Fall 11-2016

The Effects of One-to-One Technology on Students in Schools with a High Population of Students from Low-Socioeconomic Households

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by

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November 2016

A Dissertation submitted to the Education Faculty of Lindenwood University in partial fulfillment of the requirements for the degree of

Doctor of Education

School of Education

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This Dissertation has been approved as partial fulfillment

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Lindenwood University, School of Education

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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course or degree.

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Acknowledgements

I would like to thank Dr. Shelly Fransen, Dr. Sherry DeVore, and Dr. Jeff Mingus for their assistance and encouragement during this process. I would also like to thank my wife, Tina, for her support and encouragement. I could not have succeeded without all their inspiration.

Abstract

Low socioeconomic status is widespread throughout the United States (Makarewicz, 2013). Education is one factor to help people break the cycle of poverty (Payne, 2013). This study was designed to investigate the effectiveness of one-to-one technology on equipping students from low-income families with the education needed to break the cycle of generational poverty. A rural school district in southwest Missouri was selected for the study. Students, parents, and educators were surveyed to gain their perspectives concerning the efficiency of one-to-one technology. Data were gathered to assess the statistical differences in English II end-of-course exam scores, attendance rates, graduation rates, and free and reduced price meal counts prior to versus after the implementation of one-to-one technology. A *t*-test was performed on the data gathered. After analyzing the data, it was discovered attendance was least affected by the one-to-one technology program. Graduation rates unfortunately dropped; however, English II end-of-course exam scores increased, and free and reduced price meal counts decreased.

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Chapter One: Introduction

According to Price (2016), on February 8, 1986, Anthony Jerome "Spud" Webb won the 1986 NBA slam dunk contest. Webb was and still is the shortest player ever to participate and win the slam dunk contest (Price, 2016). At five feet seven inches tall, Webb had to jump 42 inches off the ground, over the height of a kitchen sink, to make it to the rim (Price, 2016). School districts and communities battle the effects of low-socioeconomic status on a daily basis, just as Webb battled competitors nearly a foot taller to win the 1986 NBA slam dunk contest (Price, 2016). This study involved a review of the effects of one-to-one technology on end-of-course (EOC) exam scores, attendance rates, free and reduced price meal counts, and graduation rates in schools with low-socioeconomic status. The perceptions of students, parents, and educators were analyzed in the areas of achievement, engagement, access to information, and post-graduation plans. It is important to keep in mind that while this research addressed situations out of the control of students, the outcomes are not the same for every student born into a family with low-socioeconomic status.

This study included investigation of socioeconomic status and student achievement with a focus on the impact one-to-one technology has on students in regard to end-of-course exam scores, attendance rates, free and reduced price meal counts, and graduation rates. Students, parents, and educators were surveyed to elicit perceptions of the effectiveness of one-to-one technology programs in improving achievement, engagement, access to information, and post-graduation plans. According to the National Forum on Education Statistics (2015), "[Socioeconomic status] data can have direct and substantial influence on decision-making relating to classroom instruction, program and

service delivery, resource allocation, and policies at all levels of the education enterprise" (p. vi). It is important school districts implement measures to meet the needs of the education community in addressing socioeconomic status (National Forum on Education Statistics, 2015). The focus of this research was to investigate the impact of a one-to-one technology program on student achievement in a school with low-socioeconomic status. Students with low-socioeconomic status do not necessarily lack the drive and determination to be successful in education; they simply lack the financial support and tools to assist them along the way (ACT Newsroom, 2014).

In Chapter One, the background of the study includes an overview of low-socioeconomic status in the United States and the effects it can have on student achievement. The conceptual framework is followed by a statement outlining the problem researched in regard to the impact of one-to-one technology on student achievement for students with low-socioeconomic status. This chapter concludes with research questions, hypotheses, and a definition of key terms used throughout the study.

Background of the Study

According to Coley and Baker (2013):

> More than one in five of all U.S. children live in poverty, and that percentage is substantially higher for some subgroups of the population. Internationally, the United States ranks second highest in child poverty among the world's 'richest' 35 countries. (p. 7)

Not only has socioeconomic status been correlated with academic skills development, it also has an effect on work and life outcomes, behavior, and well-being (National Forum on Education Statistics, 2015). Coley and Baker (2013) also suggested, "Given the

strong connection between educational success and economic disadvantage, we might expect education policy to focus on ways to overcome the effects of poverty on children. Yet most of today's education policies have other foci" (p. 3). The purpose of this study was to shed light on the epidemic of poverty in the U.S. and to review what a rural school district in southwest Missouri is doing to help students break through the barriers of poverty.

According to Marcus (2012), poor children are already far behind high- and moderate-income children by the time they reach kindergarten. These poor children are not ready for school, their attendance is generally low, they lose ground quickly over breaks, and at times they lack the basic skills and necessities needed to focus on learning (Marcus, 2012). Low-income families oftentimes cannot afford highly qualified caregivers with the knowledge and determination to educate children prior to school, and parents themselves are forced to spend long hours away from their children working one or more jobs to support the family (Makarewicz, 2013). Coley and Baker (2013) stated, "The economic downturn has taken a toll on state school funding and on targeted programs like preschool that can help disadvantaged children" (p. 5). Coley and Baker (2013) also discovered a need for better coordination of programs that target poverty.

Makarewicz (2013) showed students from low-income families are impacted by the lack of financial support of their education. These families do not traditionally have the additional income to spend on technology, private lessons, tutoring, transportation for outside school activities, and additional resources to help their students (Makarewicz, 2013). Without additional resources, student achievement can be easily affected, especially when the support system at home does not view education as important

because of past experiences (Makarewicz, 2013). Low-income families tend to focus on meeting basic needs first and do not always have the resources or time to focus on assisting students with homework and studying (Makarewicz, 2013). These parents oftentimes are required to work jobs with longer hours or are required to work night shifts, leaving their children alone to struggle with school work (Makarewicz, 2013). This lack of support due to an unfortunate socioeconomic status can have a significant impact on achievement, test scores, and support to attend college and obtain a degree (Makarewicz, 2013).

Conceptual Framework

The conceptual framework for this study was developed through the lens of Ruby Payne (2013). Payne (2013) viewed poverty as more than simply the lack of availability of financial resources. Petrilli and Wright (2016) stated, "Poverty is associated with a host of other social ills that have a negative impact on learning" (p. 1). Financial resources are important, but finances do not always explain the reasons many stay in poverty (Payne, 2013).

Makarewicz (2013) discovered, "Higher income parents often secure this additional educational support for their child by lobbying for enrichment programs, volunteering at the schools, paying for private lessons, and otherwise being actively involved in their children's education" (p. 1). Rumberger (2013) found poverty and dropouts are inextricably connected. Even though there are decades of evidence that multiple public and private influences affect how well students do in school, the U.S. continues to focus only on influences within school walls related to teachers, curriculum, tests, competition, and spending (Makarewicz, 2013).

According to Marcus (2012), “A huge increase in the number of children in poverty, compounded by housing foreclosures and a rise in homelessness, is converging with continued deep cuts in school budgets to present a daunting challenge for American educators” (p. 1). A major challenge for educators is getting students to school; “for a variety of logistical reasons, some 25 percent of these homeless children do not regularly go to school” (Marcus, 2012, p. 2). Students with low-socioeconomic status struggle with more than the usual school stress; it is compounded by hunger, asthma, anxiety, fear, not enough money for supplies or books, and no quiet place to read (Marcus, 2012).

High school dropout rates are closely related to family income levels (Rumberger, 2013). According to Rumberger (2013), “In 2009, poor (bottom 20 percent of all family incomes) students were five times more likely to drop out of high school than high-income (top 20 percent of all family incomes) students” (p. 1). ChildFund International (2014) stated, “Those [students from poverty] who complete high school are less likely to attend college than students from higher-income families” (p. 1). These children from low-income households are also at a higher risk of not even graduating high school (ChildFund International, 2014).

How to equally evaluate schools has been a nationwide debate for a long time (Ehlert, Koedel, Parsons, & Podgursky, 2014). According to research gathered by Ehlert et al. (2014), “State education agencies and school districts are increasingly using measures based on student test-score growth in their systems for evaluating school and teacher performance” (p. 67). According to the ACT Newsroom (2014), “Research shows that only 69 percent of ACT-tested students from low income families took a recommended core curriculum in high school, compared to 84 percent of students from

high-income families" (p. 1). Ravitch (2013) also discovered a big difference in Scholastic Aptitude Test (SAT) scores; the poorest kids had the lowest scores, and the most affluent had the highest. The difference from bottom to top was almost 400 points (Ravitch, 2013).

Statement of the Problem

Coley and Baker (2013) stated, "Education has been envisioned as the great equalizer, able to mitigate the effects of poverty on children by equipping them with the knowledge and skills they need to lead successful and productive lives" (p. 8). But through their study, Coley and Baker (2013) unfortunately determined this to be a myth. An article by ChildFund International (2014) stated, "Children from lower-income families are more likely than students from wealthier backgrounds to have lower test scores, and they are at higher risk of dropping out of school" (p. 1). This directly correlates with what Rumberger (2013) discovered, "Students living in poor communities are more likely to have dropouts as friends, which increases the likelihood of dropping out of school" (p. 1). The United States has a crisis on its hands, as in 2012 the high school dropout rate reached an estimated 1.1 million (Rumberger, 2013).

Coley and Baker (2013) used data gathered from the National Assessment of Educational Progress organization to determine fourth through eighth graders who are eligible for free meals score an average of 29 points lower on reading achievement tests than those not eligible. Using the same data, Coley and Baker (2013) also determined in regard to the SAT, "Seniors at the lowest levels of family income scored about 100 points lower than those at the top" (p. 10). According to Ehlert et al. (2014):

> Performance metrics tied directly to student test-score growth are appealing because although schools and teachers differ dramatically in their effects on student achievement, researchers have had great difficulty linking these performance differences to characteristics that are easily observed and measured. (p. 67)

When evaluating and comparing school districts, Ehlert et al. (2014) realized "comparisons among similarly circumstanced schools send more useful performance signals to educators and local decision makers than the alternatives" (p. 68). This dissertation was focused on the impact of a one-to-one technology program on students in a school with a high level of low-socioeconomic-status students.

Purpose of the Study

The purpose of this study was to research a school district in southwest Missouri with a high population of students eligible for free and reduced price meals to see if the implementation of one-to-one technology had a positive impact on equipping students from low-income families with the education needed to break the cycle of generational poverty (Payne, 2013). For this study, the assessments chosen to measure student achievement were end-of-course exams. Attendance and graduation rates for the school district were also evaluated. The end-of-course exam scores, attendance rates, and graduation rates were compared and evaluated before and after implementation of the one-to-one initiative in fall of 2013. This study also included review of the perceptions of high school seniors, parents, and educators regarding the effectiveness of one-to-one technology integration.

The scope of the study was focused on a rural school district in southwest Missouri with free and reduced price meal counts of over 70%. This district was chosen due to the high percentage of free and reduced price meal qualification, the Missouri census data of the poverty level in the area, and the number of students within the district. This district had also completed three years of one-to-one technology implementation.

Research questions and hypotheses. The following research questions guided the study:

1. What are the perceptions of high school seniors regarding one-to-one technology integration in the following areas?
    a. Achievement
    b. Engagement
    c. Access to information
    d. Post-graduation plans
2. What are the perceptions of the parents of high school seniors regarding one-to-one technology integration in the following areas?
    a. Achievement
    b. Engagement
    c. Access to information
    d. Post-graduation plans

3. What are the perceptions of high school principals and teachers regarding one-to-one technology integration in the following areas?

    a. Achievement

    b. Engagement

    c. Access to information

    d. Post-graduation plans

4. What statistical difference, if any, exists between high school senior students who were involved in one-to-one technology integration and previous high school senior students who were not involved in one-to-one technology integration in the following areas?

    a. English II end-of-course exam scores

    b. Attendance

    c. Graduation rate

    d. Socioeconomic status (free/reduced price meals)

$H4_0$: There is no statistical difference between high school senior students who were involved in one-to-one technology integration and previous high school senior students who were not involved in one-to-one technology integration in the following areas:

    a. English II end-of-course exam scores

    b. Attendance

    c. Graduation rate

    d. Socioeconomic status (free/reduced price meals).

$H4_a$: There is a statistical difference between high school senior students who were involved in one-to-one technology integration and previous high school senior students who were not involved in one-to-one technology integration in the following areas:

a. English II end-of-course exam scores
b. Attendance
c. Graduation rate
d. Socioeconomic status (free/reduced price meals).

Significance of the Study

Unfortunately, "The percentage of children living in low-income families (both poor and near poor) has been on the rise—increasing from 39 percent in 2007 to 44 percent in 2013" (Jiang, Ekono, & Skinner, 2015, p. 2). Even more staggering is in the Midwest alone, 6.4 million children live in low-income households (Jiang et al., 2015). Even though graduation rates at an all-time high would seem to be a great achievement for educators and policymakers, the gap in graduation rates between low-income students and high-income students remains in the double digits (Cosman, 2014). Education is closely related to income and occupation (Barrow & Rouse, 2006). If educated parents are less likely to raise children in poverty (Jiang et al., 2015), education must be the key factor to successfully moving from poverty to middle class and beyond (Barrow & Rouse, 2006). Barrow and Rouse (2006) concluded, "A U.S. child's educational attainment is strongly linked to his or her family background" (p. 100).

Understanding the background and behavior of students from poverty will help educators engage them in the classroom (Jensen, 2013). Engaged students achieve more

in the classroom, become more successful, and help close the achievement gap (Jensen, 2013). Most schools and businesses operate on the hidden rules of the middle class (Payne, 2013). In order to move from poverty to middle class, there must be an understanding of the hidden rules of the middle class (Payne, 2013). It is important educators recognize and teach students the hidden rules necessary for success (Payne, 2013). According to Doykos, Silvernail, and Johnson (2015), with dependence on technology in the workforce today, school districts offering one-to-one technology programs are taking steps to narrow the achievement gap between low-socioeconomic students and their peers.

If 6.4 million children in the Midwest are living in poverty (Jiang et al., 2015), then selecting a school district within the Midwest is a logical place to start to uncover the problem. This study focused on one step educators are taking to equalize education—providing digital devices to all students (Doykos et al., 2015). Perceptions of students, parents, teachers, and administrators were gathered regarding the impact one-to-one technology had on end-of-course exams, attendance, graduation rates, and socioeconomic status.

Definition of Key Terms

For the purposes of this study, the following terms were defined:

Descriptive statistics. Descriptive statistics are used to clarify a situation by collecting, organizing, summarizing, and presenting data (Bluman, 2013).

Digital divide. The digital divide is the gap among people, businesses, and geographic regions at different socioeconomic levels in terms of their access to information and communication technologies and their use of the internet (Organization for Economic Co-Operation and Development, n.d.).

Formal register. Formal register is a language in which complete sentences and specific word choice are used, which is an acquired skill of vocabulary and sentence syntax used to manage work and school (Payne, 2013).

Generational poverty. Generational poverty is defined as families who have lived in poverty for at least two generations (Payne, 2013). Generational poverty is self-reinforcing and has its own hidden rules, set of values, and culture (Payne, 2013).

Hidden rules. Hidden rules are cues or unspoken understandings that let members of a group know whether someone belongs or does not (Payne, 2013).

Income achievement gap. The Maine Education Policy Research Institute concluded, "The income achievement gap refers to the disparity in student achievement between children coming from higher income families and children in lower income families" (Silvernail, Sloan, Paul, Johnson, & Stump, 2014, p. 1).

Knowledge is Power Program (KIPP). The KIPP program is "a national network of public charter schools whose stated mission is to help underserved students enroll in and graduate from college" (Tuttle et al., 2015, p. 1).

One-to-one technology. Sell, Cornelius-White, Chang, McLean, and Roworth (2012) defined one-to-one technology as devices for every student that are wireless, accessible to the internet where available, equipped with software, and always available.

These devices include laptops, tablets, netbooks, and other hand-held devices (Sell et al., 2012).

Poverty. Payne's (2013) working definition of poverty is "the extent to which an individual does without resources" (p. 7).

Socioeconomic status. According to the National Center for Educational Statistics (NCES) (2012), "The term 'socioeconomic status' can be defined broadly as one's access to financial, social, cultural, and human capital resources" (p. vi).

Limitations and Assumptions

The following limitations were identified in this study:

Sample demographics. This study was limited in focus to one rural school district in southwest Missouri. The district selected completed three years of one-to-one technology implementation. Data were focused on one district's socioeconomic status demographics, end-of-course test scores, attendance rates, free and reduced price meal counts, and graduation rates. Only high school seniors of the 2017 graduating class who were over the age of 18, parents of the 2017 graduating seniors, and administrators from one district were invited to participate, which limited the sample size. Limitations were also confined to the accuracy exercised by survey respondents to the survey questions.

Free and reduced price meals. This study included free and reduced price meal counts to determine the district's socioeconomic status.

