S9, August 15, 2012). Another student made a similar comment regarding accessibility:

When you have to do your homework, you just go to a website, and that made it easier [sic]. You just have to type it in and look it up…The teacher would email us the links, and you just click on them, and then it was done [sic]…I liked it. (S11, August 15, 2012)

Appreciation of deeper/better understanding of content and assignments.

Students commented that the use of the laptops helped them gain a deeper and better understanding of the computer-based assignments. One student stated,

Some math was hard. I didn’t know how to do it in the beginning, but now I do…If you didn’t know how to do the work, it was frustrating and I would get mad. But later, if you knew how to do it, it was easier and it would just get done so quick [sic]…I liked this way better [sic]. (S3, August 14, 2012)

Another student remarked, “We would have math homework, so if you had trouble with it and the thing didn’t help you [sic], you could look on Google and see how to do that… I got way [sic] better at my work” (S2, August 14, 2012). Finally, another student commented that he was able to gain a deeper understanding using the laptop for core content-oriented games:

The games made it easier for sure. We got to play games, like [sic] in math; even though it was challenging, it taught us stuff [sic] like fractions and decimals using games. It pushed us to do our work, but I liked it. (S5, August 15, 2012)
**Appreciation of freedom to explore for more information.** Students commented that they enjoyed the freedom to explore the Internet and to delve deeper into their learning. They discussed the immediacy of the information as well as the endless possibilities of finding additional information at the click of a button. One student said, “The Internet was right there, and it made it easier for social studies because you don’t have to look through books. You just type it in, and that made the work easy” (S3, August 15, 2012). Another student reported that the laptops made exploring information easy: “Well, sometimes it was easier having the laptop for your assignments. It was easy to look things up….I liked to be able to search stuff on my own” (S6, August 15, 2012).

**Pure enjoyment.** The fourth sub-theme that emerged from the primary theme of Learning as Fun was that students found homework to be simply enjoyable. All students indicated that with the use of laptops for homework, they found they enjoyed doing their assignments. One student said, “I think it was easier, and it was fun…I never had a chance to use a laptop before for my homework, so I really liked it” (S11, August 15, 2012). Another student shared a similar perspective: “Now with the laptop, I had more fun doing my homework, and I realized it counted for something. I loved to play homework games on the computer, and it was more fun than homework on paper (S3, August 14, 2012). Lastly, another student echoed the same sentiment: “I was more motivated to do my homework because it was fun. I did my homework more with the laptop than I used to” (S1, August 14, 2012).

**Third primary theme: Voice.** The third primary theme that arose from the data collection was Voice. There were two sub-themes that emerged from this primary theme:
1. Confidence in sharing discussions: Students mentioned that the use of computers for homework assignments gave them more courage to speak their minds regarding homework and student interactions.

2. Frequency in discussions: Students mentioned that they were able to participate more frequently in discussions and postings that occurred online.

**Confidence in sharing during discussions.** Within the third primary theme, Voice, the sub-theme of increased courage for self-expression was reported among all of the students. They viewed the use of the laptops for homework as a tool that increased their courage to make comments and share personal thoughts more readily, more so than if they were physically in the classroom. One student spoke about her increased confidence to make comments in front of her peers and her teacher:

> I don’t usually like to ask for help. I don’t know why, but I don’t do that because I get shy. I think using the laptops was better because I could do that. I asked way more questions and made way more comments when I was on the computer. (S2, August 15, 2012)

Another student made a similar comment: “I could ask way more questions when I was online” (S4, August 15, 2012). Another student mirrored these comments of self-confidence by stating, “With my friends, it was interesting to see what they would have to say, and I would make comments but not in a negative way. I wasn’t afraid to say what I thought” (S4, August 15, 2012).

Interestingly, the increased courage did not always end in a positive result. For example, some students commented that it was easy to engage in arguments because the laptop served as a barrier of protection. It seemed to be easier to make comments to
others that might not be uttered if the discussion were held face to face. One student said, “When you are online, you can get into arguments online easier. I got into a fight with another girl online, and things got out of hand. That would not have happened if we were not online” (S8, August 15, 2012). Another student shared her negative experience:

At first, when people thought you could Skype, there was lots of drama, and people were fighting and talking about other people, and you shouldn’t really do that anyways [sic], but they did it, and people were just not getting along sometimes, and then there were some people that didn’t want to be friends anymore (S3, August 15, 2012).

**Frequency in discussions.** Within the third primary theme, Voice, the sub-theme of Frequency in Discussions was reported among all of the students. They viewed the use of the laptops for homework as a tool that increased their desire to make comments and share personal thoughts more readily. Students mentioned they enjoyed the opportunity for self-expression, and they found that the freedom of posting comments online provided them more opportunities to share their thoughts—opportunities they might not have encountered had they been physically sitting in class. One student said, “I could ask more questions because I could instant message” (S3, August 14, 2012). Another student echoed a similar perspective: “When our teacher gave us an assignment, we all had to make comments and give our opinions. Everybody got a chance, and we read all the postings” (S6, August 15, 2012). Finally, another student made a similar comment, but expounded on the opportunity to engage in class discussion: “There were times that we worked in some little groups, and then, like [sic], the teacher would ask us opinions about
things, and we had to comment, and then we could comment on each other’s opinion” 
(S1, August 14, 2012).

**Fourth primary theme: Person-to-person connections.** The fourth primary 
theme that emerged from the data analysis was Person-to-Person Connections. There 
were five sub-themes that emerged within this primary theme:

1. Increased Collaboration: Students mentioned that the use of laptops for 
   computer-based homework assignments increased their opportunity to work 
   with peers on homework assignments.

2. Enhanced Relationship with Teacher: Students mentioned that the use of 
   laptop computers for homework assignments enhanced their relationship with 
   the teacher.

3. Increased Assistance from Teacher: Students indicated that the assistance that 
   they received from the teacher increased because they were able to use laptop 
   computers for homework assignments.

4. Enhanced Current student Relationships: Students mentioned that the use of 
   laptop computers for homework assignments enhanced their current 
   relationships.

5. Increased Number of New Friendships: Students mentioned that the use of 
   laptop computers allowed them to increase the number of new friendships in 
   the classroom.

**Increased collaboration.** Within the fourth primary theme of Person-to-Person 
Connections, the sub-theme of increased collaboration was reported among all of the 
students, suggesting that the use of laptop computers increased collaboration within the
classroom. All students reported that the online posting and instant messaging option in the My Big Campus portal resulted in increased collaboration and group work. They worked more closely with peers while doing their homework because they had Internet access that allowed them to communicate with peers after school hours. One student reported, “You get to work together and comment on other people’s work. You get to learn how people are when they do their homework at home” (S11, August 15, 2012). Another student said,

When I had to do my capstone experience, I was sick one day, and I was the one who had to do the PowerPoint for the group, so we instant messaged each other, and that was easier because I could still do my work. It wasn’t that hard because we worked together. (S10, August 14, 2012)

A similar comment was made by another student: Well, you could use your laptop and your cell phone to contact a friend or something and ask them to get on so they could help you with it if you didn’t totally get it or whatever [sic] (S 2, August 14, 2012).

Additionally, another student said, “With the group activities, you had to comment on other people’s stuff, and you would give your opinion but not in a negative way, so we just…like…talked” (S 4, August 15, 2012).

Enhanced relationship with teacher. Within the fourth primary theme, Person-to-Person Connections, the sub-theme of an Enhanced Relationship with the Teacher was reported among all students. The use of laptop computers increased the frequency with which students could connect with the teacher, uninterrupted. It also increased the immediacy of the feedback and prevented students from having to wait their turn. In the classroom, students reported that when they raised their hands for help from the teacher, they often waited and sometimes did not receive assistance. With the computer-based
homework assignments, the teacher connected with them every time they sent her a message. Consequently, many students reported a deeper connection with their teacher. One student said, “It got better. I liked that I could message her online and ask her questions” (S1, August 14, 2012). Another student made a similar remark regarding the student/teacher relationship:

"Probably better because if you needed something, like if you needed an assignment or needed to tell her something about school, or if you were going to miss school or something [sic], you could always message her on en-grade or through My Big Campus to tell her something or ask for help. (S2, August 14, 2012)

Another student mirrored a similar idea: “Yes, I got to talk to the teacher more when I needed help. It was easier to ask her for help, and then the next day she would help you again in person” (Student 2, August 14, 2012). Another student spoke about the immediacy of the communication and the deeper connection:

I like that I could message her online and she could answer us. I messaged her a lot, and she responded. It was totally instant, and she responded right away. It helped me understand my homework better, and I got closer to my teacher (S8, August 15, 2012)

*Increased assistance from teacher.* Within the fourth primary theme, Person-to-Person Connections, the sub-theme of Increased Assistance From the Teacher was reported among all students. The use of laptop computers increased the frequency with which they received assistance from the teacher. In particular, students said they felt that there was no way they could have received the same kind of help when they were physically present in the classroom. They appreciated the online attention. One student said, “When I was at home, if I got confused with questions for homework, it was like an instant message. It helped me understand my homework and stuff a lot better. She helped
me a lot” (S1, August 14, 2012). Another student spoke about the experience with online assistance: “I could ask her more questions when I was online. I didn’t have to wait my turn like when I am in the class. She responded right away” (S4, August 15, 2012).

Another student mentioned the following:

Our teacher was really nice and really understanding. I had to message her from home. She checked it once or twice a night, and she would respond. I messaged her when I had computer problems, and she would message me back and tell me how to fix it, or she would make me feel better because she would tell me not to worry and we would work on it in the morning [sic] (S3, August 14, 2012).

**Enhanced current student relationships.** Within the fourth primary theme, Person-to-Person Connections, the sub-theme of Enhanced Current Relationships was reported among all the students. The use of laptop computers enhanced the friendships that they previously had established in the classroom. The students mentioned that the online connection allowed them to talk more while also working on classroom projects and homework. One student said,

People got to know me better. We got to have conversations together about the topic. We would not talk about stuff that was unrelated on this site, but then we would meet on Facebook to chat after our homework. We talked more than we would when we were in school and when we were home. (S7, August 14, 2012)

Another student said, “It made the friendships that I already had better because we could talk to each other about school and other stuff easier since we had the laptops” (S9, August 15, 2012). One student stated, “I guess you would get closer to people having to go online and stuff. When we had Skype, you would talk to them, so I guess you get more people to talk to and stuff [sic]” (S2, August 14, 2012).

**Increased number of new friendships.** Within the fourth primary theme, Person-to-Person Connections, the sub-theme of Increased Number of New Friendships was
identified among the responses of all students. The use of laptop computers increased the number of new friendships that they formed with other students in the class. The students mentioned that the online chatting and posting gave them a chance to get to know students with whom they otherwise would not have connected with. One student said, “I became better friends with people I didn’t know before” (S10, August 15, 2012).

Another student said,

In the beginning, you weren’t really good friends, and then if they needed help, you would Skype with them or a group of people that you knew a little [sic]. And then you would get closer to them by talking to them and helping them with homework that day. (S1, August 14, 2012)

Another student said, “I was able to talk to people that I don’t talk to normally during school time” (S4, August 14, 2012).

**Summary**

This chapter described and discussed the findings of the study that resulted from interviews with students who were enrolled in a southeast Michigan school. Data were obtained during in-depth interviews, and 14 questions were asked. The interviews were recorded and transcribed. Four primary themes and 14 sub-themes emerged when the data was analyzed and evaluated.

The following chapter discusses the findings. It also provides inferences that can be drawn and possibilities for future research.
Chapter Five  

Discussion and Conclusion

This chapter presents a discussion of the findings as well as conclusions drawn from the findings discovered in chapter four. Included in this chapter are the inferences made from these findings and recommendations for future research.

Introduction

This study was designed to explore the perceptions of middle school-aged students who had access laptop computers 24 hours a day, 7 days a week, and who used these laptop computers to complete homework assignments. The interview protocol was designed to involve students in a reflective process that enabled them to (a) examine their feelings about using laptop computers to complete homework assignments rather than pencil-and-paper and (b) report the perceptions they had surrounding their experience on the whole. The literature review described studies in settings within the K-12 educational system. However, at this time, few studies have been conducted that examine the perceptions of students in grades K-12 who have access to laptop computers 24 hour a day, 7 days a week. This chapter includes a discussion about students’ perceptions and how students believed this opportunity influenced their beliefs regarding the use of laptop computers to complete homework assignments. Strong et al.’s (1995) theoretical framework assisted in constructing the protocol for this study. This framework consists of four components: Success (the need for mastery), Curiosity (the need for understanding), Originality (the need for self-expression), and Relationships (the need for involvement with others). The findings of the study support one of the four components.
of the framework: Relationships. The student responses provide further insight about the ways in which educators might use this information to guide school improvement efforts that facilitate student success, specifically in relation to a one-to-one laptop computer initiative for homework assignments.

The setting for this study was a semi-rural elementary school (K-6) in southeast Michigan. There were 478 students in this school, and 90 were enrolled in the sixth grade. Of the 90 sixth-grade students, one class of 28 students was selected to receive the one-to-one computer laptops to complete homework assignments during two trimesters of the 2011-2012 school year. Of the 28 students who were identified in this class, 11 students were selected to participate in this study. The researcher intended to include participants representing a variety of demographic groups; however, participants were included ultimately through a process of self-selection based on the signed and returned parental consent form. Therefore, not all sub-groups were equally represented. The data from the sub-groups that were represented were disaggregated over the primary themes and sub-themes that evolved from the data. This chapter concludes with (a) a discussion about the ways in which educators can help students to use laptop computers to complete homework assignments and (b) additional recommendations for future research to expand on this study.

Summary of the Literature and Purpose

Educators are continually feeling stressed by the increasing requirements to teach and cover the curriculum with rigor and relevance as well as the demanding tasks required to engage students in the learning process. They are held accountable for learning practices that encourage students to meet grade-level standards both at district
and state levels (Ravitch, 2010). The struggle for teachers is that although students realize that homework is beneficial to the learning process, students do not seem motivated to complete homework assignments (Epstein & Van Voohis, 2001; Warton, 2001).

Students respond well and seem to thrive when technology is infused into their learning opportunities (Scherer, 2011). Ultimately, when technology is incorporated into the learning processes of digital natives, it offers more learning opportunities for student engagement, more collaboration with peers, and the opportunity to create and strengthen relationships with friends and teachers (DeGennaro, 2010; Kara-Soteriou, 2006; Maniger & Holden, 2009; Scherer, 2011).