The following assumptions were accepted:

1. Even though socioeconomic status encompasses more than just income (National Forum on Education Statistics, 2015), for the purpose of this study, low-

socioeconomic status families were defined as households qualifying for free or reduced price meals in Missouri.

2. Free or reduced price meal counts may not factor in every student eligible, as the counts are limited to only those students or parents who complete the application. Failure to apply when eligible is common for older students and for those who speak English as a second language (National Forum on Education Statistics, 2015).

Instrument. The survey was created and developed by the researcher using a five-point Likert-style scale to collect data.

Summary

Chapter One provided an overview of the effects of one-to-one technology on school districts with low-socioeconomic status and included the conceptual framework which guided this quantitative study. The statement of the problem was presented. Following the statement of the problem, the purpose of the study was presented, and the questions and hypotheses were introduced. Key terms and limitations were also addressed.

In Chapter Two, a more thorough discussion of Ruby Payne's concept of poverty is explored. The impact of one-to-one technology on end-of-course test scores is reviewed, along with the impact one-to-one technology has on graduation rates, free and reduced price meal counts, and attendance rates. These areas are also related to student socioeconomic status.

Chapter Three includes the research design, as well as the problem and an overview of the study's purpose. The research questions are revisited. Chapter Three

also includes a thorough explanation of ethical considerations, the population and sample, instrumentation used, the data collection process and a description of the analysis of data.

A review of the research, data collected, and an analysis are included in Chapter Four. The data collected are summarized and analyzed. Chapter Five provides an overview of the findings, conclusions, implications for practice, and recommendations for future research. Finally Chapter Five will give a final overview of the study.

Chapter Two: Review of Literature

In 2013, 15.5% of Missouri's population was below the poverty level, which is above the national average of 15.4% (U.S. Census Bureau, 2016). There are several factors that move people out of poverty, including education, employment, and relationships; however, to make this move individuals must often be willing to give up relationships (Payne, 2013). For decades politicians have focused on providing a first-class education to every child, regardless of income level or where they live (Porter, 2013). Porter (2013) asked, "If education is a poor child's best shot at rising up the ladder of prosperity, why do public resources devoted to education lean to decisively in favor of the better off" (p. 1)? The economy today is rapidly changing, and technology is the basis for telling educators what students need to know to be successful in the job market (U.S. Department of Education, Office of Educational Technology, 2010). This study included investigation of the performance of students with low-socioeconomic status by examining end-of-course exam scores, graduation rates, free and reduced price meal counts, and attendance rates in a rural school district in southwest Missouri before and after the implementation of one-to-one technology.

Porter (2013) stated, "Social and economic deprivation has a particularly strong impact on student performance in the United States" (p. 4). Even when given financial resources, some students may still choose to live the same way (Payne, 2013). It is simply the job of educators to teach differences and skills to give students a chance and to show them opportunity exists (Payne, 2013). Payne (2013) identified, "The role of the educator or social worker or employer is not to save the individual, but rather to offer a

support system, role models, and opportunities to learn, which will increase the likelihood of the person's success" (p. 141).

Chapter Two includes the definition of socioeconomic status and an analysis of the performance of students who come from families with low-socioeconomic status through a review of graduation rates, end-of-course exam scores, free and reduced price meal counts, and attendance rates. The impact a one-to-one technology program has on these scores is also examined. This chapter includes a review of literature to provide a basis for the data gathered in this study and how the data could be used to develop a plan to assist educators in low-socioeconomic school districts considering one-to-one technology programs.

Conceptual Framework

Teachers are often unsure how to best educate students from low-socioeconomic-status households (Jensen, 2013). Jensen (2013) revealed most teachers do not know what to expect from students from low-income households. Payne (2013) identified, "Generational Poverty has its own culture, hidden rules, and belief systems" (p. 61). Payne (2013) also found, "An understanding of the culture and values of poverty will lessen the anger and frustration that educators may periodically feel when dealing with these students and parents" (p. 58). The research reviewed in this chapter is analyzed through the conceptual framework of Ruby Payne's characteristics for generational poverty.

According to the NCES (2012), a child's cognitive environment might be more of the driving force behind a student's performance in school versus the common belief it is simply a student's socioeconomic status and poverty level that drive achievement.

However, the NCES (2012) also concluded, “Low SES [socioeconomic status] children are less likely to have a ‘school-like’ home and follow a daily routine; they have weaker language interaction with parents, weaker literacy engagement, and more conflicting interactions” (p. 13). Therefore, it is hard to determine if it is simply status or cognitive development, since in most cases they go hand-in-hand (NCES, 2012). Jensen (2013) came to the same conclusion and cited, “All children need reliable, positive role models in their lives” (p. 15). Those positive role models help support and stabilize children (Jensen, 2013).

Ehlert et al. (2014) discovered, “Low and high-poverty schools differ along many dimensions that likely influence what constitutes effective educational practice, including curriculum choice and implementation, instructional methods, personnel policies, and all the other day-to-day decisions that combine to create the educational environment” (p. 70). High-poverty schools have an impact on student education (Ehlert et al., 2014). In addition to that impact, the backgrounds of a student’s peers have a significant influence on education, as poor students in mixed-income schools do better (Potter, 2013).

In 1993, the Outstanding Schools Act directed the Missouri Department of Elementary and Secondary Education (MODESE) to follow the Missouri Assessment Program (MAP) reform (Missouri Department of Elementary and Secondary Education [MODESE], 2015c). The MODESE (2015c) was tasked “to identify the knowledge, skills, and competencies that Missouri students should acquire prior to graduating from high school” (p. 1). The data gathered throughout the state from MAP tests are used to drive student services (MODESE, 2015c). Porter (2013) established overall, 17% of differences in test scores are attributable to differences in socioeconomic status. Most

commonly, the test scores of students from low-socioeconomic status are lower due to short attention spans, high levels of distractibility, and lack of self-monitoring the quality of work (Jensen, 2013). Ehlert et al. (2014) determined when using student growth to measure student performance, disadvantaged students tend to be penalized because they generally have lower tests scores at least partly out of the teacher's control. Even the MODESE (2015c) has provided for a measurement of error with the understanding that "no test provides a perfect measure of a student's ability" (p. 3). When measuring student and school performance, it is important to remember it is best to compare the student or school to those in similar situations (Ehlert et al., 2014).

The U.S. Department of Education (2015) released data showing high school graduation rates have increased and the gap for low-income students has narrowed. Even though graduation rates are at an all-time high, there are still one million students in the United States who will not graduate each year (Swanson & Lloyd, 2013). Missouri graduated 80.7% of its high school students in 2010, ranking eighth in the nation (Helmy, 2013). Even though graduation rates are higher, "Few high school students in the low SES schools plan to attend college" (Brogan, 2009, p. 1). According to Rumberger (2013), not only is family poverty a major factor leading to high dropout rates, but schools and communities also have a big impact on students' decisions to stay in or drop out of school.

Spradlin, Cierniak, Shi, and Chen (2012) discovered, "Student attendance serves as an effective predictor of future academic achievement as well as of high school graduation" (p. 1). Students with higher attendance typically have higher test scores and are more likely to graduate (Spradlin et al., 2012). It is important high schools develop

attendance policies that create student-centered, achievement-focused learning centers in order to be most effective (Education Partnerships, Inc., 2012). Attendance policies need to be clear and provide rewards and penalties (Education Partnerships, Inc., 2012). To decrease dropout rates, students need to feel a connection to the school, and that connection begins with good attendance (Edwards, 2013).

The MODESE (2015a) stated, "Annual Performance Reports (APRs) are based on the performance standards and are reviewed for accreditation purposes at the district level" (p. 2). Crouch and Bock (2015) established most school districts in Missouri showed gains in several areas of the 2015 APR. However, Crouch and Bock (2015) also discovered performance report scores across the region and state climbed, but standardized tests results were not as supportive of this success. According to Missouri Revised Statute RSMo 1959 (1961):

> The board of education of each district in this state that does not maintain an accredited school pursuant to the authority of the state board of education to classify schools as established in section 161.092 shall pay the tuition of and provide transportation consistent with the provisions of section 167.241 for each pupil resident therein who attends an accredited school in another district of the same or an adjoining county. (p. 345)

This statute allows students in unaccredited school districts to attend accredited districts, making the home districts responsible for tuition and transportation costs, which causes more of a financial hardship for districts already struggling (Crouch & Bock, 2015).

Litigation has worked in some cases, but unfortunately many rural districts have lost funding because they have not been able to keep up the required standards (Porter,

2013). Money may not be the solution, but how the money is split is essential (Porter, 2013). Porter (2013) stated:

> These gaps will be hard to close until the lopsided funding of education changes. As income and wealth continue to flow to the richest families in the richest neighborhoods, public education appears to be more of a force contributing to inequality of income and opportunity, rather than helping to relieve it. (p. 4)

Students from generational poverty often lack positive role models at home; therefore, teachers, administrators, and staff should not forget there is no cost in simply being a positive role model (Payne, 2013). By understanding the differences between middle-class and low-income students, teachers are better able to diminish the negative effects of poverty (Jensen, 2013).

Socioeconomic Status

Greer and Levin (2015) noted, "There is no better investment to break the cycle of poverty than to invest in the talents and aspirations of children" (p. 50). Silvernail et al. (2014) ascertained the wealth of a community is directly related to school poverty levels. Unfortunately, the largest age group living in poverty is children, and they are least capable of changing their circumstances (Schargel & Smink, 2014). In this dissertation, socioeconomic status was used as the basis for evaluating student achievement. This section includes a review of what low-socioeconomic status is and how it affects schools and individual academic achievement.

The concept of socioeconomic status was identified through investigation of the income levels of parents of students with low achievement (NCES, 2012). Socioeconomic status classifications have been around since the 1920s; during that time

the status was simply defined by the father's employment and was classified into seven categories (NCES, 2012). Today socioeconomic status has evolved to include not only employment, but also economic, social, and cultural status (NCES, 2012). According to the American Psychological Association (2009), socioeconomic status today is often measured by one's education, income, and occupation as well as his or her power and control.

Socioeconomic status plays a significant role in educational achievement, but when considering Ruby Payne's (2013) theory of generational poverty, student achievement is affected by more than just income levels and education. Silvernail et al. (2014) learned that although poverty levels in schools may be the best indicator of achievement levels, there are other factors that also influence achievement including experience of teachers, teacher-to-student ratio, and type of school. Jensen (2013) indicated teachers of low-socioeconomic students who are willing to make connections to the students' culture give students a viable reason to play the "academic game" and become more successful.

It is a common belief if everyone is given the same opportunities for education and additional schooling, then background should not affect educational attainment (Barrow & Rouse, 2006). Unfortunately, in the real world when comparing students with diverse backgrounds and their educational attainment, the opposite is true in most cases (Barrow & Rouse, 2006). Children from families with low-socioeconomic status not only come from families who cannot afford to provide better learning opportunities, but those children are oftentimes faced with chronic stress which can have a huge impact on their education (Willingham, 2012). In addition to suffering from chronic stress, poor

students are less likely to get proper medical attention and are more likely to suffer from conditions like hearing loss, obesity, and asthma due to a lack of income (Jensen, 2013).

According to Payne (2013), even though financial resources are essential, they "do not explain the differences in the success with which some individuals leave poverty nor the reasons that many stay in poverty" (p. 8). Willingham (2012) indicated even though household wealth is associated with intelligence, school achievement, graduation probability, and attending college, if a family with low-socioeconomic status is suddenly given a high income, it will not immediately affect educational achievement because socioeconomic status is not affected by income alone. Students from families with low-socioeconomic status tend to be less healthy, have intellectual and emotional development problems, and are less likely to finish high school (Alexander, 2014). Willingham (2012) determined those students often live in crowded conditions with more noise and distractions which have a negative effect on academic performance. Students living in these conditions will often then become poor parents themselves, and the cycle continues, or as Alexander (2014) acknowledged, "a type of learned helplessness" is perpetuated (p. 6). Huang (2015) agreed with this finding, as inequalities imposed on children are often carried into adulthood after school.

Income gap in relation to student achievement has been well-documented over the years (Silvernail et al., 2014). Student achievement can easily be tied to lack of resources; however, even more than a school's lack of resources, achievement can be tied back to low-socioeconomic status (Alexander, 2014). Silvernail et al. (2014) discovered, "As poverty levels increase in a school, student achievement goes down" (p. 6). Students with low-socioeconomic status often bring problems into schools and classrooms

(Schargel & Smink, 2014). Those students may suffer from hunger, lack of medical care, or abuse, all of which make it difficult for students to focus and learn throughout the day (Schargel & Smink, 2014). Federal programs like No Child Left Behind have been implemented to close the gap among students from varied socioeconomic statuses in schools, but despite political efforts the achievement gap has continued to grow (Huang, 2015).

In contrast to all the negative effects poverty has on school districts, an article entitled "High-Flying High-Poverty Schools" in the *American Educator* (2013) cited great success with high-poverty charter schools utilizing the Knowledge is Power Program (KIPP). These charter schools have two elements that immediately give them the upper hand in becoming more successful than normal high-poverty schools (Tuttle et al., 2015). First, the enrollments are a combination of lottery-based and quasi-experimental enrollments (Tuttle et al., 2015). Requiring students to apply for the lottery ensures a limit on enrollments and allows the schools to select a subset of students from low-income households who are fortunate enough to have supportive parents to encourage them to apply, something most children living in poverty lack ("High-Flying High-Poverty Schools," 2013). Payne (2013) showed a positive and supportive relationship with an adult role model to have the biggest impact on the success of a student's journey from poverty to middle class.

Next, KIPP schools are able to select from top teachers with extensive experience and those motivated and excited to be part of a new program ("High-Flying High-Poverty Schools," 2013). Most high-poverty schools have a 20% turnover in their teaching staff ("High-Flying High-Poverty Schools," 2013). Gagnon and Mattingly (2012) established,

"Districts in the highest quartile of poverty have an average of 11 percent beginning teachers compared with an average of 8.4 percent for districts in the lowest quartile of poverty" (p. 1). When measuring student gains, more experienced teachers are much more effective in the classroom than those with less experience (Gagnon & Mattingly, 2012).

In his book *Engaging Students with Poverty in Mind*, Jensen (2013) was very critical of teachers and cited the key factor for students from low-socioeconomic backgrounds to succeed is for teachers to ensure the students are engaged in school. Jensen (2013) even stated, "There are no unmotivated students; there are only teachers whose classrooms are frightfully boring, uncaring, or irrelevant" (p. 1). Those teachers willing to learn the cultural habits of students from low-socioeconomic status are more successful in assuring academic growth in those students (Jensen, 2013).

Jensen's (2013) processes, while maybe a little hard on teachers, have been confirmed by other researchers including Payne (2013) and Makarewicz (2013). Payne (2013) discovered teachers who are able to recognize the hidden rules of social classes and what students need to learn are essential to help students break tradition and move from poverty to middle class or middle class to wealth (Payne, 2013). Even a detailed study by Makarewicz (2013) showed parent engagement had a significant positive impact on struggling students from poor areas. Therefore, it is important parents, teachers, and administrators take the opportunities they have to make a significant impact in the lives of students in poverty by simply being positive role models (Payne, 2013).

The engagement and supportive solutions established by Payne (2013), Jensen (2013), and Makarewicz (2013) still do not completely level the playing field with

advantaged families, as wealthier families are still able to spend more money outside of school to help with supplemental learning (Barrow & Rouse, 2006). The KIPP charter schools not only have the advantages of selection of students and teachers, they have also been backed by affluent individuals and provided funding that matches most middle-class schools ("High-Flying High-Poverty Schools," 2013). In addition to the support of affluent individuals, the KIPP network has also received grants totaling $50 million a year from the U.S. Department of Education (Tuttle et al., 2015).

The KIPP program offers a tough-love approach to student achievement that includes longer days, longer school years, and the teaching of middle-class habits ("High-Flying High-Poverty Schools," 2013). These schools focus on college preparation and include more discussion regarding college attendance; 93% of KIPP students applied to at least one college, versus the standard 88% (Tuttle et al., 2015). Efforts made by the KIPP charter schools with high poverty levels have been successful, but many other charter schools have failed ("High-Flying High-Poverty Schools," 2013). While progress and increased student achievement have been shown in these schools, little to no research has been completed on long-term outcomes (Tuttle et al., 2015).

Barrow and Rouse (2006) discovered, "Although education pays off handsomely in the United States, children from low income families attain less education than children from more advantaged families" (p. 99). This study included analysis of graduation rates, end-of-course exam scores, free and reduced price meal counts, and attendance rates to show the effects of a one-to-one technology program on achievement for students in a school district with a high percentage of free and reduced priced meals. This study also included a review of data regarding the perspectives of students,

educators, and parents on the implementation and success of the one-to-one program. In order to reduce the income gap between the rich and poor as adults, it is essential to understand why the gap exists and what can be done to help make schools the equalizer they should be (Silvernail et al., 2014).