In light of student homework, one obstacle is the fact that middle school-aged students exhibit a decline in motivation and academic performance (Eccles & Midgley, 1991). Strong et al. (1995) suggest a model of motivation conducive to energizing students with four goals in mind: Success, Curiosity, Originality, and Relationships. This model assisted in shaping the protocol for this study.

This study explores homework and the use of technology, specifically the incorporation of a one-to-one laptop computer pilot program that sixth graders used to complete and submit homework assignments. This approach to homework and the computer laptop initiative were studied to determine their potential to increase student engagement. Furthermore, this study was conducted to discover ways that teachers might play a more active role in the decision-making process when incorporating this type of technology into their lesson designs and into future purchases necessary for student learning.
Findings and Interpretations

Although the researcher used Strong et al.’s (1995) theoretical framework to guide and shape the protocol of this study, it was discovered that only one of the primary themes in Strong et al.’s framework emerged in the analysis of this set of data. Otherwise, the other themes in Strong et al.’s framework did not really fit the protocol. However, within this study, the following primary themes emerged during the data analysis: Organization, Learning for Fun, Voice, Person-to-Person Connections. The latter is the only theme that matched Strong et al.’s theme of Relationship.

First primary theme: Organization. In the interviews conducted for this study, students discussed why they believed using laptop computers to complete homework helped them improve their time management skills. Students reported feeling a stronger sense of self-control and the ability to self-monitor their progress and work at their own pace. In response to using the laptop computers for homework completion, one student reported the following:

I would recommend it for homework because a lot more kids did their homework because of the laptops. All kids would do their homework because there are links and websites, and you can work at your own pace, whenever you want. You can go as fast or as slow as you want. (S11, August 15, 2012)

Furthermore, Warton (2001) indicates that students who received individualized instruction using computer-generated assignments, obtained statistically higher achievement scores than those students who studied without computer-generated homework assignments that were not individualized. Within the category of Organization, three sub-themes emerged: Improved Time Management, Increased Organization, and Increased Ease.
Improved time management. Students reported 22 times that the use of laptop computers improved their time-management skills. The following includes the breakdown of 22 total responses: Student 1 through Student 11 responded at least once. In addition, Student 1 responded one more time. Student 2 responded twice. Students 3, 4, 5, 6, and 7 responded one more time. Student 8 and Student 10 responded two more times. Overall, they reported that paperwork did not get lost and that there was less need to transport books, articles, and materials to and from school. Furthermore, the research for their homework was accessed through suggested websites that the teacher posted on My Big Campus, giving the students less opportunity to lose or forget materials needed for school. One student reported, “I felt good because it seemed a lot easier than having to keep track of a whole bunch of papers and take care of them. It seemed a lot more organized on the computer” (S1, August 14, 2012). Another student said,

I liked using the computers because it was easier to use and I would remember the assignment easier because it was just on the Internet… I go to different websites and read about it. If I needed to remember something, I could write it down on the laptop and go back and look it over and over. (S2, August 14, 2012)

Bandura (1997) and Pintrich (2003) suggest that adolescents who self-regulate their work and challenge themselves have advantages in achievement and might therefore expect to attain their aspirations.

There were two students of the 11 interviewed who felt that, at times, the laptops hindered their time management. Of the two, both are male, and both receive special education services. Their concerns were mainly with the speed of the Internet service. Sometimes, the programs took a long time to load. One student said, “People were using it at the same time. It took too long to load. It wouldn’t let us in” (S3, August 14, 2012).
Further frustration was experienced when the battery died, and they did not have the charger readily available. The other disgruntled student said, “I didn’t like that the computer would freeze up and I would have to take the battery out. It was really slow sometimes, and the Internet would get blocked up, and I couldn’t research stuff” (S6, August 15, 2012). Even though they experienced frustration, overall, they reported that the laptops increased their organization skills.

**Increased organization.** There were a total of 17 responses from students who stated that using laptop computers to complete homework assignments increased their organizational skills. The breakdown of the 17 responses is as follows: Students 1 through 11 each responded favorably and reported that the laptops increased their organizational skills. Students 3, 4, and 8 each responded an additional two times. Student 10 responded one more time in favor of the laptops assisting in organization. The data were clear that students understood they could organize themselves much easier when doing so in a digital manner. All students mentioned that the number of books they carried was reduced, and their book bags were lightened. Additionally, they reported that they did not lose papers nearly as often. Students also reported they were able to access all assignments, due dates, deadlines, and teacher notes by logging on to My Big Campus, the web portal used for their homework. One student said, “It felt good because it seemed a lot easier than having to keep track of a whole bunch of papers and take care of them. It seemed a lot more organized on the computer” (S1, August 14, 2012). Kara-Soteriou (2006) claims that a one-to-one computer initiative has many benefits for students’ academic progress and success. Corno (2001) links the concept of laptop computers and student success by stating that a computer-based homework model
focuses on self-regulation, activities of purpose, persistent striving, planning goal accomplishments, setting priorities, bypassing barriers, checking work, and managing resources. Ultimately, the literature substantiates the data found in this study.

**Increased ease.** There was an overwhelming response in the area of increased ease, indicating that students felt that the use of laptop computers made it easier to complete homework assignment than when they were asked to complete pencil-and-paper assignments. Overall, students responded positively 49 times throughout the interviews. The following is a breakdown of the 49 total responses. Students 1 through 11 responded 3 times each discussing the ease of homework assignments due to the use of laptop computers. Student 2 responded favorably five times during the interview. Students 4, 6, and 11 responded three additional times. Student 9 responded an additional two times.

One student’s comments reflected the overall commentary she received from her peers:

> It made it easy because everyone’s responses were right there, and you could always ask other people, and they would always comment on yours, and you could always get help from friends [sic], and you could always look things up on the Internet. (S10, August 14, 2012)

Another student said, “At first, it was hard because some of the things were confusing to figure out how to work. Then it got easier” (S1, August 14, 2012). Maniger and Holden (2009) support these findings by indicating the advantages of laptops for students include portability, flexibility, and ease of use.

Although each student reported that using the laptop computers to complete their homework assignments made their work easier, the three special education students reported that they struggled in the beginning of this pilot program:

> At first, I thought it would be hard because I wasn’t very good with laptops. Like in computers, I was not very good with computers, and I got behind. I was slow at
typing, and I never really wrote papers or power points, and I thought I would never get any papers done… but then I got way [sic] better, and then I liked it. (S10, August 14, 2012)

Xu (2007) supports this data, confirming in previous studies that middle-school students reported that they shut down and became disinterested when their homework was too hard and not relevant to their lives. When the work is challenging, it is typical for students to disregard the assignment, leading to further potential issues of failure, disinterest in school, and lack of motivation.

**Second primary theme: Learning as fun.** Analysis of the interview transcripts resulted in four sub-themes: (a) Appreciation of Increased Accessibility to Information, (b) Appreciation of Deeper understanding of Content and assignments, (c) Appreciation of the Freedom to Explore More Information, (d) and Pure Enjoyment.