Free and Reduced Price Meals

In 2014, 17.4 million households had difficulty providing food for all members of the household due to lack of resources, and 3.7 million of those households included children (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2015). One of the hidden rules of generational poverty as described by Payne (2013) is the knowledge of what churches and shelters will provide food and how to get and use food stamps or electronic card benefits. To reduce food insecurity among low-income families, the federal government has implemented programs such as the Supplemental Nutrition Assistance Program, the National School Lunch Program, and the School Breakfast Program (Gundersen, 2015). These federal programs have been very successful in improving child well-being and reducing food insecurity (Gundersen, 2015).

The majority of children living in poverty are obese, even though families living in poverty often suffer from food insecurity (Hatcher, FitzSimons, & Turley, 2014). Obesity is an epidemic in the U.S., but wealthy and middle-class families are not the only ones who have children who suffer from obesity (Hatcher et al., 2014). Children living in poverty are often obese due to a number of factors, including suffering from food deprivation which causes them to overeat when food is available, limited access to healthy foods, limited physical activity, and easy access to fast-food restaurants (Hatcher et al., 2014).

Though one in three of our nation's children are obese (Hatcher et al., 2014), only slightly more than half of school districts implement nutrition education into school curriculum (Centers for Disease Control and Prevention, 2014). A good nutrition program teaches students how to exchange high-calorie foods for healthier alternatives; this information will affect the lives of students now and in the future (Hatcher et al., 2014). Fortunately, more than 90% of students attend schools that offer the free and reduced priced meal program (Harkness, Logan, Shivji, Nisar, & Connor, 2015). Schools offering this program are required to serve foods that meet the government's nutritional standards for every day school is in session (Harkness et al., 2015). This program fed over 31 million children lunch and 13 million children breakfast in 2013 and has become a safety net against childhood hunger (Harkness et al., 2015).

The introduction to a program by the United States Department of Agriculture (2015) stated, "Starting the day with breakfast has been associated with improved academic performance, improved classroom behavior and attentiveness, and fewer visits to the nurse" (p. 1). A pattern often present in households of generational poverty is not arriving on time, as time is viewed as flexible and is not measured (Payne, 2013). Advocates for Children of New Jersey (2014) found over 50,000 of the state's students who qualified for free or reduced priced meals were not receiving breakfast. The children in need were arriving right at the bell, which was not giving them time to eat breakfast (Advocates for Children of New Jersey, 2014). To combat this, New Jersey schools began providing breakfast during the first few minutes of the day to ensure students in need were receiving a healthy breakfast to help them focus throughout the day and improve performance (Advocates for Children of New Jersey, 2014). In addition to

the success of the program in New Jersey, New York found breakfast in the classroom not only helps improve student performance, but it provides teachers an opportunity to integrate nutrition into the curriculum and teach good eating habits (Corcoran, Elbel, & Schwartz, 2014).

There is a debate about whether to utilize free and reduced price meal percentages as the basis for a school district's socioeconomic status. The National Forum on Education Statistics (2015) found, "The education community has historically relied heavily on free- and reduced-price meal (FRP) eligibility data in both individual and aggregate form to identify socioeconomically disadvantaged students, schools, areas, and populations" (p. 1). Michigan public schools confirmed this finding by utilizing free and reduced price meal counts to compare performance reports from districts across the state (Van Beek, Bowen, & Mills, 2012).

Although this is common, the American Psychological Association (2009) defined socioeconomic status as encompassing education, income, and occupation, and when viewed through social class it also incorporates privilege, power, and control. It is important to remember when comparing free and reduced price meal count to student achievement, it does not necessarily give a clear picture of the district's overall socioeconomic status, as free or reduced price meal count only considers a family's income (National Forum on Education Statistics, 2015). However, researchers like Silvernail et al. (2014) have used free and reduced price meals as a statistical tool to quantify the correlation between student achievement and poverty.

One-to-One Technology

Students today not only utilize technology in their personal lives, but will be expected to use advanced technology in their professional lives (Grismore, 2012). According to Grismore (2012), technology does more than allow students and teachers to access the internet; "Educators can use technology to connect with human resources that cross geographic boundaries and enables teachers to voluntarily engage in professional growth of their own choosing" (p. 2). An example is Mooresville Graded School District in North Carolina, which implemented a one-to-one technology initiative in 2008 and found since then, test scores and four-year graduation rates have soared (Edwards, Smith, & Wirt, 2012). Prior to this implementation, the district was struggling with an economic and digital divide, as wealthier students had access to technology while those who fell in the free and reduced price meal category did not (Edwards et al., 2012).

Mooresville Graded School District provided a laptop to every student and teacher districtwide through a one-to-one technology initiative to be used as personal devices for the entire school year (Edwards et al., 2012). Giving devices to students to be used 24 hours a day, seven days a week has been proven effective not only by the Mooresville Graded School District (Edwards et al., 2012). In Missouri, Sell et al. (2012) also found devices and technology are more successful when used regularly. A state-wide study in Maine resulted in evidence that even with the addition of technology in all districts, high poverty and affluent, the level of technology available to students in high-poverty school districts still pales in comparison to wealthy districts (Doykos et al., 2015).

Grundmeyer (2013) suggested one-to-one technology in school districts can have very positive impacts, but there is potential for an initial productivity drop. School districts need to make certain the initiatives are well-timed to ensure the infrastructure and training are in place to assist teachers and students with the transition (Grundmeyer, 2013). Without proper training of teachers, student distraction can be great (Grundmeyer, 2013). Carver (2016) found the major concern with technology is equipment availability.

Engagement

According to Jensen (2013), "Highly effective teachers raise their odds of success by ensuring that students want to participate, will engage, and choose to learn" (p. 26). Edwards et al. (2012) found the integration of one-to-one technology "has significantly enhanced the level of student interest, motivation, and engagement in learning" (p. 13), as well as leveling the playing field for all students in their school district. While Sell et al. (2012) discovered one-to-one technology had positive effects on motivation and engagement, they ultimately revealed these effects were only moderately supported. Carver (2016) revealed most teachers view one-to-one technology devices as a way to engage students versus a tool to open doors to higher-order skills of research and evaluating.

Access to Information

A policy brief written by the Missouri School Board Association (MSBA) Future Builders Foundation (n.d.) identified:

> Not only do kids need basic literacy, but also scientific and numerical literacy, visual literacy, cross-disciplinary skills, and environmental literacy. They need to

> know how to access and evaluate information, use and manage data, analyze media, and apply technology. (p. 3)

Technology has not only significantly changed education and training; it has become a key tool to increase workforce skills and competencies (Carruth & Carruth, 2013).

Technology in the classroom has opened the door to endless resources and opportunities for students and teachers (Doykos et al., 2015). Sell et al. (2012) verified the implementation of technology in school districts improved student writing skills, but lacked enough conclusive data to give definitive outcomes on other subject areas and skills. However, Sell et al. (2012) did conclude, "It is probable that students' collaboration with teachers, other students, and/or people in the community will be improved through one-to-one initiative" (p. 21). Carruth and Carruth (2013) found most educational institutions have gone to using a blended approach to education with classroom instruction and technology.

Graduation Rate

Education is critical to ensure the economic strength of the country and to decrease the percentage of the low-socioeconomic-status population (U.S. Department of Education, 2015). Schargel and Smink (2014) stated, "Dropouts today are more likely to be single parents, be on welfare, commit crimes and go to prison" (p. 3). The dropout epidemic in America is costly to not only businesses and society, but also to individuals (Schargel & Smink, 2014). It is estimated taxpayers would save $84 million a year in public services and show an increase in tax dollars from more productive graduates (Civic Enterprises, 2015). The U.S. Department of Education (2015) has invested more than $1 billion in programs to assist and motivate students to graduate. These dollars

have shown some success, with 2013 having the highest graduation level in the nation since 1973, but still more than one million students fail to graduate each year (Helmy, 2013). This section details the importance of graduation and the effects of not completing high school.

Even though education is one of the guaranteed pathways out of poverty, fewer than 10% of low-income students graduate college (Greer & Levin, 2015). High school prepares students for college and careers, and by not graduating high school, students are missing out not only on college but the opportunity to learn very important life skills (U.S. Department of Education, 2015). Schargel and Smink (2014) stated, "Forty-five percent of all people who earn the minimum wage are high school dropouts, but only three percent of college graduates work at minimum wage" (p. 4). Not only will more high school dropouts work for minimum wage, but a higher percentage of them will be unemployed as well (Civic Enterprises, 2015). This affects the individual as well as the future of the nation; in order for the nation to continue to grow, students need to focus more on knowledge than raw material (Schargel & Smink, 2014).

Students who have a college savings account, even with as little as a couple hundred dollars, are three times more likely to enroll in college and four times more likely to graduate than those without savings (Greer & Levin, 2015). Unfortunately, those in poverty have difficulty managing money (Payne, 2013). Poverty is not simply about money (Payne, 2013). Money is viewed as an expression of personality and is used for entertainment more than for security or a plan for the future, which makes saving difficult (Payne, 2013).

Poverty is also closely associated with a negative view of the future, which influences student achievement because students believe they are not capable and continually battle their own harsh perspectives (Jensen, 2013). Students struggling with these issues caused from poverty often have a better chance of graduating if exposed to mixed-income students (Potter, 2013). Along with mixed-income settings, students with strong positive role models show increased achievement in school (Payne, 2013).

Poor attendance, behavior, and course failure also have an impact on graduation rates, with low-income schools producing the majority of high school dropouts (Corrin et al., 2014). It is a known fact "physical, mental, and emotional health support engagement and learning" (Jensen, 2013, p. 9). Students from low-income areas often do not have a safe place to live, food to eat, or medical attention, which means they will have difficulty concentrating and learning at school while focused on their problems instead (Makarewicz, 2013). Unfortunately programs to help address these concerns are costly, and low-income schools do not usually have the funding to provide programs that include additional meals and medical attention (Makarewicz, 2013).

It has been determined student attendance has a big impact on graduation rates and future academic success (Spradlin et al., 2012). Unfortunately, "chronic absent rates for low-income students tend to be more pronounced than for other students" (Spradlin et al., 2012, p. 2). Students who are chronically absent score lower on tests and are more likely to drop out of high school (Spradlin et al., 2012). To compound the problem, those who do not graduate high school are three times more likely to slip into or never come out of poverty (Schargel & Smink, 2014).

Ensuring the young people of today are prepared is the first step to increasing graduation rates (Civic Enterprises, 2015). Unfortunately, many students from low-socioeconomic backgrounds are already far behind by the first day of kindergarten (Marcus, 2012). Programs such as Head Start have been proven successful for low-income families, but funding for these types of programs continues to be cut (Alexander, 2014). Regrettably, according to Schargel and Smink (2014), "Approximately 7.6 million school-age children, more than 17 percent of the total student population live in poverty" (p. 8). Educators are faced with the difficult task of recognizing the challenges facing students in poverty, but it is important not to lower expectations to ensure students are prepared for the next stage in life (Willingham, 2012). However, many students from low-socioeconomic backgrounds who are able to beat the odds and graduate high school are still not prepared for college and are required to take remedial coursework in college (Corrin et al., 2014).

As discussed in this section, attendance, dedication of teachers to motivate students to stay focused and in school, and mixed-income settings all affect graduation rates. This study was focused on the effectiveness of a one-to-one technology program in motivating students from low-socioeconomic backgrounds to stay in school and graduate. One-to-one technology devices are tools to assist teachers in motivating students to keep them focused and excited about school. Data were gathered and compared to analyze the impact of one-to-one technology on graduation rates.

Standardized Test Scores

To better understand the impact of socioeconomic status on standardized test scores, first it is important to understand the goal and purpose of testing, then to review

the pros and cons associated with it. Internationally the debate has turned more and more to the success of education (Smith, 2014). Smith (2014) stated, "To certify the available education is of high quality, the global expansion of universal basic education has included accountability measures in the form of academic tests" (p. 3). The NCES (2012) agreed, "Educators, parents, and the public depend on accurate, valid, reliable, and timely information about student academic performance" (p. 1). It is necessary to measure what students know in order to improve instruction and meet student needs (NCES, 2012). Standardized testing has become the framework for teachers on what topics should be taught and when (Columbia University, 2013). The goal of standardized testing is to track academic progress so teachers are able to identify which students need assistance in which subject areas (Munoz, 2014).

Some type of standardized test has been a part of education for over a century, and controversy with testing has existed just as long (Carroll, 2015). Columbia University (2013) compiled a comprehensive list of the positive outcomes of standardized tests. Carroll (2015) found even though testing is not perfect and there have been challenges made against it, tests are still a critical source of information for educators and policymakers. Testing creates a system to hold teachers and schools accountable and allows students from different schools and districts to be compared on an even field (Columbia University, 2013). This also gives parents an idea of how successful their children are compared to other students (Columbia University, 2013). Carroll (2015) expressed, "Testing is an important tool for teaching and learning—assuming that the tests measure the right goals and provide timely, accurate information about what students do and do not know" (p. 4). Finally, the data collected from these

tests can also be analyzed to compare sub-groups, such as those based upon socioeconomic status, ethnic background, and special needs (Columbia University, 2013).

The controversy with standardized testing has been related to what action to take once results have been measured, "such as whether to retain students in a grade, to allow students to graduate from high school, and to reward teachers and schools with money or ratings" (Magee & Jones, 2012, p. 1). High-stakes tests can cause teachers only to teach to the test, and the tests can add stress to both teachers and students, harming the learning environment (Columbia University, 2013). Students can develop a negative view of school and learning in general if too much emphasis is put on a test, and it creates a large amount of stress (Columbia University, 2013). Both Willingham (2012) and Jensen (2013) cited students from low-socioeconomic backgrounds already suffer from stress, and the additional stress can impact student engagement and affect student performance and achievement. These tests also only offer snapshot of a student's performance on one particular day at a particular time and do not take into consideration the overall growth of the student (Columbia University, 2013).

Carroll (2015), a supporter of standardized testing, expressed, "High, uniformed expectations are an important way to ensure equal education opportunity for all" (p. 5). However, Silvernail et al. (2014) found data proved students from higher-income households historically do better on standardized tests. An investigation was completed regarding the association between socioeconomic disadvantage and educational success (Coley & Baker, 2013). Coley and Baker (2013) discovered an overwhelming amount of data to support the strong correlation between disadvantaged students and their

educational success, but despite the large amount of research to support their findings, popular education policies still focus on developing common curricula and standardized tests that can be used to evaluate teachers and promote competition among schools. Unfortunately, these policies and tests do little to help students from low-socioeconomic statuses become successful or to help close the nation's large income gap (Coley & Baker, 2013).

The longer a student lives in a low-socioeconomic environment, the more detrimental it is for his or her educational achievement and test scores (Sharkey, Schwartz, Ellen, & Lacoe, 2014). In the mid-1990s, respondents from five cities were pooled, and there was no correlation between moving into low-poverty neighborhoods and test scores (Sharkey et al., 2014). However, it was also discovered students who moved out of severely disadvantaged areas experienced the greatest gains in test scores (Sharkey et al., 2014). The NCES (2012) cited neighborhood socioeconomic status was a factor for achievement, but generally the NCES did not uncover any additional data not already attained when using an individual-level measure. Yet in Chicago, the results indicated students who moved out of high-poverty projects showed positive effects on standardized test scores (Sharkey et al., 2014).

Within Ruby Payne's (2013) cognitive approach for understanding poverty, she listed violence as part of the reality of generational poverty, because fighting is important for survival. Sharkey et al. (2014) agreed with this reality. Sharkey et al. (2014) showed, "Exposure to neighborhood violence and danger are associated with lower performance on assessments of reading, cognitive skills, grade point average and school attendance" (p. 9). Not only do students from low-socioeconomic backgrounds often have to deal

with violence on a regular basis, they cope with hunger, poor health, and inadequate living arrangements which affect focus and learning (Makarewicz, 2013). Students suffering from a stressful home environment can manifest that stress in the form of disruptive behavior in class (Jensen, 2013). This stress can even lead to aggressive behaviors, causing students to fight first and ask questions later (Jensen, 2013).

To truly understand poverty, Payne (2013) found it essential to understand the five registers of language: frozen, formal, consultative, casual, and intimate. Less-educated, poverty-stricken parents rarely utilize the formal register in daily conversation; therefore, children growing up in these households rarely hear formal register being used (Payne, 2013). Jensen (2013) discovered poor students can have limited cognitive capacity, causing them to struggle with memory and verbal ability. The impact of this is even more severe the more generations a household is in generational poverty, because with each generation the formal register is used less (Payne, 2013). Henry (2015) uncovered evidence students lose interest and have difficulty understanding in the classroom if they are reading or hearing words with which they are unfamiliar. State and national standardized tests utilize a formal register, which can help explain why students from low-income households do not perform as well on standardized tests (Payne, 2013).

Evidence has shown children living in disadvantaged households have lower test scores and reduced educational achievement (Sharkey et al., 2014). It is important to remember it is "the school's responsibility to provide high expectations, insistence, and support for students academically and behaviorally" (Payne, 2013, p. 98). Test scores can be used to measure how students are performing academically, but Payne (2013) argued an understanding of a student's personal situation also needs to be acknowledged.

Stress is a common factor affecting engagement and learning in students from low-socioeconomic backgrounds (Jensen, 2013), and if high-stakes tests cause additional stress in the classroom (Columbia University, 2013), accurate test scores for children living in poverty may be affected due to lack of engagement or effort on the test.

The research conducted for this study was focused on test scores from a rural school district in southwest Missouri. The researcher utilized end-of-course exam scores to compare and analyze data before and after the implementation of one-to-one technology. The goal of the research was to determine if one-to-one technology has had a positive impact on end-of course exam scores for students, especially those from low-socioeconomic backgrounds.

Attendance

Edwards (2013) exposed four factors that affect student attendance: family, school, economics, and student variables. Jensen (2013) ascertained, "Until you make your school the best part of a student's day, you will struggle with student attendance, achievement, and graduation rates" (p. 4). Jensen's (2013) book, *Engaging Students with Poverty in Mind,* is critical of teachers and puts the burden of increasing student achievement for those in poverty back on teachers. Jensen (2013) stated, "We need to face reality: the same old mind-sets and strategies are not working. It's time for a change" (p. 4). Early identification and intervention are most important when working to increase attendance (Edwards, 2013).

Carver (2016) discovered, "Students come to the classroom prepared to use technology to explore their world. Research indicates technology can increase student motivation, attitude, engagement, and self-confidence, while improving organization and

study skills" (p. 110). Edwards (2013) showed incentives for good attendance have a positive impact, as do individual interventions for students with chronic absences.

Summary

Even though the United States is among the 35 richest countries in the world, out of those 35 countries the United States ranks second highest in childhood poverty (Coley & Baker, 2013). Ruby Payne (2013) discovered, "Since 2002, the U.S. federal government's insistence on publishing student achievement data has shown just how great the achievement disparities are between economically disadvantaged children and their more advantaged peers" (p. 1). The achievement gap between poor and non-poor students is even higher than the gap between black and white students (Coley & Baker, 2013).

This chapter included research from Ruby Payne's (2013) *Framework for Understanding Poverty* to establish the conceptual framework. Schools are more effective at helping students exit poverty when educators have a clear understanding of the child's experiences and how those affect his or her learning process (Payne, 2013). The history and importance of socioeconomic status and its relationship to student achievement were introduced. One-to-one technology and its impact on school districts today were addressed. This chapter also included an introduction of the relationship of graduation rate, standardized test scores, and attendance to students of lower-socioeconomic status.

Chapter Two was a review of literature on socioeconomic status, one-to-one technology, and the relationship these factors have on graduation rates, standardized test scores, free and reduced price meal counts, and attendance. Chapter Three begins with

an overview of one-to-one technology, followed by socioeconomic status and the impact on graduation rates, standardized test scores, free and reduced price meal counts, and attendance rates. It includes an examination of the research questions and hypotheses and a review of the methodology. The research design, instrumentation, and data collection for the study are outlined.

Chapter Three: Methodology

The latest data collected show for the first time in recent history, students from low-income families are now the majority in the United States (Southern Education Foundation, 2015). Throughout history, the U.S. has been viewed as the "land of opportunity" and a society where all children have an equal opportunity to succeed, no matter their background (Chetty, Hendren, Kline, Saez, & Turner, 2013). Unfortunately, there is growing evidence this is not the case when comparing low-income students with those from middle- and higher-income families (Chetty et al., 2013).

When reviewing trends over the last decade, the Southern Education Foundation (2015) found the future of schools and communities will not change unless they discover "what does it take and what will be done to provide low income students with a good chance to succeed in public schools" (p. 4). It is essential the problems and needs of low-income students are no longer overlooked, as their success or failure determines the nation's future successes and declines (Southern Education Foundation, 2015).

This study's population and sample were designed to focus on a rural school district in Missouri that has implemented one-to-one technology. In Missouri, 15.5% of people live in poverty, and 24.9% of people live in high-poverty areas (U.S. Census Bureau, 2016). Missourians to END Poverty (2014) discovered even though the Missouri graduation rate has increased by 2.4%, ensuring quality education is the only way to eradicate poverty in Missouri. Both Missourians to END Poverty (2014) and Barrow and Rouse (2006) agreed education assures better-paying, higher-skilled jobs, and more income provides economic security and less poverty in the state.

To find the root of the problem, data were compared and analyzed to evaluate student achievement through end-of-course exam scores, attendance rates, free and reduced price meal counts, and graduation rates before and after the implementation of one-to-one technology in a rural school district in southwest Missouri with a large percentage of students who qualify for free and reduced price meals. This chapter includes a review of the research questions and hypotheses originally stated in Chapter One. The research design is reviewed, along with the population and sample. Finally, this chapter details the process for data collection and data analysis for this study.

Problem and Purpose Overview

Education has been referred to as "the great equalizer" and "the key to unlocking the American Dream" (Baker & Corcoran, 2012, p. 1). Unfortunately, students from rural and low-socioeconomic backgrounds do not pursue post-secondary education as often as their peers from wealthier backgrounds (Curtis, Drummond, Halsey, & Lawson, 2012). This could be due to the fact those who drop out of high school "may feel more peer or family pressure not to continue school" (Barrow & Rouse, 2006, p. 108). These students from low-socioeconomic backgrounds may feel pressure not to continue their education simply because it is not the social norm (Barrow & Rouse, 2006).

Still too many low-income students attend schools that are under-funded and lack the resources and programs to help prepare students so they too can achieve the "American Dream" (Baker & Corcoran, 2012). An indicator of school quality can be related to family income in the community (Barrow & Rouse, 2006). High-income school districts have more money to spend on students, because the average income or socioeconomic status of the area is greater (Barrow & Rouse, 2006). Even though

education today has made great advancements, families with low-socioeconomic status still continue to have lower test scores and graduation rates, both of which affect future income and cause the same problems for their children (Barrow & Rouse, 2006).

The purpose of this study was to research a low-socioeconomic school district in southwest Missouri to see if the implementation of one-to-one technology has had a positive impact on equipping students from poor backgrounds with the education needed to break the cycle of generational poverty (Payne, 2013). For this study, the assessment chosen to measure student achievement was end-of-course exams. Attendance and graduation rates for the school district were also evaluated. Assessment scores, free and reduced price meal counts, attendance rates, and graduation rates were compared and evaluated before and after implementation of the one-to-one initiative. Also included was a review of the perceptions of high school seniors, parents, and educators regarding the effectiveness of one-to-one technology integration.

Research questions and hypotheses. The following research questions guided the study:

1. What are the perceptions of high school seniors regarding one-to-one technology integration in the following areas?

    e. Achievement

    f. Engagement

    g. Access to information

    h. Post-graduation plans

2. What are the perceptions of the parents of high school seniors regarding one-to-one technology integration in the following areas?

    e. Achievement

    f. Engagement

    g. Access to information

    h. Post-graduation plans

3. What are the perceptions of high school principals and teachers regarding one-to-one technology integration in the following areas?

    e. Achievement

    f. Engagement

    g. Access to information

    h. Post-graduation plans

4. What statistical difference, if any, exists between high school senior students who were involved in one-to-one technology integration and previous high school senior students who were not involved in one-to-one technology integration in the following areas?

    e. English II end-of-course exam scores

    f. Attendance

    g. Graduation rate

    h. Socioeconomic status (free/reduced price meals)

$H4_0$: There is no statistical difference between high school senior students who were involved in one-to-one technology integration and previous high school senior

students who were not involved in one-to-one technology integration in the following areas:

e. English II end-of-course exam scores

f. Attendance

g. Graduation rate

h. Socioeconomic status (free/reduced price meals).

$H4_a$: There is a statistical difference between high school senior students who were involved in one-to-one technology integration and previous high school senior students who were not involved in one-to-one technology integration in the following areas:

e. English II end-of-course exam scores

f. Attendance

g. Graduation rate

h. Socioeconomic status (free/reduced price meals).

Research Design

A quantitative data design was utilized to evaluate the impact of one-to-one technology on student achievement in a low-socioeconomic school district. The data gathered included English II end-of-course exam scores, graduation rates, free and reduced price meal counts, and attendance rates. According to the MODESE (2015d), "Students in Missouri, including Missouri Option Program students, are required to take the Algebra I, Biology, English II and Government assessments. Additional EOC [End-of-Course] assessments are available in Algebra II, Geometry, English I, American History and Physical Science" (p. 14). The content of the end-of-course exams follows

the Missouri Learning Standards and encompasses the knowledge and skills required in a specific content area for students to be successful in college, post-secondary training, and careers (MODESE, 2015d). Data gathered from this assessment also allow the MODESE to monitor progress of school districts and allow administrators and teachers to discern the performance of individual students so lesson plans can be tailored to focus on weaknesses (MODESE, 2015d).

The research for this study was designed to include data collected from English II end-of-course assessments scores, attendance rates, and graduation rates. A school district with a high percentage of free and reduced price meal counts in rural southwest Missouri was chosen for this study. For the data, the researcher focused on the district's English II end-of-course exam scores, free and reduced price meal counts, attendance rates, and graduation rates prior to the implementation of the one-to-one technology initiative. By evaluating the school district prior to implementation of the program, a baseline was established for data comparison. The researcher then gathered English II end-of-course scores, free and reduced price meal counts, attendance rates, and graduation rates during the three subsequent years to see the impact of the initiative on the district and to predict future achievement. After the data were evaluated, the researcher surveyed high school seniors and their parents to gain perspectives on the impact the one-to-one technology program had on achievement, engagement, access to information, and post-graduation plans. Finally, to gain the school's viewpoint of the success of the program, administrators and teachers were surveyed to determine their thoughts on how the one-to-one program affects achievement, engagement, access to information, and post-graduation plans.

Ethical Considerations

Lindenwood University Institutional Review Board approved the study before research began (see Appendix A). All high school students selected to receive the invitation to participate were over the age of 18. All data were collected through an online anonymous survey, and the list of those who received the invitation to participate was kept confidential to protect the participants. Permission was granted by the district superintendent to obtain email addresses of the participants (see Appendix B). The data were kept in a secure location.

Population and Sample

The population consisted of 94 high school seniors from a rural school district in southwest Missouri in which 73% of the student enrollment qualifies for free and reduced price meals. Bluman (2013) stated, "A population consists of all subjects (human or otherwise) that are being studied" (p. 4). The participating school district implemented one-to-one technology in grades five through 12 for the 2013-2014 school year and completed the third year of the initiative in the spring of 2016. Data from the 2011-2012 and 2012-2013 school years were used as the baseline data. The class sizes in this district ranged from 76-120 students. The data gathered included English II end-of-course scores, attendance rates, free and reduced price meal percentages, and graduation rates over a four-year period. The data gathered were used to analyze a one-to-one technology initiative in a school district in a low-socioeconomic area.

According to Bluman (2013), "A sample is a group of subjects selected from a population" (p. 4). Cluster sampling was employed to divide the students by age to sample high school seniors over the age of 18 (Bluman, 2013). The sample selected for

this study consisted of 35 high school seniors over the age of 18 from the graduating class of 2017, parents of high school seniors of the 2017 graduating class, two principals, and teachers who work with the one-to-one program. The sampled participants were surveyed to gain their viewpoints on the effectiveness of the program and its effects on achievement, engagement, access to information, and post-graduation plans. The sampled participants should possess similar characteristics to other students, parents, teachers, and administrators within the district (Bluman, 2013).

This study's population was limited in determining socioeconomic status. According to the NCES (2012), socioeconomic status encompasses family income, parental education history, and parental occupational status, as well as other factors including school and community factors and how individuals view themselves on the status ladder. The free and reduced price meal program only considers household income in its measurement of eligibility (MODESE, 2015b). Therefore, by utilizing free and reduced price meal count data from the MODESE and census data gathered through the U.S. Census Bureau, socioeconomic status for this study was determined only by household income. No educational history or occupational status was reviewed when selecting the school district chosen for this study. Historically, the educational community has utilized free and reduced price meal data to identify schools with high levels of low-socioeconomic status (National Forum on Education Statistics, 2015). Therefore, for the purposes of this study, socioeconomic status was simply measured by family income levels and did not include other factors affecting socioeconomic status (NCES, 2012).

Instrumentation

Measurement of student achievement is continually changing, and the Center for American Progress (2014) discovered, "Many states are rethinking mechanisms for measuring progress based on assessments and are including additional measures of college and career readiness such as the percentage of high school graduates who require remediation coursework in college" (p. 2). The tools used in this research to measure student achievement included English II end-of-course assessment scores, high school attendance rates, free and reduced price meal percentages, and graduation rates. All of the data gathered originated from databases compiled by the MODESE for the following school years: 2011-2012 (baseline year), 2012-2013 (baseline year), 2013-2014, 2014-2015, and 2015-2016.

An electronic survey was developed by the researcher to gather data on achievement, engagement, access to information, and post-graduation plans. The survey was field tested on educators that were not involved in the survey. An email was sent including an explanation of the purpose of the study (see Appendix C), the intent of the survey, informed consent (see Appendix D), and a link to the survey. The survey questions were designed to obtain the opinions of the respondents on their perceptions of one-to-one technology in regard to achievement, engagement, access to information, and post-graduation plans. The survey recipients were assured no identifying information was gathered and participation was voluntary. A follow-up email was sent two weeks later to remind participants to participate if they would like to before the deadline.

Data Collection

First, for research questions one through three, an online survey was developed through Survey Monkey (see Appendices E, F, & G). The survey was emailed to high school seniors, parents of high school seniors, and teachers and administrators involved in the one-to-one technology program. Data were gathered through the online survey, too (see Appendices H, I, & J). Next, the data for question four were obtained through databases compiled by the MODESE from the following years: 2011-2012 (baseline year), 2012-2013 (baseline year), 2013-2014, 2014-2015, and 2015-2016. The data included the school district's English II end-of-course scores, high school average daily attendance rates, graduation percentages, and free and reduced price meal counts for each year's graduating class.

To monitor and determine the strength of end-of-course assessments, the MODESE (2015a) implements a quality assurance visit and survey during the testing window. The quality assurance survey and visit reviews "documentation of assessment trainings; interviews with District Test Coordinators, Special Education Director, Test Examiners, Individualized Education Program (IEP) team members, and school administrators; review of documents; and classroom visit" (MODESE, 2015a, p. 1). This visit and survey is designed to examine a district's assessment training, administration, and test security to ensure the test is given in a fair and lawful manner (MODESE, 2015a).

The Food and Nutrition Service allows some flexibility in how the free and reduced price meal program is operated, but want to ensure accountability and ease of access for eligible families (MODESE, 2015b). There is still a detailed application

process required to ensure accuracy when determining income and categorical eligibility (MODESE, 2015b). The process includes verification, confidentiality disclosures, and detailed information on how records are kept (MODESE, 2015b).

Data Analysis

To define the perceptions of survey participants to answer questions one through three, descriptive statistics were utilized. Bluman (2013) defined descriptive statistics as consisting "of the collection, organization, summarization, and presentation of data" (p. 4). Marriott and Kendall (1990) defined descriptive statistics:

> A term used to denote statistical data of a descriptive kind or the methods of handling such data, as contrasted with theoretical statistics which, though dealing with practical data, usually involve some process of inference in probability for their interpretation. (para. 1)

The descriptive statistics are simply a means to collect relevant data and describe the situation (Bluman, 2013).

Since the population standard deviation is unknown, to answer question four and test the hypothesis, a *t*-test was utilized. Due to the small sample size, a *t*-test was the best statistical method to employ in this study. De Winter (2013) conducted a study that showed "no fundamental objection to using regular *t*-test with extremely small sample sizes. Even a sample size as small as 2 did not pose problems" (p. 6). According to Bluman (2013), "The *t* test is a statistical test for the mean of a population and is used when the population is normally or approximately normally distributed" (p. 425). The *t*-test is bell-shaped; the mean, median, and mode all equal zero; and the curve never touches the x-axis (Bluman, 2013). The variance is greater than one, is distributed as a

family of curves, and as the sample increases the *t* distribution approaches normal distribution (Bluman, 2013).

Summary

According to Jiang et al. (2015), "Children under 18 years represent 23 percent of the population, but they comprise 33 percent of all people in poverty" (p. 1). Education has been linked to career and income success in the future (Barrow & Rouse, 2006). Those with higher-profile jobs tend to make more money and are viewed to have higher socioeconomic status (Barrow & Rouse, 2006). Barrow and Rouse (2006) stated, "Americans have long had high expectations for their educational system" (p. 100). Those students who come from families in generational poverty are less likely to break through to the middle class on their own and without strong education (Payne, 2013).