**Appreciation of increased accessibility to information.** Students who took part in this study expressed an appreciation for the ability to have increased access to information. They reported that this access was helpful for their learning. During the interviews, 16 comments were made regarding the opportunity to further investigate concepts that they found interesting, particularly when they could use the Internet to access this information. The breakdown of the responses is as follows: Students 1 through 11 responded that they appreciated the increased accessibility to information as a result of using the laptop computers. Student 2 responded an additional two times regarding this positive outcome. Students 4, 5, and 7 responded one additional time. Overall, students reported that they appreciated the speed, quick accessibility, and opportunity to further explore concepts they found interesting. One student said, “I liked that we could get a lot more information about things that we had to do [sic]” (S8, August 15, 2012). Another
student remarked, “We could get a lot more information from the computer than we could from textbooks” (S6, August 15, 2012). Prensky (2001) and Scherer (2011) support these findings, stating that students thrive with the infusion of technology because of its quick pace, instant introduction to information, and the opportunities to seek knowledge because of the immediacy of Internet access. Epstein and Van Voorhis (2001) further support the findings of this study by stating that students’ personal investment in homework may be influenced by whether or not homework is interesting enough to entice them to explore their learning.

_Appreciation for deeper/better understanding of content and assignments._ In this study, students mentioned a total of 18 times, some mentioning more than once, that they were able to gain a deeper and better understanding of the content and the assignments. The breakdown of the responses is as follows: Students 1 through 11 each responded one time that they had an appreciation for a deeper and better understanding of content and assignments because of the use of the laptops for homework. Students 3, 4, 5, 7, and 11 each responded one additional time that they gained a deeper and better understanding of the content they were studying because of the computers. Student 8 commented an additional two times. During the interviews, one student said, “We would have math homework, so if you had trouble with it and the thing didn’t help you, you could look on Google and see how to do that… I got way better at my work” (S2, August 14, 2012). Another student stated, “Like, if I didn’t get it [sic], and sometimes when I wouldn’t understand… for example, when we were doing decimals and fractions, I would get things mixed up, so I would look on the computer to get it right (S10, August 15, 2012). Scherer (2011) substantiates the findings in this study by stating that students
thrive with the infusion of technology because of its quick pace and instant introduction to information for deeper learning.

*Appreciation of freedom to explore more information.* Participants in the study indicated that an outcome of the opportunity to use laptop computers was that they had the freedom to explore more information. During the interviews, 16 comments were made about the liberty students experienced in exploring additional information via the Internet. The following outlines the breakdown of responses: Students 1 through 11 responded one time each that they appreciated the freedom they experienced when exploring additional information. Students 2 and 6 responded an additional time. Students 7 and 10 each responded an additional two times. During the interview, one student stated, “The Internet was right there, and it made it easier for social studies cause [sic] you don’t have to look through books. You just type it in, and that made the work easy” (S3, August 15, 2012). Another student discussed the ease of using the laptop to explore additional information: “Well, sometimes it was easier having the laptop for your assignments. It was easy to look things up” (S6, August 15, 2012). Burns and Polman (2006) support the findings in this study by stating that freedom to learn and discover knowledge are also byproducts of using laptop computers and Internet access. The use of laptop computers with Internet access fosters incidental learning. Students who browse the Internet stumble across a vast storehouse of information and topics of interest. Burns and Polman also confirm that students will assimilate learning much easier since their Internet findings are personally relevant and highly interesting to them. In addition, they will learn more quickly and effectively because the information is self-organized in smaller units.
**Pure enjoyment.** All 11 students responded with a positive response in the sub-theme of Enjoyment. Overall, this sub-theme received the second highest number of student comments. In total, enjoyment was mentioned 25 times throughout the interviews. The following breaks down the 25 total responses: Students 1 through 11 reported at least two times each that they enjoyed using the laptop computers to complete their homework assignments. Students 3, 7, and 9 reported yet one additional time that they enjoyed using the laptop computers to complete their homework assignments. Students voiced their appreciation for the implementation of the laptop computer pilot program and recommended it that it also be implemented the following year. Many stated they would not want to go back to a paper-and-pencil method of homework completion. One student remarked,

I used to not care about homework before the laptops. I didn’t think that the homework counted for anything and it didn’t matter for anything. But now, with the laptop, I had more fun doing my homework and I realized it counted for something. I loved to play math games on the computer and it was way more fun than doing homework on paper. (S11, August 15, 2012)

Another student said, “I think it was easier, and it was fun…I never had a chance to use a laptop before for my homework, so I really liked it” (S11, August 15, 2012). Lastly, another student shared the same sentiment: “I was more motivated to do my homework because it was fun. I did my homework more with the laptop than I used to” (S1, August 14, 2012).

Csikzentmihalyi (1997) substantiates the personal communications mentioned above and suggests that if students feel happier when doing homework, they will be more likely to engage in homework and the learning process. Fey (2001) ties in the notion of enjoyment, linking it with a 21st century approach to classroom learning, one that is a
self-directed in a technology-enhanced environment where students have autonomy and are open to exploration. They understand that teacher support, resources, and guidance are available when needed. Students enjoy the autonomy that is provided by technology-infused lessons, particularly if they can explore the content without constant, direct instruction. Fey also suggests that one-to-one computing has increased student curiosity, excitement, and collaboration in the classroom.

**Third primary theme: Voice.** There were two sub-themes that emerged within the primary theme of voice: (a) confidence in sharing during discussions and (b) frequency in discussion. Within this theme, students reported that they each believed they had more of a voice when the pilot laptop program was instituted.

**Confidence in sharing during discussions.** All students reported at least once that they experienced confidence when sharing during discussions using the laptop computers. In total, 12 positive comments were made with at least one positive comment from each student. The following is a breakdown of the student responses: Student 1 responded two times that she experienced confidence in sharing during discussions. Students 2 through 11 responded one time each that they experienced these same types of feelings. During the interview, Student 1 reported two times that she felt confidence when sharing. The student who commented twice was a female student who did not receive special education services and did not receive free and reduced lunch. Regarding this confidence building, one student said,

> I don’t usually like to ask for help. I don’t know why, but I don’t do that because I get shy. I think using the laptops was better because I could do that. I asked way more questions and made way [sic] more comments when I was on the computer. (S2, August 15, 2012)
Another student commented on the opportunity to speak her mind while sharing during online discussions: “With my friends, it was interesting to see what they would have to say, and I would make comments but not in a negative way. I wasn’t afraid to say what I thought” (S4, August 15, 2012). Kara-Soteriou (2006) supports these findings, suggesting that adolescents who are involved in technology-infused and interactive activities gain more confidence as valuable members of their class community.

**Frequency in discussions.** Participants in the study indicated that an outcome of having the opportunity to use laptop computers increased the frequency of discussions due to the online component of this pilot laptop program. Before the introduction of laptop computers, students were given opportunities for discussion in the classroom for a time period of 12 to 20 minutes (every hour, on the hour) during the lesson delivery of core content areas. Students reported that only a small percentage of the class would take the opportunity to share in discussions. After introducing the laptop component, every student used the online chatting component to post comments and/or engage in online discussions throughout the evening until students went to bed. Students reported that this opportunity allowed them to have more of a voice than they experienced when they were listening to a direct teacher lesson. In total, students provided 16 positive comments in this area during the interviews. The breakdown of student responses is as follows: Students 1 through 11 responded at least one time that they increased their frequency of discussions. Students 1, 2, 8, and 9 each responded an additional time and indicated that they too increased their frequency of discussions due to the use of the laptop computers to complete their homework assignments. One student said, “I could ask more questions because I could instant messages” (S3, August 14, 2012). Another student concurred by
saying, “When our teacher gave us an assignment, we all had to make comments and give our opinions. Everybody got a chance, and we read all the postings” (S6, August 15, 2012). Finally, another student made a similar comment but expounded on the opportunity to engage in class discussion: “There were times that we worked in some little groups, and then, like [sic], the teacher would ask us opinions about things, and we had to comment, and then we could comment on each other’s opinion (S1, August 14, 2012).

Windschitl and Sahl (2002) substantiate these findings, stating that the infusion of technology into classroom discussions, particularly online communications, seem to be a comfortable process for students and break down any barriers that exist in face-to-face situations in the classroom.

Fourth primary theme: Person-to-person connections. For the most part, students provided positive comments about their experiences with the laptop computers. The online component created some new possibilities and relationships for most students, enhancing current relationships with friends and the teacher. However, some students also reported experiencing a few challenges and conflicts. Because students could chat online more frequently and because of the protection they felt by the creation of an online “barrier,” students engaged in more arguments, bullying, and flirting that might not have occurred under face-to-face circumstances within the confines of a face-to-face classroom. Nonetheless, overall, students provided positive feedback regarding this primary theme.

Increased collaboration. Participants in this study reported that they experienced an increase in collaboration using laptop computers to complete their homework
assignments. The My Big Campus portal facilitated this collaboration and allowed students to instant message each other, send emails, and conduct online group work. Of the 11 students interviewed, each one answered once they felt a more collaborative spirit while working on homework. In total, there were 13 positive comments made. The following is a breakdown of the student responses: Students 1 through 11 answered one time that they experienced an increase in collaboration. The two additional comments came from one male and one female from the study—Student 1 and Student 3. Neither student received special education services or free and reduced lunch. One student reported, “You get to work together and comment on other people’s work. You get to learn how people are when they do their homework at home” (S11, August 15, 2012). Another student said,

When I had to do my capstone experience, I was sick one day, and I was the one who had to do the Power Point for the group, so we instant messaged each other, and that was easier because I could still do my work. It wasn’t that hard because we worked together. (S10, August 14, 2012)

A similar comment was made by another student: “Well, you could use your laptop and your cell phone to contact a friend or something and ask them to get on so they could help you with it if you didn’t totally get it or whatever [sic]” (S2, August 14, 2012). Additionally, another student said, “With the group activities, you had to comment on other people’s stuff, and you would give your opinion but not in a negative way, so we just…like…talked” (S4, August 15, 2012).

*Enhanced relationship with teacher.* Students who took part in this study expressed an appreciation for the laptop computers that assisted in enhancing the relationship with their teacher. The following serves as a breakdown of the student
responses: Student 1 through Student 11 mentioned at least once that they experienced an enhanced relationship with their teacher because of the use of the laptops for homework. Students 3, 4, 7, 8, 9, and 10 each responded an additional time regarding this sub-theme. Throughout the interviews, students mentioned that they were able to connect more often with the teacher because they were able to use the My Big Campus portal. In particular, they mentioned the uninterrupted flow of communication and instant feedback. Students reported that in the classroom, even though they had their hands raised, they were not always called on. With the use of the laptops, they received almost immediate feedback from the teacher every time they posted a comment. Consequently, each student reported a deeper connection with their teacher. One student provided the following comment about her relationship with the teacher: “It got better. I liked that I could message her online and ask her questions” (S1, August 14, 2012). Another student provided a similar remark regarding this type of relationship:

Probably better because if you needed something, like if you needed an assignment or needed to tell her something about school or if you were going to miss school or something, you could always message her on En-grade or through My Big Campus to tell her something or ask for help (S2, August 14, 2012).

Another student provided similar comments, “Yes, I got to talk to the teacher more when I needed help. It was easier to ask her for help, and then the next day she would help you again in person” (S2, August 14, 2012). Regarding the immediacy of the communication, one student said,

I like that I could message her online and she could answer us. I messaged her a lot, and she responded. It was totally instant, and she responded right away. It helped me understand my homework better, and I got closer to my teacher. (S8, August 15, 2012)
DeGennaro (2010) supports these findings and suggests that technology creates a way to connect with students, bringing authentic, hands-on experiences into the classroom. Strong et al. (1995) further substantiate the findings of this study when the state that students want and need work that will enhance their relationships with people they care about. This drive toward interpersonal involvement is pervasive in the lives of students as well as teachers. Strong et al. further suggest that most individuals work hardest on those relationships that are reciprocal—i.e., what you have to offer is of value to me, and what I have to offer is of some value to you. In general, unbalanced, nonreciprocal relationships prove transient and fail to generate much energy or interest.

**Increased assistance from the teacher.** All students reported at least once that they experienced increased assistance from the teacher when they used the laptop computers. The following provides a breakdown of the student responses: Student 1 through Student 11 commented on the increase in assistance from their teacher due to the use of the laptop computers to complete their homework assignments. Students 2, 4, 5, 8, 9, and 10 also made one additional comment regarding this sub-theme. One student commented on her interaction with the teacher: “When I was at home, if I got confused with questions for homework, it was like an instant message. It helped me understand my homework and stuff a lot better. She helped me a lot” (S1, August 14, 2012). Another student made a similar comment: “I could ask her more questions when I was online. I didn’t have to wait my turn like when I am in the class. She responded right away” (S4, August 15, 2012). Another student mentioned,

> Our teacher was really nice and really understanding. I had to message her from home. She checked it once or twice a night, and she would respond. I messaged her when I had computer problems, and she would message me back and tell me
how to fix it, or she would make me feel better because she would tell me not to worry and [that] we would work on it in the morning. (S3, August 14, 2012)

Rowland and Stanley (2008) support the findings of this study by suggesting that teachers who engage in these types of one-to-one computer initiatives offer a blend of technology that supports the instruction and engages learners. Tarasiuk (2010) further supports these findings, claiming that as teachers infuse more technology, they become increasingly facilitative and allow students to lead the way in their learning.

Enhanced current relationships. Participants in this study reported experiencing enhanced current student relationships when they used the laptop computers to complete their homework assignments. Overall, each student responded favorably. The following provides a breakdown of the student responses: Students 1 through 11 reported that their current relationships were enhanced due to the use of laptop computers. Student 4 commented an additional two times regarding this sub-theme. During the interview, one student said,

People got to know me better. We got to have conversations together about the topic. We would not talk about stuff that was unrelated on this site, but then we would meet on Facebook to chat after our homework. We talked more than we would when we were in school and when we were home. (S7, August 14, 2012)

Another student said, “It made the friendships that I already had better because we could talk to each other about school and other stuff easier since we had the laptops” (S9, August 15, 2012). Finally, another student stated, “I guess you would get closer to people having to go online and stuff. When we had Skype, you would talk to them, so I guess you get more people to talk to and stuff [sic] (S2, August 14, 2012).

A study conducted by Shumow, Schmidt, and Kackar (2008) support this study with similar results revealed in their own findings and research. For example, in their
study of 331 adolescents in the Chicago area, students reported that they experienced more positive feelings when they did homework with friends or with family. Leone and Richards (1989) also support this study’s findings by suggesting that adolescents’ affect and motivation differed depending on the company they kept. In their own studies, they found that adolescents were happier working on homework assignments with their peers than they were when they were working on homework assignments alone.