The American Psychological Association (2009) revealed incomplete and inadequate education only perpetuates low-socioeconomic status. Similarly, Rumberger (2013) discovered, "Dropouts face extremely bleak economic and social prospects" (p. 1). High school graduation is an important factor in decreasing the population who live in low-socioeconomic status (American Psychological Association, 2009). This study included evaluation of the school district's graduation rates.

To determine low-socioeconomic status, this researcher utilized the free and reduced price meal counts of school districts with one-to-one technology programs to select a district for the study. Households that fall below 130% of the federal poverty line are eligible for free meals, and those that fall between 130% and 185% are eligible for reduced price meals (United States Department of Agriculture, 2015). Missouri

census data gathered from the U.S. Census Bureau (2016) were also used when selecting the district for the study.

Chapter Three included a review of the intent of the study and the problem of the effects of low-socioeconomic status on student achievement. The purpose of the study was to identify the effects of and evaluate one-to-one technology as a possible solution to improve student achievement. The research questions and hypotheses were reviewed again in this chapter. The research design was outlined, and the population and sample were identified. The instrumentation of study was outlined. Following instrumentation, the process for data collection and statistical analysis outline were reviewed as well as the ethical considerations for the study.

In Chapter Four, the raw data collected are presented, graphed, and analyzed. Each research question and hypothesis was tested and the results reviewed. Finally, Chapter Five provides an overview of the findings, analysis of the data, conclusions, and recommendations for future related research.

Chapter Four: Analysis of Data

The purpose of this study was to investigate the impact of one-to-one technology on student achievement in a school district with low-socioeconomic status. The problem addressed in this study was the effects of low-socioeconomic status and how one-to-one technology can have a positive impact on students to assist them in breaking through barriers. This study included evaluation of end-of-course exam scores, attendance rates, free and reduced price meal counts, and graduation rates prior to implementation of one-to-one technology, then included a review of the first three years of the same data after one-to-one implementation. Students, parents, and educators were surveyed to gain their perceptions of the program's effectiveness in improving achievement, engagement, access to information, and post-graduation plans.

There are several factors to consider when interpreting this study's results. First, the data gathered came from only one rural school district in southwest Missouri, and the only students invited to participate in the survey were high school seniors of the 2017 graduating class who were over the age of 18 by September 30, 2016. The surveyed parents and educators were also from the same district. Free and reduced price meal counts were utilized to determine the socioeconomic status of the district.

Presentation of Data

For research questions one through three, an online survey was developed to gather quantitative data from high school senior students of the 2017 graduating class above the age of 18 as of September 30, 2016; parents of high school seniors from the graduating class of 2017; and high school administrators and English II teachers. Questions from each survey addressed the following areas: achievement, engagement,

access to information, and post-graduation plans. Survey results reported were only in relation to the research questions. A five-point Likert-style scale was utilized for each survey question. To present the results of each test, descriptive statistics were employed. Descriptive statistics are described by Bluman (2013) as the collection and organization of data. This form of statistics also involves the summary and presentation of data, and simply means collecting the data and describing the situation (Bluman, 2013).

Research question one. What are the perceptions of high school seniors regarding one-to-one technology integration in the following areas?

a. Achievement
b. Engagement
c. Access to information
d. Post-graduation plans

An online survey was sent to 30 high school seniors over the age of 18. Five students completed the survey that consisted of seven questions. The survey employed a five-point Likert-style scale for all responses, ranging from strongly agree to strongly disagree. The focus of the survey questions was to gain the perceptions of students from a low-socioeconomic district on the effectiveness of a one-to-one technology program in the areas of achievement, engagement, access to information, and post-graduation plans. Figures 1-7 show the results of the survey and the students' perspectives in regard to each question.

First, the students were asked: Has the one-to-one technology provided by your school district positively affected your education? The majority was split between agreeing and being undecided. Figure 1 presents the results in a bar graph.

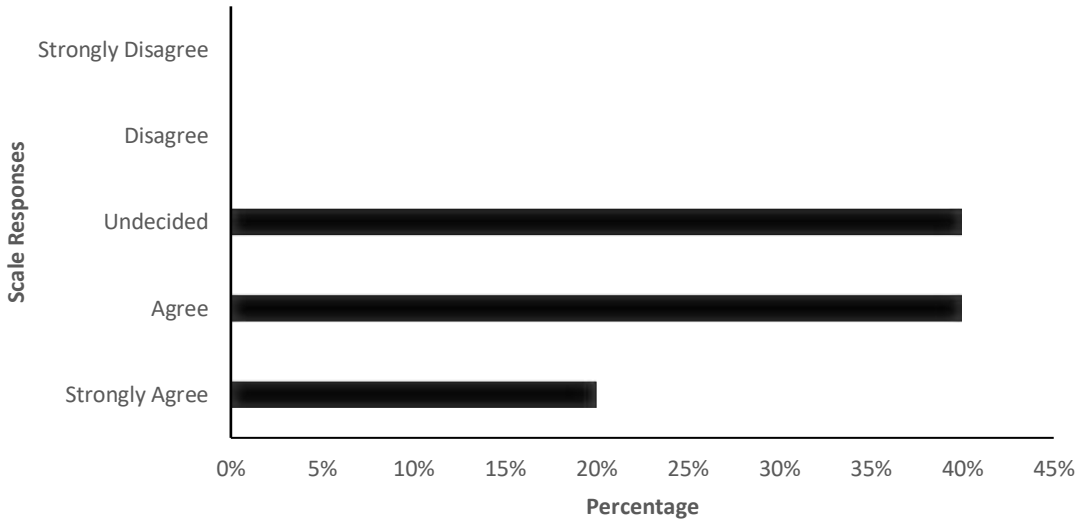

Figure 1. Students' perspectives on how one-to-one technology provided by the school district has positively affected their education.

Following question one, students were then asked if they feel the use of technology in the classroom helped keep them more engaged in learning. The majority of the students were spilt on their opinions. The majority was divided between agreeing, being undecided, and disagreeing, although it is important to note two respondents did strongly agree technology has helped them to be more engaged in the classroom. The results of this survey question are reflected in Figure 2.

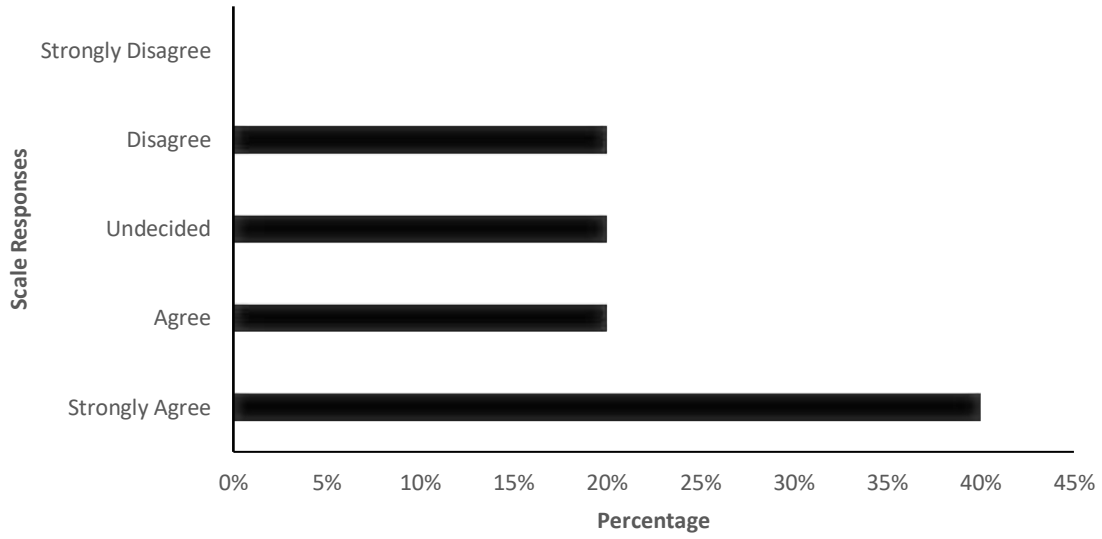

Figure 2. Students' perspectives on the use of technology in the classroom keeping them more engaged in learning.

To gain the perspectives of students in regard to the effectiveness of one-to-one technology for access of information, students were asked: do you believe access to a laptop increased your access to information and expanded your education? One hundred percent of the survey respondents strongly agreed laptops have increased their access to information and have expanded their education (see Figure 3).

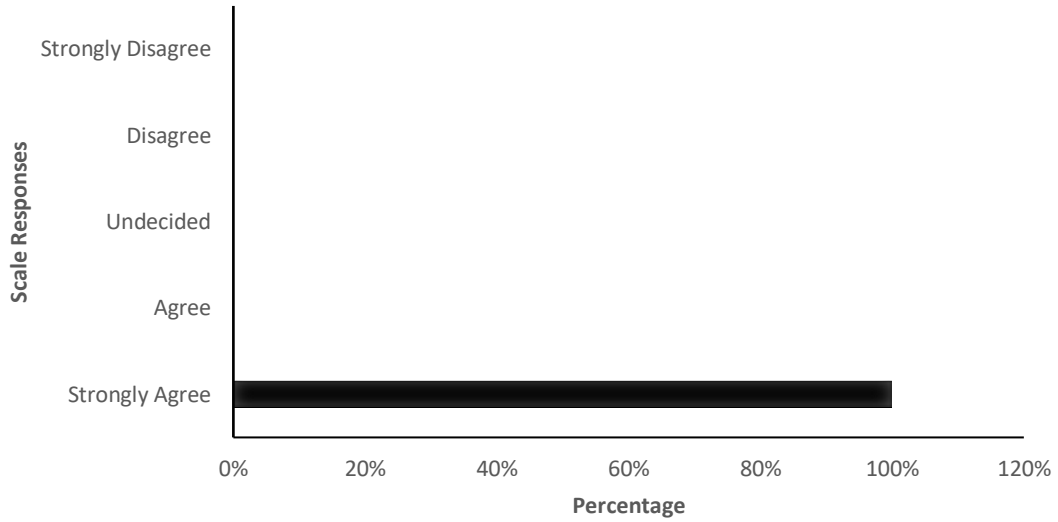

Figure 3. Students' perspectives on if access to a laptop increased their access to information and expanded their education.

Then students were asked, do you think the technology-enhanced education provided at your school district will better equip you for your post-graduation plans? The results were equally split between strongly agreeing and disagreeing. One respondent was undecided, but 40% strongly agreed and 40% disagreed, as shown in Figure 4.

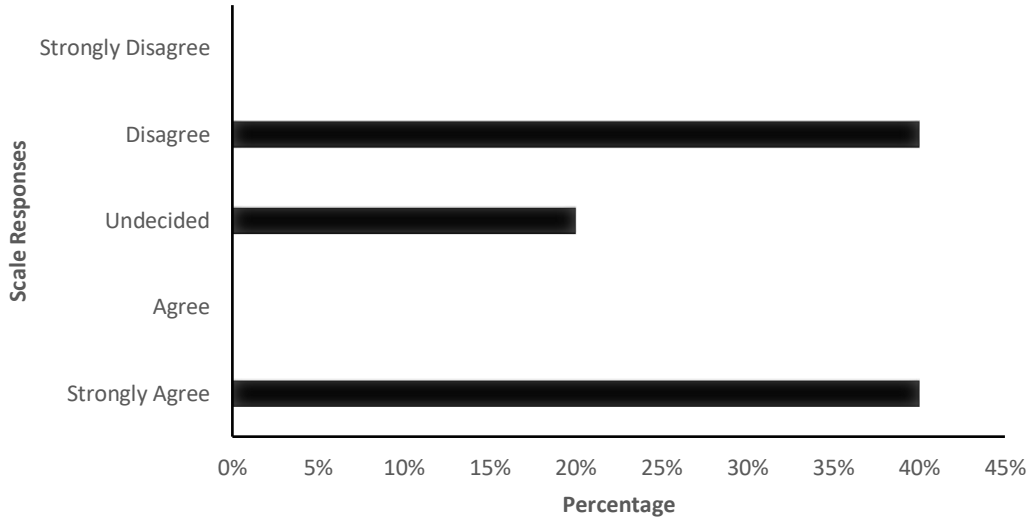

Figure 4. Students' perspectives on if the technology provided at their school district will better equip them for their post-graduation plans.

Next, to determine if technology has had an impact on student attendance, students were asked, has the technology provided by your school district encouraged you to have better attendance at school? The results varied, and results were split evenly between those agreeing and those disagreeing they are more encouraged to attend school because of the technology in place at the district. The results are outlined in Figure 5.

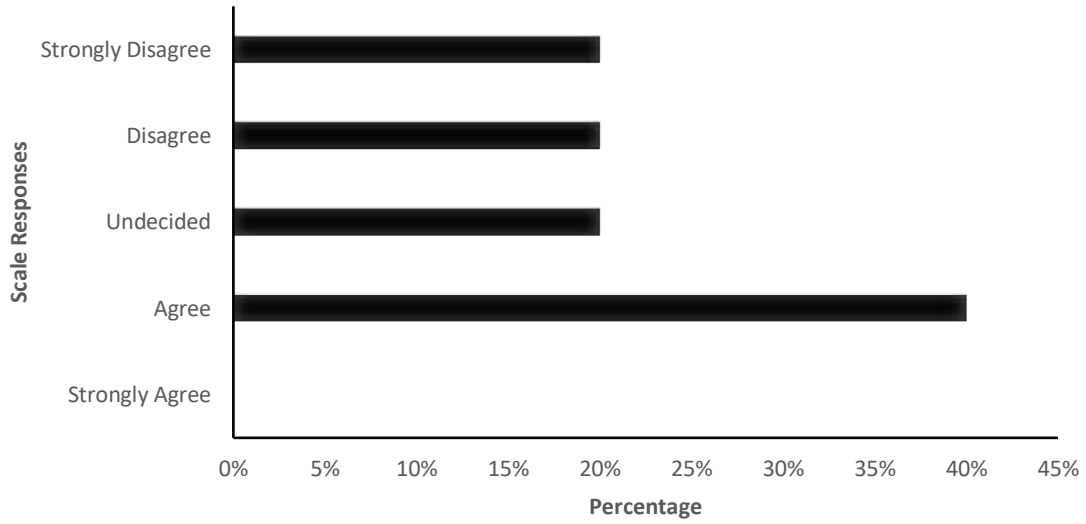

Figure 5. Students' perspectives on if the technology provided at their school district has encouraged them to have better attendance at school.

Figure 6 outlines the results of the sixth question in the survey. The sixth question asked students, do you think the education you are receiving at your school district is better because of the technology? Once again, the results to this question were spilt pretty evenly between strongly agreeing and disagreeing.

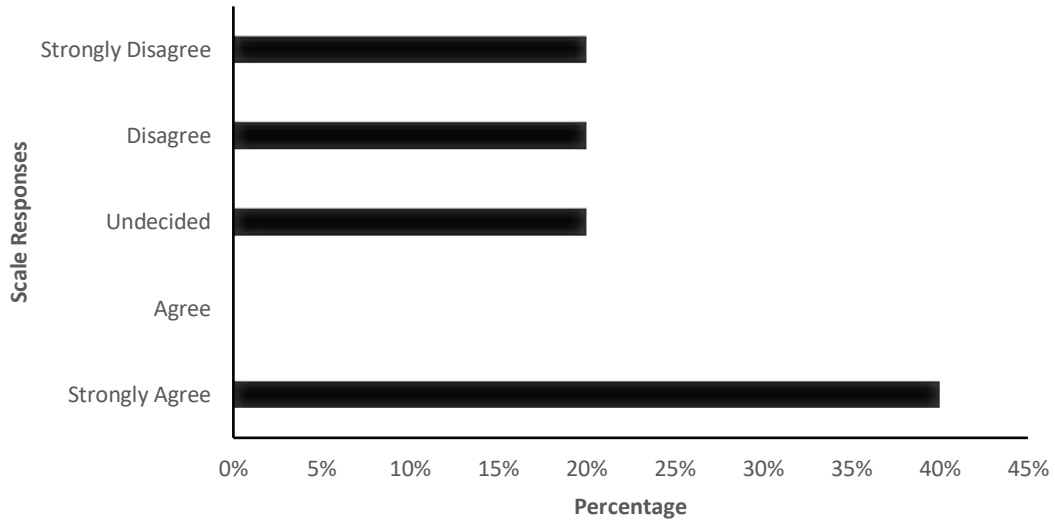

Figure 6. Students' perspectives on if the education they are receiving at their school district is better because of the technology.

Lastly, students were asked which of the following best describes your post-graduation plans: enroll in a four-year degree program, enroll in a two-year degree program, enroll in a technical school, go straight into the workforce. Two of the students planned to attend a four-year degree program, and one planned on attending a two-year degree program. Two other students planned to go straight into the workforce, and none of them expressed interest in attending technical school. The final results are outlined in Figure 7.