In considering the literature related to technology infusion, DeGennaro (2010) also substantiates the findings in this study when he describes Warren’s (2005) concept of relational power. Warren suggests that integrating technology into classroom environments strengthens relationships and open communication on many levels—e.g., in the classroom, among students, between teachers and students, between students and their parents, and between teachers and parents.

**Increased number of new relationships.** Participants in the study indicated that an outcome of having the opportunity to use the laptops to complete homework assignments increased the number of new friendships. There were 19 positive reports of increased friendships. The following is a breakdown of the student responses regarding this sub-theme: Students 1 through 11 reported that they experienced an increased in the number of new relationships created after they started using the laptop to complete homework assignments. Student 2 responded twice regarding this sub-theme. Students 6, 7, 8, 9, and 11 each responded positively one additional time regarding this sub-theme. One student stated, “I became better friends with people I didn’t know before” (S10, August 15, 2012). Another student made a similar comment:
In the beginning, you weren’t really good friends, and then if they needed help, you would Skype with them or a group of people that you knew a little. And then you would get closer to them by talking to them and helping them with homework that day. (S1, August 14, 2012)

Lastly, one student said, “I was able to talk to people that I don’t talk to [sic] normally during school time” (S4, August 14, 2012).

Windschitl and Sahl (2002) support these findings by stating that the infusion of technology into classroom discussions, particularly online communications, seems to be comfortable for students and removes barriers that exist in face-to-face classroom situations. Further research conducted by Alvermann (2002) suggests that students use the Internet for most facets of their lives, including school work, communication with friends, conversing in chat rooms, engaging in instant messaging, playing online games, listening and downloading music, exploring websites, and building relationships.

**Recommendations**

Swift action is needed by educators to reduce the gap in the digital divide that exists between digital natives and digital immigrants. Creating technology-rich classrooms (TRCs) whereby technology is infused into core content areas for student learning via the use of technology is encouraged. Educators should seek out insight from students regarding the use of laptop computers or other computing devices to enhance learning activities. If the practice of using technology is perceived by students to have a positive impact on their academic performance and motivation, educators should embrace these beliefs and use them to foster further beliefs about student success. Educational institutions should provide teachers with professional development opportunities so that teachers can learn how to incorporate technology into their lesson design. Finally, the
educational system should strive to advance this laptop initiative (and others like it) whereby the student-to-computer ratio is one-to-one. Students should have access to laptop computers and Internet access 24 hours a day, 7 days a week, to complete academic assignments and learning activities.

It is imperative that educators discover research-based, technology-infused strategies that promote student learning. With the increase in student and teacher accountability both at the state and federal levels, it is crucial that educators do all they can to motivate and encourage student learning.

**Suggestions for Further Research**

There are numerous educational studies that can be conducted to further this research agenda. One area of research that might be pursued is the possible difference in how male and female students respond to the development of relationships via online communication. Although the findings of this study did not reveal apparent differences in male and female responses, further research in this area could help teachers provide more individualized instruction in the future. Additional research in this area could investigate the types of strategies that could be implemented to help resolve conflict as well as more appropriate ways to communicate in online situations.

The findings of this study suggest that students who received special education services responded positively in the areas of organization, learning as fun, voice, and person-to-person connections. Since the sub-group of students receiving special education services was small, further studies that explore how students receiving special education services use laptop computers for academic study and homework assignments could determine whether this type of one-to-one initiative has a positive impact.
Finally, further research in the area of professional development for teachers that helps them infuse laptop computers into daily lesson design is warranted. The experience that this study provided for the teacher who conducted the interviews proved to be positive because the teacher was a highly effective, dynamic, and committed professional. Further studies might be beneficial focused on the ways that professional development and technology integration work together to provide meaningful learning experiences both for students and teachers.

Conclusion

Because of the heightened accountability standards for students and teachers, educators are exploring one-to-one computer initiatives that enhance student learning. A seeming lack of motivation among sixth-grade students to complete homework created a sense of frustration among sixth-grade teachers and the researcher, who is the principal of the school used in this study. Research on the broad topic of homework was reported in the review of the literature; however, the research was limited on the potential benefits and drawbacks of using laptop computers to complete homework assignments. The researcher believed that the opportunity to use laptop computers to complete homework assignments would have a strong influence on homework completion. Therefore, technology and student motivation was explored in the literature. The overarching purpose of this study was to explore middle-school students’ perceptions of using laptop computers to complete homework assignments.

Interviews were conducted with 11 middle school-aged students who attended a semi-rural school is southeast Michigan. Of the 11 students who participated in the study, there were five males. One was African American, and one was Hispanic. The remaining
three males were Caucasian. One of the Caucasian males received special education services. One special education and one general education Caucasian male were economically disadvantaged. There were a total of six females, all of whom were Caucasian. Two of the six females were economically disadvantaged, and two females received special education services. Although the number of interviewed students was small, this group of 11 students provided both interesting and useful information about the use of laptop computers to complete homework assignments.

The interview data regarding the use of laptop computers to complete homework was collected through a structured interview that consisted of 17 questions. The researcher identified four primary themes from the student responses: Organization, Learning as Fun, Voice, and Person-to-Person Connections. Overall, students reported that the use of laptops assisted them significantly in improving their time management and organization skills. Furthermore, every student reported that they experienced a genuine sense of fun and enjoyment while using the laptops to complete their homework assignments. The findings suggest that students found their “voices” and felt more comfortable sharing their concerns and their thoughts via the laptop computer. Many participants suggested that without the laptop, they would have had neither the courage nor the opportunity to express their thoughts if it were not for this pilot program. This type of information is important for educators to consider when planning for new curriculum and technology that supports the curriculum.

Finally, the most important finding in this study was the benefits that students reported in the area of person-to-person connections. First, students shared that they were able to make new friends and also enhance existing relationships. Interestingly, the use of
the laptop did not have a negative effect on student-teacher relationships. On the contrary, students mentioned that their relationship with their teacher improved significantly. The researcher suggests that teachers consider (a) the implications of using this type of technology in their teaching and learning and (b) the potential that it provides for enhancing future relationships. The findings of this study suggest that teachers should not fear the notion that computers might replace them as teachers. The technology is a powerful tool and a vehicle to enhance student learning, not replace the need for expert instruction.

This qualitative research study explored the perceptions of middle-school students as they described their experiences using laptop computers to complete homework assignments. The researcher anticipated gaining information to support the implementation of a one-to-one computer initiative for the use of laptop computers to complete homework assignments. According to the 11 participants, student perceptions of the use of laptop computers were related to Organization, Learning as Fun, Voice, and Person-to-Person connections. Specifically, the findings suggest that student engagement in the process of completing homework assignments is more likely to occur when students are given the opportunity to use laptop computers.