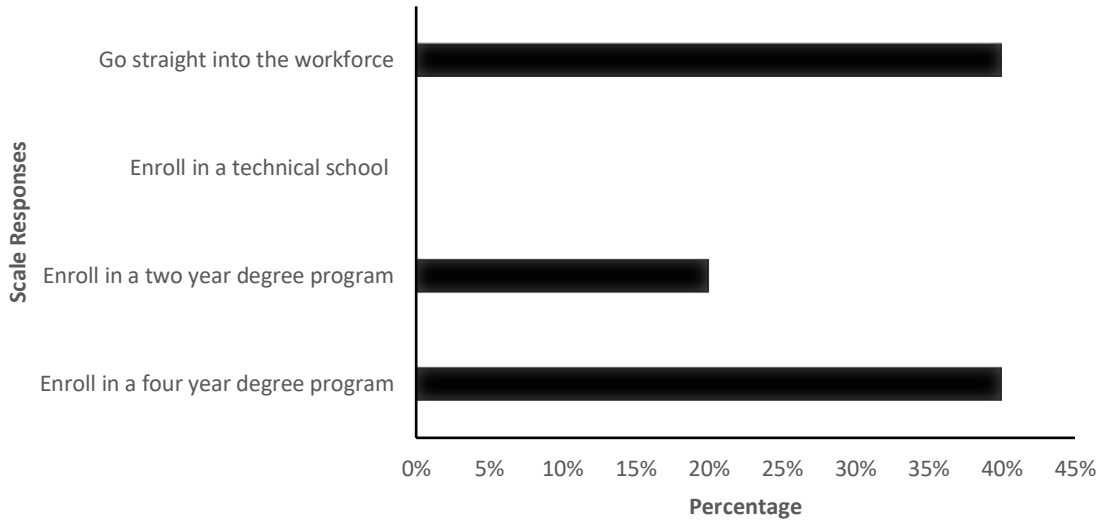

Figure 7. Students' post-graduation plans.

Research question two. What are the perceptions of the parents of high school seniors regarding one-to-one technology integration in the following areas?

a. Achievement
b. Engagement
c. Access to information
d. Post-graduation plans

To answer the second research question, an online survey was sent to 76 parents of high school seniors from the graduating class of 2017. Six parents completed a survey of six questions. All of the survey questions were geared toward gaining the perceptions of parents on the effectiveness of the one-to-one technology program in the areas of achievement, engagement, access to information, and post-graduation plans. The survey

employed a five-point Likert-style scale for all responses, ranging from strongly agree to strongly disagree.

The first survey question focused on achievement. Parents were asked, has one-to-one technology provided by your student's school district positively affected his or her education. The responses to the survey are outlined in Figure 8. The figure shows 33% of the parents strongly agreed this program positively affected their student's education. Of the remaining parents, 17% agreed, 17% were undecided, and 33% disagreed.

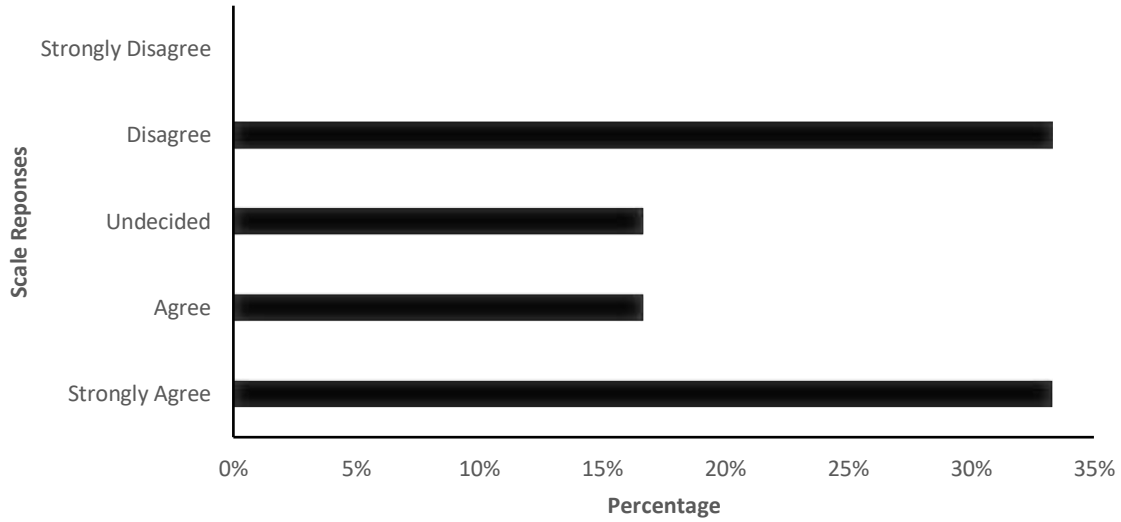

Figure 8. Parents' perspectives on how one-to-one technology provided by the school district has affected their students' education.

The second question focused on engagement. Parents were asked, do you feel the use of technology in the classroom helped keep your student more engaged in learning. Question two had the same division as question one, with 33% of parents strongly agreeing. Of the remaining parents, 17% agreed, 17% were undecided, and 33% disagreed. The answers are outlined in Figure 9.

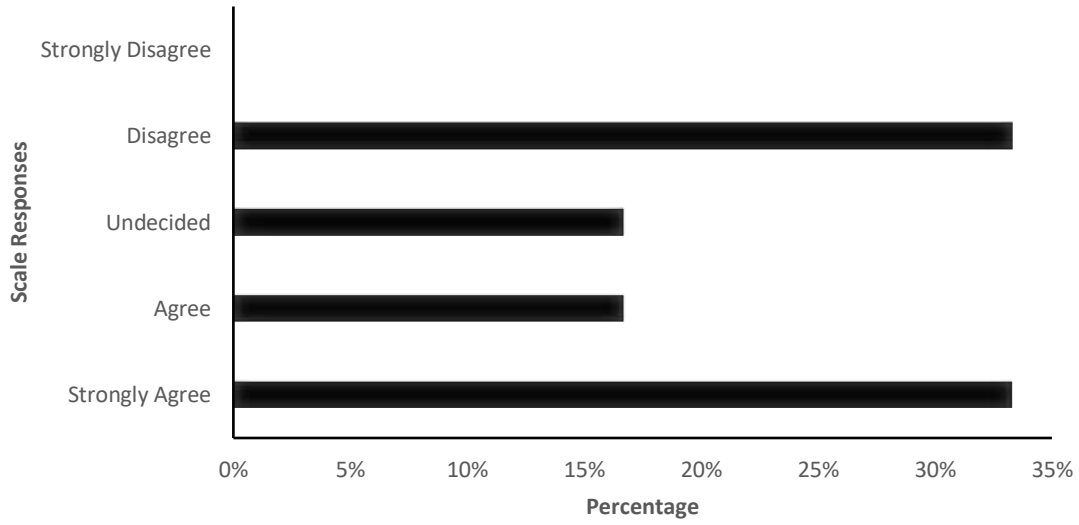

Figure 9. Parents' perspectives on how one-to-one technology provided by the school district has helped keep their students more engaged.

Question three focused on access to information. Parents were asked do you believe access to a laptop increased your student's access to information and expanded his or her education. As shown in Figure 10, all of the parents agreed or strongly agreed

one-to-one technology has had a positive impact on access to information. Thirty-three percent of the parents strongly agreed, and 67% agreed.

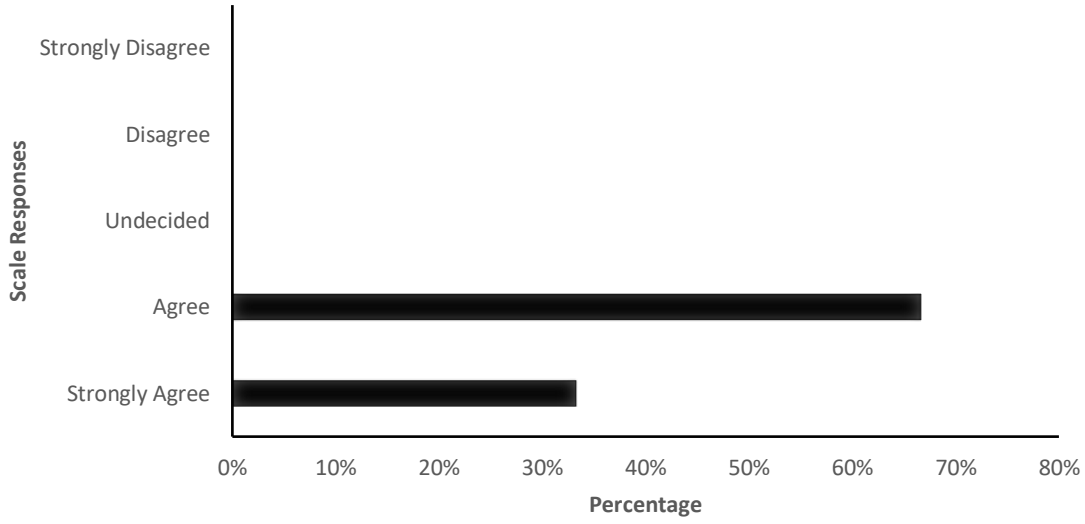

Figure 10. Parents' perspectives on how access to a laptop has increased their students' access to information and has expanded their education.

When parents were asked, do you think the technology-enhanced education provided at your student's school district will better equip him or her for post-graduation plans, respondents had mixed results. Only 17% of parents strongly agreed, and 33% disagreed. However, 50% of parents did agree this has helped to better equip their student. The results are outlined in Figure 11.

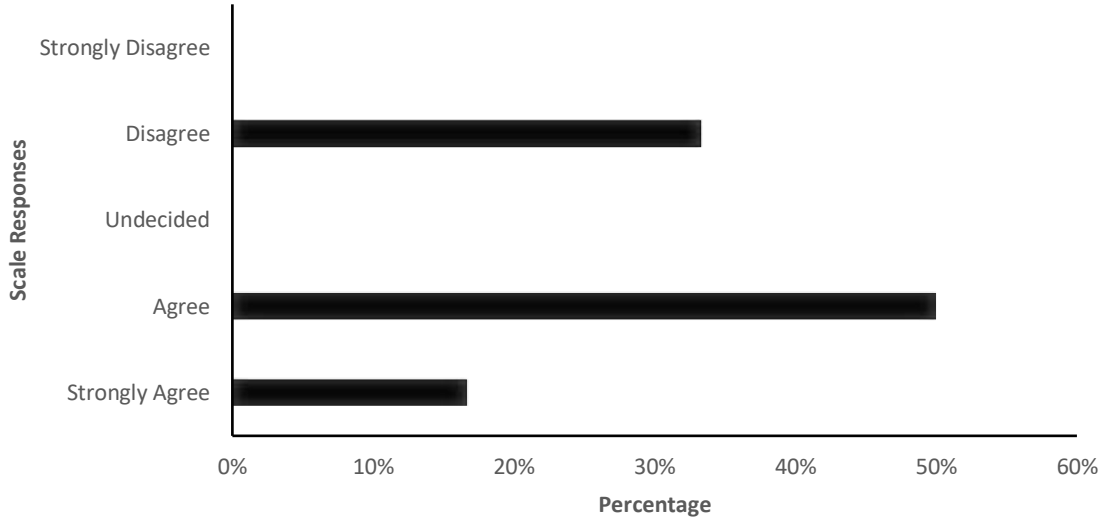

Figure 11. Parents' perspectives on how technology has enhanced education provided at their students' school district to better equip them for post-graduation plans.

Undecided is how most of the parents responded when asked, has the one-to-one technology provided by your student's school district encouraged him or her to have better attendance at school. Fifty percent of the parents were unsure if attendance had been affected. As seen in Figure 12, 33% of the parents disagreed.

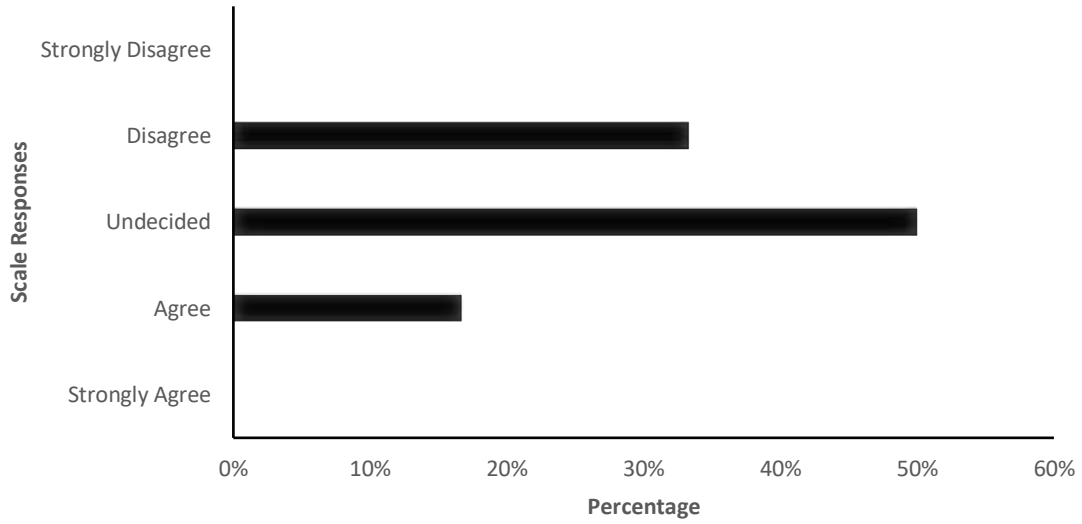

Figure 12. Parents' perspectives on how one-to-one technology provided by the school district has encouraged their students to have better attendance at school.

Finally parents were asked, do you think the education your student is receiving at his or her school is better because of the one-to-one technology? In the end, though, 66% of the parents agreed or strongly agreed their student is receiving a better education because of the one-to-one technology program. Only 34% of parents disagreed or strongly disagreed this program has had a positive impact on education. Figure 13 charts the parents' perceptions on this question.

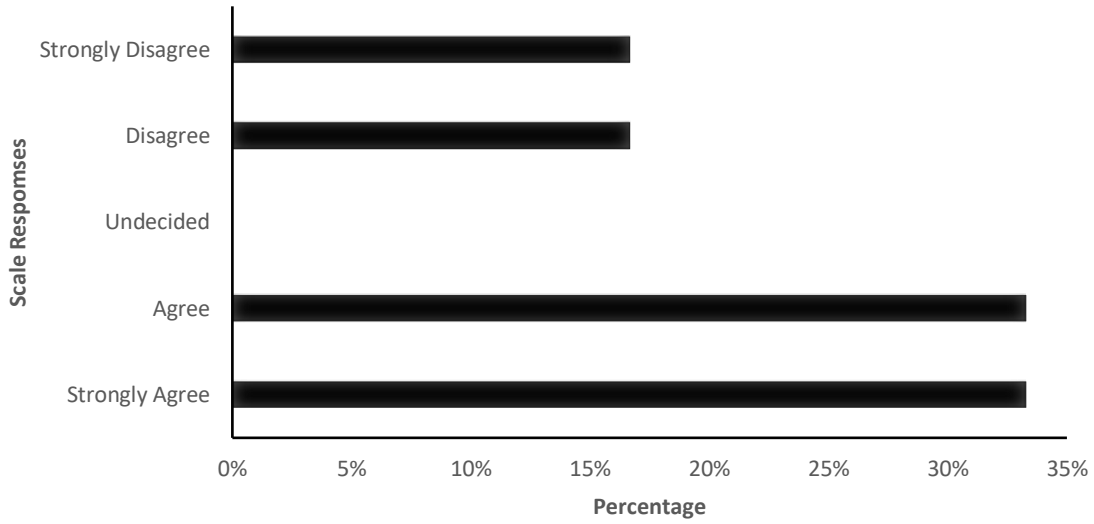

Figure 13. Parents' perspectives on if the education their students are receiving is better because of technology.

Research question three. What are the perceptions of high school principals and teachers regarding one-to-one technology integration in the following areas?

a. Achievement
b. Engagement
c. Access to information
d. Post-graduation plans

To answer research question number three, high school principals and English II teachers were given an anonymous survey to gain their perspectives on their school's one-to-one technology program. These principals and teachers were selected from a small school district in southwest Missouri that recently added one-to-one technology. The survey was sent to five educators and had three respondents. The majority of the answers were

split evenly among the three participants. Figures 14 through 19 review the responses to the questions answered on the Likert-style scale.

When asked, has the one-to-one technology provided by your current school district positively affected the students' education, educators had a mixed response. Educators were split evenly at 33.3% (see Figure 14) among strongly agreeing, agreeing, and being undecided. One educator felt the one-to-one technology may have a greater impact on students from lower-income families, as these students may not be able to afford the access to technology wealthier families can. Another respondent agreed technology increases access to information but has yet to be convinced the access has improved educational pedagogy.

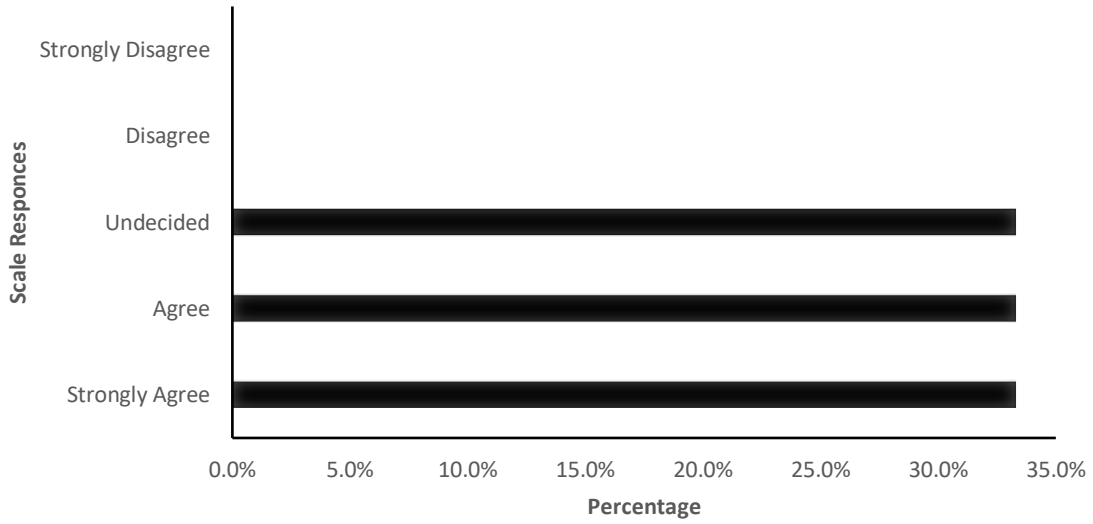

Figure 14. Educators' perspectives on if one-to-one technology provided at their district has positively affected the students' education.

Educators were then asked if they feel the use of technology in the classroom has helped keep students more engaged in learning. Once again the results were split evenly across the board. As shown in Figure 15, the majority of the educators (66.7%) were undecided or disagreed this program helps engage students. When asked, do you feel the use of technology in the classroom helps keep students more engaged in learning, the comments were very diverse. One educator felt students were more engaged because of the flexibility of lesson plans and project-based learning. The other educators thought the laptops could be distracting by giving students the ability to surf the web and send email versus being engaged in the lesson.

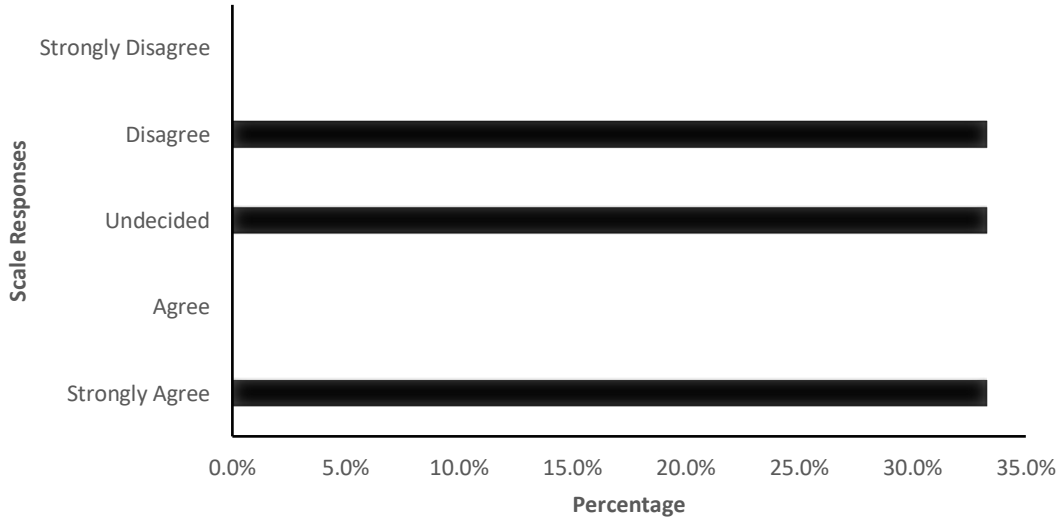

Figure 15. Educators' perspectives on if the use of technology in the classroom has helped keep students more engaged.

To answer the access to information portion of research question three, educators were asked, do you believe access to a laptop has increased students' access to information and expanded their education? Of the respondents, 66.7% strongly agreed technology increased students' access to information and expanded their education (see Figure 16). Participants pointed out one-to-one technology offers an unlimited source of information, whereas a textbook or library is limited in scope and can easily be outdated.

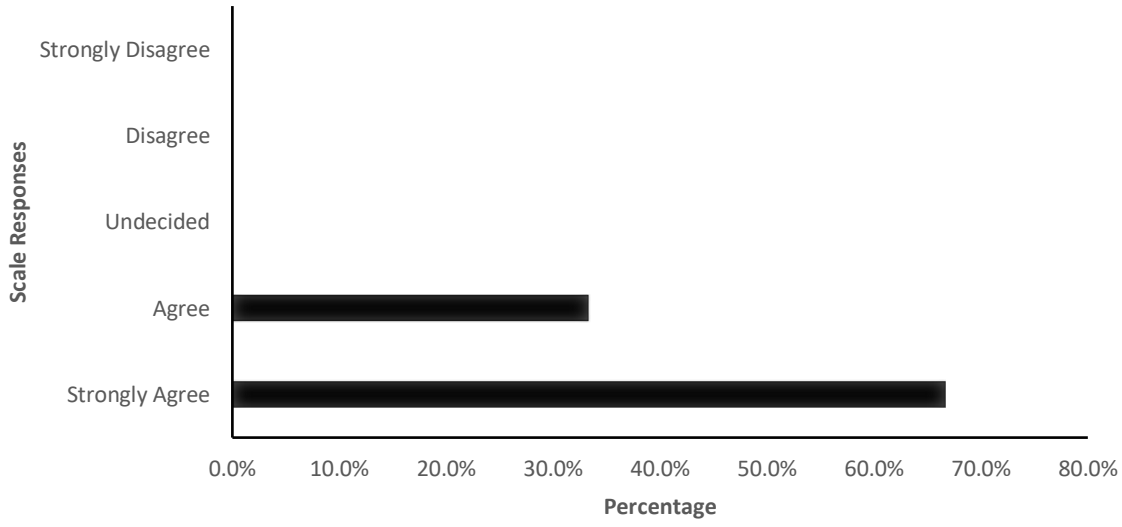

Figure 16. Educators' perspectives on if access to a laptop has increased students' access to information and expanded their education.

Although teacher responses were spilt evenly on most of the questions, 100% of the contributors strongly agreed when asked do you think one-to-one technology will better prepare students for their post-graduation plans. Respondents disclosed in the

comments that whether a student goes to college, military, or straight to work, they will in some form use technology in work, education, or personal life in the future, and one-to-one technology programs help to set them up for success.

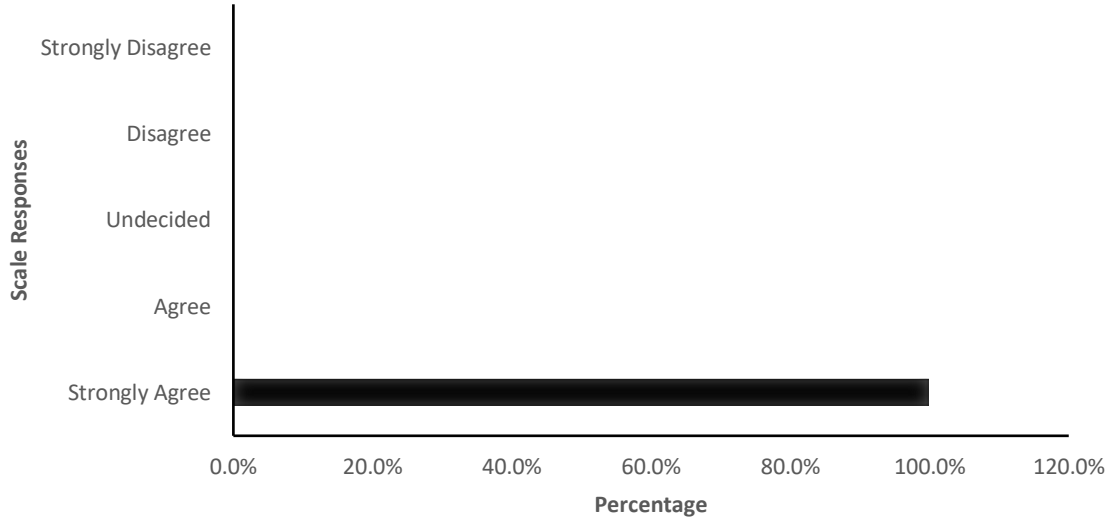

Figure 17. Educators' perspectives on if one-to-one technology will better prepare students for post-graduation plans.

Educators were then asked, has the technology provided by your current school district encouraged students to have better attendance at school. The majority of the educators found this not to be the case (66.7%). The other 33.3% of educators were still undecided on whether attendance has been affected or not. Figure 18 outlines the results of this question.

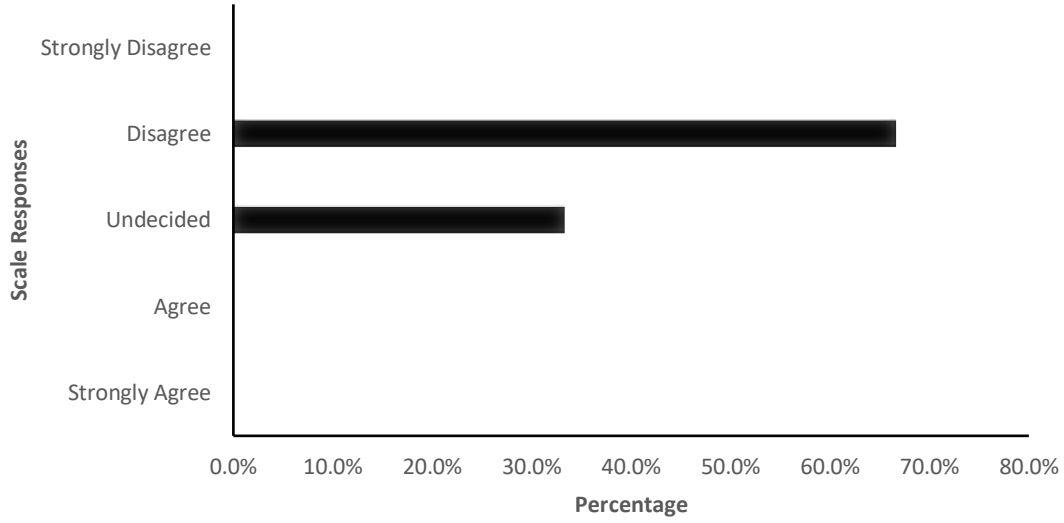

Figure 18. Educators' perspectives on whether technology provided by the school district encourages students to have better attendance at school.

Finally, educators were asked, do you think the education students receive at your current school district is better because of technology. The responses on this question were once again split evenly. The majority of the responses showed most educators feel the education their students are receiving at their district is better because of technology. As shown in Figure 19, 66.7% of the respondents either strongly agreed or agreed.

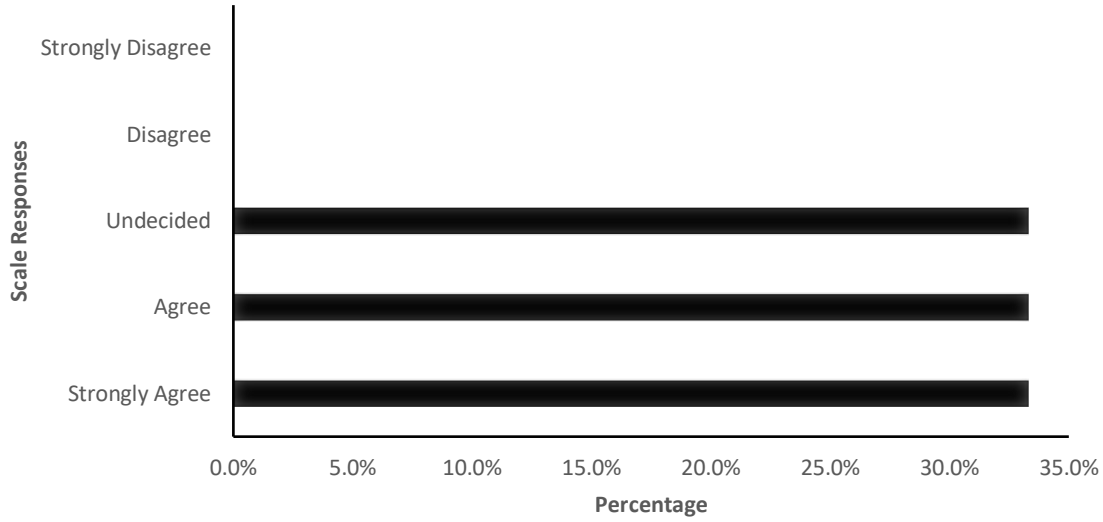

Figure 19. Educators' perspectives on whether the education students receive at their district is better because of technology.

Research question four. What statistical difference, if any, exists between high school senior students who were involved in one-to-one technology integration and previous high school senior students who were not involved in one-to-one technology integration in the following areas?

a. English II end-of-course exam scores

b. Attendance

c. Graduation rate

d. Socioeconomic status (free/reduced price meals).

$H4_0$: There is no statistical difference between high school senior students who were involved in one-to-one technology integration and previous high school senior

students who were not involved in one-to-one technology integration in the following areas:

a. English II end-of-course exam scores
b. Attendance
c. Graduation rate
d. Socioeconomic status (free/reduced price meals).

H4$_a$: There is a statistical difference between high school senior students who were involved in one-to-one technology integration and previous high school senior students who were not involved in one-to-one technology integration in the following areas:

a. English II end-of-course exam scores
b. Attendance
c. Graduation rate
d. Socioeconomic status (free/reduced price meals).

In order to determine if there is a statistical difference between the mean of the data before and after the implementation of one-to-one technology, a two-tailed, independent sample *t*-test was employed to evaluate changes in each of the following areas: English II end-of-course exam scores, attendance rates, graduation rates, and socioeconomic status. Due to the small population size and the unknown standard deviation, a *t*-test was performed on the data. According to Bluman (2013), "When the sample sizes are less than 30, the populations must be normally or approximately normally distributed" (p. 481). De Winter (2013) agreed a regular *t*-test with extremely small sample sizes does not pose any problems. Each *t*-test assumed the populations

were normally distributed with the level of risk at .05. The researcher accepted a less than 5% probability of the results being due to chance.

In order to establish a baseline, data were gathered from the 2011-2012 and 2012-2013 school years, which were prior to the implementation of one-to-one technology. Then data were gathered from 2013-2014, 2014-2015, and 2015-2016, which were all after the implementation of one-to-one technology. In addition to the *t*-test performed on each area, all the scores and rates from the five years were documented and then graphed using a bar graph to gain an additional perspective of the results in the data.

English II end-of-course exam scores. English II end-of-course exam scores are presented in a bar chart to show the differences in scores each year from 2011-2012 to 2015-2016. Figure 20 illustrates the number of students who scored advanced, proficient, basic, and below basic for each school year. The data show the first year of implementation had the highest level of advanced students, but that year was still lower than the 2011-2012 school year which was prior to the one-to-one technology program. There was a drop in proficient scores the first year of the program, but each year since showed increases.