One recommendation for future study is that educators conduct research to further explore the impact of peer relationships as well student-teacher relationships while using the laptop computers. Additional studies on the relationship between laptop computer use and the academic success and motivation of students receiving special education services are also suggested for further investigation.
Teachers must move from the language and behavior of digital immigrants to the language and behavior and of the digital natives. It is clear that students’ lives are surrounded by the infusion of technology. Educators must include technology in their lesson designs in order to motivate and engage students. A one-to-one initiative, whereby all students have access to computers and the Internet, must be explored and be made a reality.
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Appendix A

IRB Approval Form

To: Nancy Staub Ph.D. and Mary Ann Cyr
   Department of Educational Administration and Supervision

From: Barbara K. Chesney, Ph.D., Chair
      Kamala London, Ph.D., Vice Chair
      Walter Edinger, Ph.D., Chair Designee

Signed: ___________________________ Date: 07/25/12

Subject: IRB #107946
Protocol Title: The Impact of Computer Based Assignments on Student Perceptions to Complete Homework Assignments for Sixth Grade Students

On 07/24/12, the Protocol listed below was reviewed by the Chair Designee of the University of Toledo (UT) Social Behavioral & Educational Institutional Review Board (IRB) via the expedited process. Modifications were requested and approved by the Vice Chair on 07/25/12. The Vice Chair and Chair Designee noted that signed and dated written consent forms are required prior to any new individuals taking part in this research. This action will be reported to the committee at its next scheduled meeting.

Items Reviewed:
- IRB Application Requesting Expedited Review
- Current IRB Approved Interview Protocol and Questions (version date 07/25/12)
- Current IRB Approved Parental Consent/Permission Form (version date 07/25/12)
- Current IRB Approved Child Assent Form (version date 07/25/12)

This protocol approval is in effect until the expiration date listed below, unless the IRB notifies you otherwise.

Only the most recent IRB approved document(s) and Consent form listed above may be used when enrolling participants in this research project.

Approval Date: 07/25/12  Expiration Date: 07/24/13
Number of Subjects Approved: 30

Please read the following attachment detailing Principal Investigator responsibilities.
Appendix B

Student Perception on Computer-based Homework Assignments

Study Interview Protocol Instructions

Good morning (afternoon). My name is Rebecca Righi. Thank you for participating in this interview. The first part of this interview is a survey, in which I will ask you about your experiences with computer-based homework assignments. The purpose is to record your responses describing your experiences using laptop computers, for homework assignments for the last two trimesters of sixth grade. I would like to hear about your experiences, how this project seemed to work for you as a student. I will ask you to describe your experiences. There are no right, wrong, good or bad answers. I would like you to feel comfortable with saying what you really think and how you really feel.

Recorder Instructions

If you agree, I will be recording our conversation. The purpose of this activity is so that I can record what you say and talk with you at the same time. I promise you that everything you say will remain confidential. I will be writing a report which will contain the students' comments as a group without revealing anyone's name.
Appendix C

Consent Form Instructions

(Each participant's parent will be contacted via a written letter sent to the household with a telephone follow up phone call prior to the interview.)

Script: Hello. My name is Rebecca Righi and I am on the research team involved in a research study. I am part of a team conducting research on student experiences with using laptop computers, and computer-based homework assignments. As you know, one of the 6th grade classes at Raisinville Elementary was involved in a pilot project where they were given laptop computers last year to complete their homework. I would like to interview several of the students who were part of this project. The research team is interested students' perceptions of their experiences using computers and doing computer-based homework. I would like to invite your child to participate in this research. The interviews will be conducted at Raisinville Elementary, taking about 30 minutes-no longer than one hour-- and will be scheduled between July 20, 2012 and September 30, 2012, so you can fit this interview around vacation schedules. I have mailed home a Parent Consent Form and I am following up with this request. Do you have any questions regarding this form? I can only interview students whose parents have agreed to have them participate. After signed consent forms have been received, interviews will be scheduled. Feel free to contact me with any further questions at the following number---419-345-3737 or 734-625-9697. You can also email me at becky.rhigi@gmail.com or cry@momoe.k12.mi.us.
Appendix D

Interview Questions

Q1. How do you feel about using the computer laptop to do your homework assignments? Were there things you liked about using the laptop for your homework? Were there things you did not like?

Q2. Do you think overall using the computer made your homework easier or harder? Explain some of the ways using the computer might have made it easier for you. Explain some of the ways using the computer might have made it harder for you.

Q3. When you started using the laptop computer for homework assignments were there things that you found particularly challenging or difficult for you?

Q4. What other electronics besides the laptop computer would you use to do your homework? Do you use your laptop or other electronics to contact your friends about homework?

Q5. What technology is in your home besides the laptop that the school has provided? (Examples could include: cell phone, other computers, tablets like the I-Pad, online gaming system)

Q6. Can you think of any ways your attitude about homework in Trimester Two and Trimester Three changed when you got the laptop to do your work? Did your attitude about homework change when you completed your assignments using the laptop?

Q7. Would you recommend that other schools use laptop computers for homework assignments? Why or why not?

Q8. Describe some of the relationships with other people that you might have formed during the online group homework projects.

Q9. How might your classroom relationships with your friends changed since you have access to them by using the computer?

Q10. How do you think that your relationship with your teacher might have changed since you now have access to her using the internet?

Q11. What other electronics besides the laptop computer would you use to do your homework? Do you use your laptop or other electronics to contact your friends about homework?
Q12. What technology is in your home besides the laptop that the school has provided? (Examples could include: cell phone, other computers, tablets like the I-Pad, online gaming system)

Q13. What do you think about the possibility of no longer having this computer opportunity to complete homework assignments?

Q14. Is there anything else you want to tell me that I didn't ask you?
Appendix E

Interview Protocol

**Read all of the following aloud to student.**
Thank you very much for coming this morning (afternoon). I appreciate your time and your comments have been very helpful. The purpose of this interview is to better understand students' perceptions of their experiences regarding the use of laptop computers and computer based homework assignments. I am interested in your thoughts and your reactions. The results of this research will provide useful information to educators and administrators, in helping them to develop future homework assignments using laptop computers. You will be kept anonymous during this study including anything that is written, published or not.

DQ 1. Is there any other information regarding this interview that you think would be useful for me to know? If yes, go to DQla. If no, no question.
DQla. Please share that with me now.
Thank you for participating. (Turn off recording device.)

After the student leaves the room, the researcher will indicate their reactions and observations about the interview.

**Student ID number:**

**Date of Interview:**

Describe the student's attitude toward the researcher and the interview:
Describe the interviewer's attitude toward the student and the interview:

Describe any unusual circumstances and/or events that had any bearing on the interview such as interruptions, language difficulty, etc.:

Describe anything else that happened during the interview that has any bearings on the study's objectives:

**Additional Comments:**
Appendix F

Child Research Subject Assent Form

The Impact of Computer Based Assignments on Student Perceptions to Complete Homework Assignments for Sixth Grade Students

Principal Investigator: Dr. Nancy Staub, Assistant Professor
   (419) 530-8438
Student Investigator: Mary Ann Cyr (734) 625-9697
Other Study Personnel: Rebecca Righi (419) 345-3737
• You are being asked to be in a study to help understand people better.
• You should ask any questions you have before making up your mind. You can think about it and discuss it with your family or friends before you decide.
• It is okay to say "No" if you don't want to be in the study. If you say "Yes" you can change your mind and then quit the study at any time without getting in trouble. You can skip any questions at any time during the interview.

We are doing a research study about the use of laptop computers with internet access to complete homework assignments. A research study is a way to learn more about people. If you decide that you want to be part of this study, you will be asked to describe your experiences about the use of the laptops with Internet access to complete your homework assignments. An interview will take place at Raisinville Elementary in Monroe, Michigan, that will last no longer than 60 minutes. The session will be tape recorded and the interviewer will be recording the conversation and taking notes.

Not everyone who takes part in this study will benefit. A benefit means that something good happens to you. We think these benefits might be that you have a better understanding of the effects of laptop computers on homework assignments and that you will have helped teachers make future decisions about the use of laptop computers for homework assignments.

When we are finished with this study we will write a report about what was learned. This report will not include your name or say that you were in the study.

If you have any questions about the study, you can ask Dr. Nancy Staub, the principal investigator, or one of the other investigators, Mary Ann Cyr or Rebecca Righi. You can call the investigator(s) listed at the top of this page if you have a question later.

If you decide to be in this study, please print and sign your name below.
I, _______________________________, want to be in this research study.

   (Print your name here)
Sign your name: ______________________ Date: ____________________
Appendix G

Adult Research Subject Informed Consent and Parental Permission Form

The Impact of Computer Based Assignments on Student Perceptions to Complete Homework Assignments for Sixth Grade Students

Principal Investigator: Nancy Staub, Ed.D. (419) 530-2145
Mary Ann Cyr, Student Scholar (734) 625-9697
Rebecca Righi, Research Associate (419) 345-3737

Purpose: Your child is invited to participate in the research project entitled, The Impact of Computer Based Assignments on Student Perceptions To Complete Homework Assignments for Sixth Grade Students, which is being conducted at Raisinville Elementary School under the direction of Dr. Staub. The purpose of this study is to gain information about students' perceptions regarding computer-based homework assignments.

Description of Procedures: This research study will take place at Raisinville Elementary and will include one of the research team members--Mary Ann Cyr, Nancy Staub or Rebecca Righi, your child and yourself if you wish to attend. Your child will be asked to answer a series of questions. The interview will last no longer than 60 minutes. Your child may skip any questions at any time during the interview.

Permission to record: Will you permit the researcher to audio record you and your child during this research procedure?

YES NO Initial Here

Also, we might want to contact you again in the future, after this study is over, so that we can check on your progress or invite you to participate in other studies that may be of interest to you and your child.

Permission to contact: Will you permit us to contact you in the future to invite you to participate in other studies or to check on your progress?

YES NO Initial Here

Potential Risks/Alternatives: There are minimal risks to participation in this study, including loss of confidentiality. Your child has the right to not answer any specific questions or to stop your participation at any time.

Potential Benefits: One potential benefit to you if you and your child participate in this research may be that you will learn about how research studies are run and may learn more about students perceptions regarding the use of laptops for homework completion. Others may benefit by learning about the results of this research.

Confidentiality: The researchers will make every effort to prevent anyone who is not on the research team from knowing that you provided this information, or what that
information is. The consent forms with signatures will be kept separate from responses. Responses will not include names and will be presented to others only when combined with other responses. Although we will make every effort to protect your confidentiality, there is a low risk that this might be breached. Also, you should know that there are some limits to confidentiality. Cases where reported information indicates that you or another person is judged to be in imminent danger and cases of suspected child abuse or neglect must be reported to the appropriate authorities.

**Voluntary Participation:** Your refusal to participate in this study will involve no penalty or loss of benefits to which you are otherwise entitled and will not affect your relationship with The University of Toledo or Monroe Public Schools. In addition, your child may discontinue participation at any time without any penalty or loss of benefits.

**Contact Information:** Before you decide to accept this invitation for your child to take part in this study, you may ask any questions that you might have. If you have any questions at any time before, during or after your participation or if you or your child experiences any psychological distress as a result of this research you should contact a member of the research team-Or. Nancy Staub.

If you have questions beyond those answered by the research team or your rights as a research subject or research-related injuries, the Chairperson of the SBE Institutional Review Board may be contacted through the Office of Research on the main campus at (419) 530-2844.

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

**SIGNATURE SECTION - Please read carefully**

You are making a decision whether or not you and your child will participate in this research study. Your signature indicates that you have read the information provided above, you have had all your questions answered, and you have decided to take part in this research.

The date you sign this document to enroll in this study, that is, today's date must fall between the dates indicated at the bottom of the page.

<table>
<thead>
<tr>
<th>Name of Parent</th>
<th>Signature</th>
<th>Date</th>
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<tbody>
<tr>
<td>Name of Child Subject</td>
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<tr>
<td>Name of Person Obtaining Consent</td>
<td>Signature</td>
<td>Date</td>
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</table>
Appendix H

Investigator Responsibilities in Research Involving Human Subjects

A. Investigators must acknowledge and accept their responsibility for protecting the right and welfare of human research subjects and for complying with all applicable federal regulations, as well as UT policies regarding research with human subjects. It is the responsibility of each investigator to know and understand those regulations and policies prior to initiating any such research.

B. Only a UT IRS can make the determination of Exempt Research after review of the proposed protocol. Investigators who intend to involve human research subjects will not make the final determination of exemption from applicable Federal regulations and must submit an application to the IRB.

C. Investigators are responsible for providing a copy of the UT IRS-approved informed consent document to each subject at the time of consent and after signing by the subject, unless the IRB has specifically waived this requirement. All documents and study records are to be retained for 3 years in a manner approved by the UT IRS. Investigators must also follow all additional records retention guidance (HIPAA, State laws etc.) as applicable to their research.

D. When applicable, Investigators must comply with the Health Insurance Portability and Accountability Act of 1996 (HIPAA). If consent or authorization is revoked by a subject, it is the responsibility of the P.I. to obtain the required signed document(s) and submit these to UT's Health Information Management Department as required by institutional policy in compliance with the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule Privacy Rule (45 CFR 164).

E. Investigators will promptly report proposed changes/modifications in previously approved human subject research activities to the UT IRS. The proposed changes will not be initiated without UT IRB review and approval, except where necessary to eliminate apparent immediate hazards to the subjects.

F. Investigators are responsible for reporting progress of approved research to the UT IRB, as often as required, and in the manner prescribed by the IRB on the basis of risks to subjects, but not less than once per year.

G. Investigators will promptly report to the UT IRS any injuries or other unanticipated problems involving risks to subjects or others.
H. Annual Continuing Review is mandated for all human subject research by federal law. It is the responsibility of the Principal Investigator to have his/her own reminder system in place to initiate the continuing review process. The continuation of research after expiration of IRB approval is a violation of federal regulations. There are NO provisions for a grace period beyond the termination date. If IRS approval has expired, research activities must STOP and no new subjects may be enrolled in the study, until IRB review and approval has been obtained.

I. All Investigators are responsible for completing a Final Report Form. The date that your review and sign the Final Report Form must be on (or a few days after) the IRB approval period Expiration Date or your requested Date of Termination for the research. All forms related to human subject research, including the Final Report Form, can be found on the Research and Sponsored Programs web pages. http://research.utoledo.edu/forms.htm

J. No investigator will seek to obtain research credit for, or use data from, patient interventions that constitute the provision of emergency medical care without prior UT IRS approval. A physician may provide emergency medical care to a patient without prior IRB review and approval to the extent permitted by law (see Section 116(f)). However, such activities will not be counted as research nor the data used in support of research.

K. Investigators will advise the UT IRS, Research & Sponsored Programs Administration and the appropriate officials of other institutions of the intent to admit human subjects into another institution (e.g., into another hospital) who are involved in research protocols. When such admissions are a planned part of DHHS-supported research, those institutions must possess an applicable Human Research Assurance prior to involvement of such persons as human subjects in those research protocols at those institutions.