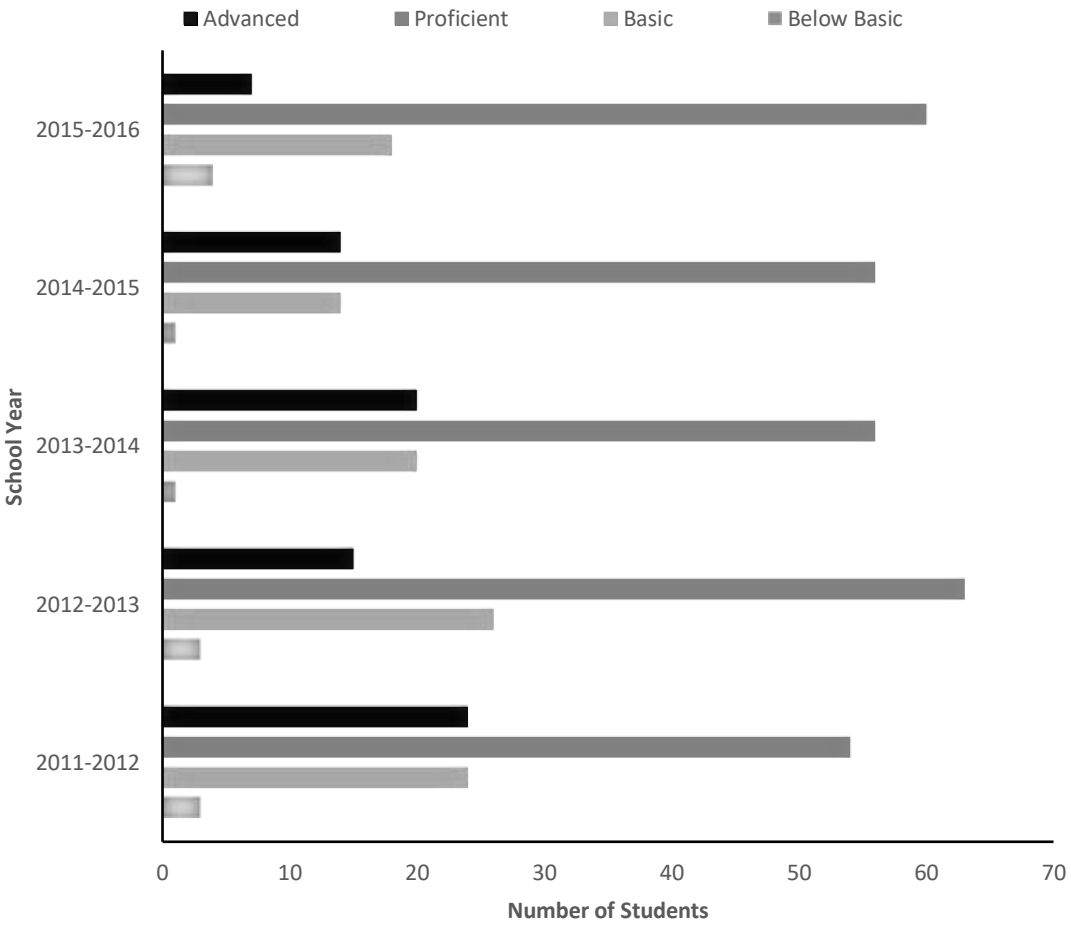

Figure 20. English II end-of-course exam rating 2011-2016.

Figure 21 shows the percentage of students who were proficient or advanced versus those who scored basic or below basic each school year. When advanced and proficient are combined, the students achieving these levels the first two years after implementation showed significant increases until 2015-2016, when scores dropped by 7%.

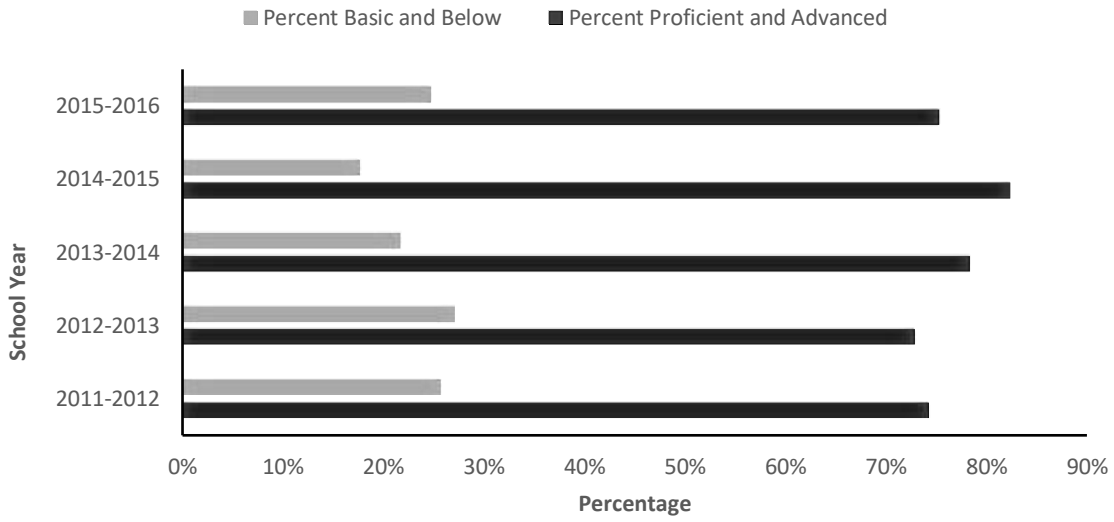

Figure 21. Percentage proficient and advanced versus basic and below basic on English II end-of-course exam 2011-2016.

The first two-tailed independent sampled *t*-test was performed to see if there was a statistical difference in the number of students who received an advanced rating prior to or after the implementation of one-to-one technology in an effort to approve or reject the data. The level of significance was .05. In this case, the critical value was determined as +4.30 and -4.30. The *t* value obtained was .995 and too low to reject the null hypothesis and show a significant difference. The mean prior to the technology program was 19.5 and after 13.7, showing a drop in the number of students achieving the advanced rating.

A second *t*-test was performed on the percentage of students receiving the proficient and advanced rating after the implementation of one-to-one technology to see if the combination of proficient and advanced would constitute a statistical difference. Once again the level of significance used was .05, and the critical values remained at

+4.30 and -4.30. The *t* value obtained was -2.35, once again not enough to reject the null hypothesis and show a difference. However, the mean of this group did increase from .73 to .79, showing a positive increase of 6% in the scores.

Attendance. A two-tailed, independent *t*-test was performed on the attendance percentages over a five-year period, two years prior to the implementation of one-to-one technology and three years after. The two-tailed, independent *t*-test assumed the populations were normally distributed and the level of risk at .05. This test resulted in critical values of +3.18 and -3.18 to reject the null hypothesis and determine a statistical difference. The *t* value obtained from the test was 2.28; therefore, the null hypothesis was not rejected.

Figures 22 and 23 chart the attendance rates pre- and post-one-to-one technology. Figure 22 shows attendance by hours. It is important to note there were fewer hours attended in the school years of 2013-2014 and 2014-2015. The simple fact of fewer hours available could have had an impact on the actual attended hours.

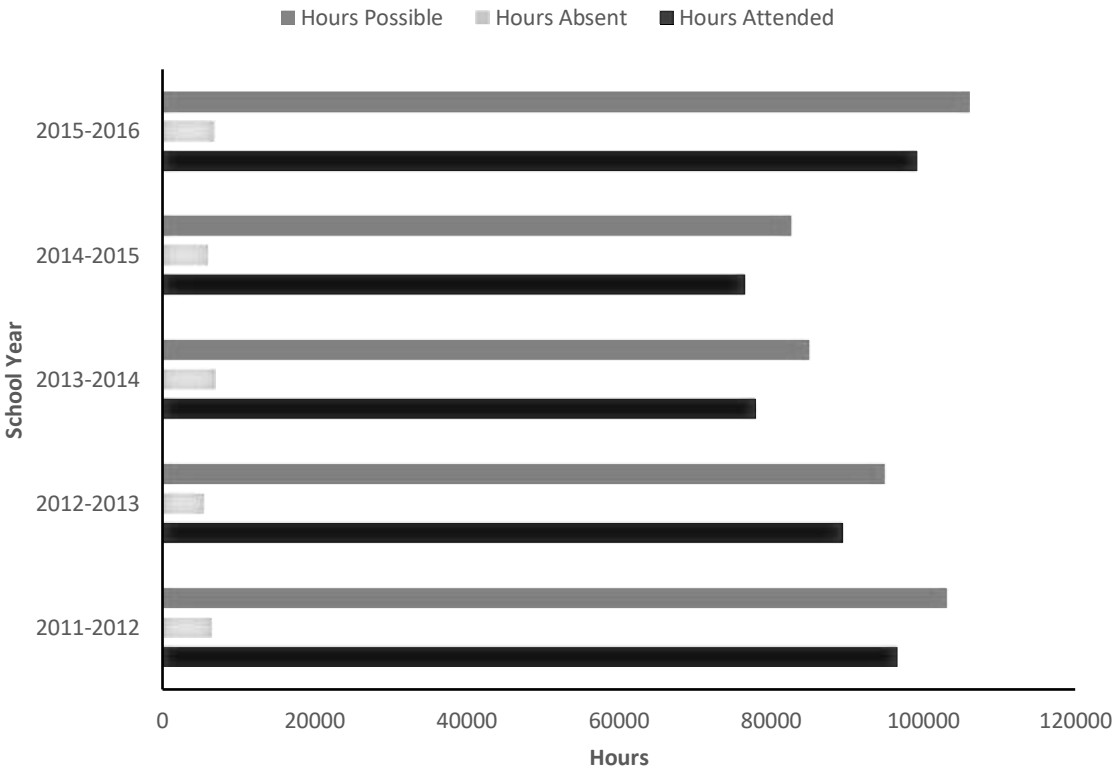

Figure 22. Attendance by hours 2011-2016.

Figure 23 shows the average daily attendance percentage. It is important to note attendance may have dropped the first couple of years after implementation, but significantly rose in year three of the implementation. Even though there were some differences to note in both Figures 22 and 23, the mean prior to implementation was .939 and after was .926, so a minimal change in attendance rates occurred after implementation.

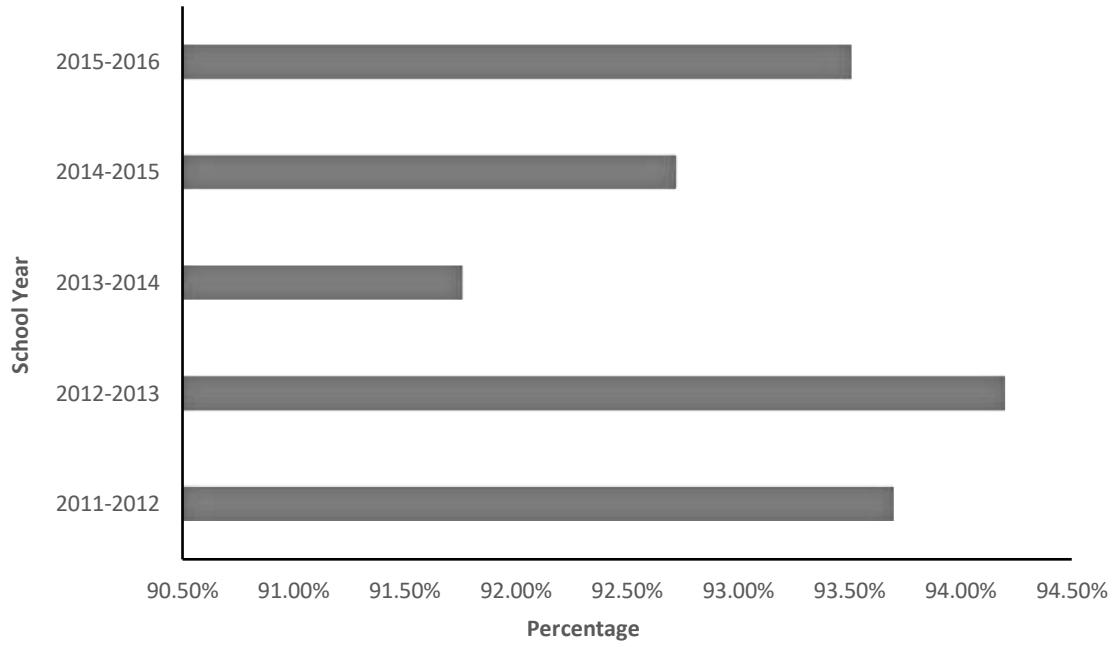

Figure 23. Four-year average attendance percentage 2011-2014.

Graduation rate. To determine if there was a statistical difference in graduation rates after the implementation of one-to-one technology, data were gathered over a five-year period in regard to the school district's graduation rate. Data were charted first by number of students (see Figure 24). After reviewing the graduation rates, it can be noted the graduating classes of 2014 and 2015 were significantly smaller classes in size, and although 2014's graduation rate was low, 2015 showed a significant increase.

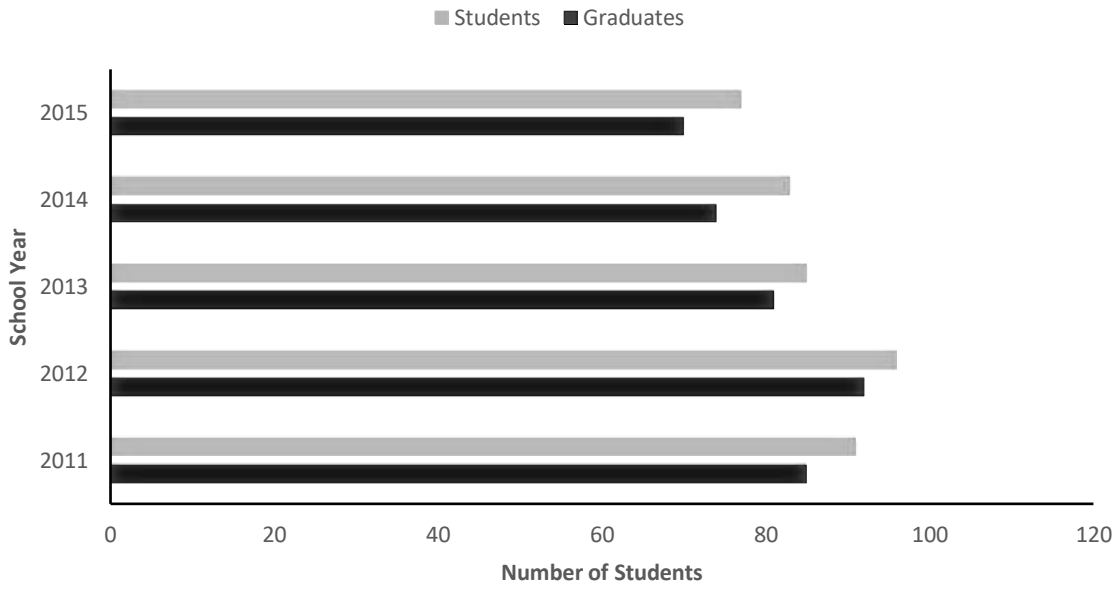

Figure 24. Graduation rate by number of students 2011-2016.

Figure 25 outlines the graduation rate percentage the two years prior to and three years after the implementation of one-to-one technology. The first year after the implementation of one-to-one technology, the graduation rate held steady by being just under the previous year by .54%. However, the graduating class of 2014 did have a steep drop of 6.13% fewer students graduating. Graduation year 2015 showed some recovery in the graduation percentage (see Figure 24).

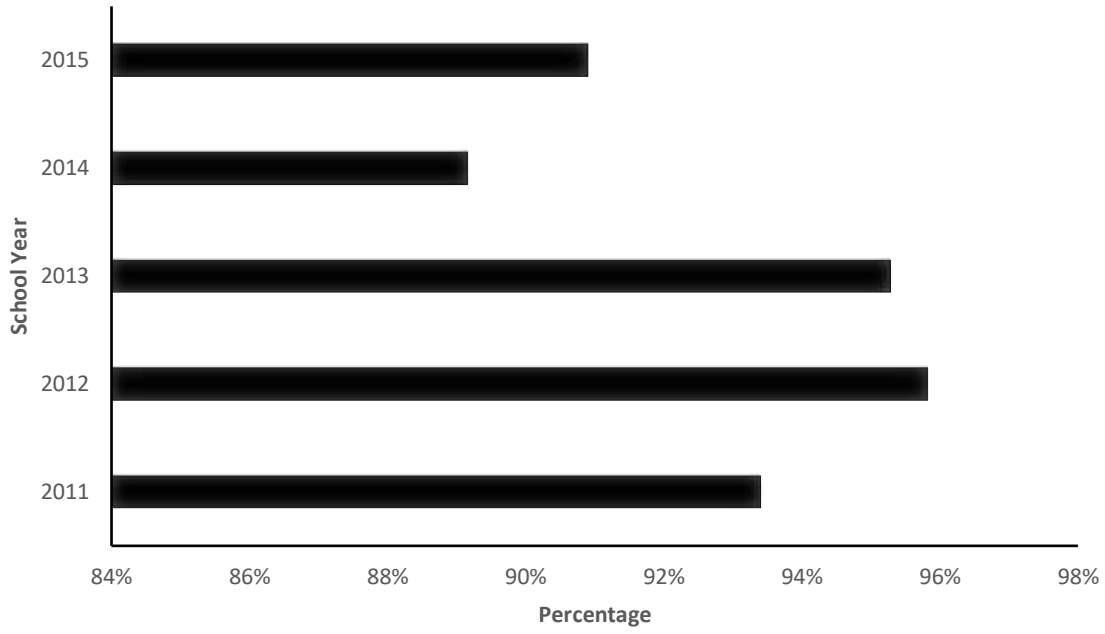

Figure 25. Graduation rate percentage 2011-2016.

After reviewing the graduation rates, a two-tailed, independent *t*-test was performed on the percentage of students who obtained a four-year graduation. The resulting *t* value of this test was 1.29. The critical values of this test were +3.18 and -3.18 to reject the null hypothesis and determine a statistical difference in graduation rate after the additional of one-to-one technology. The result of 1.29 was too low to reject the null hypothesis. The level of risk was once again set at .05. The mean of the group also dropped from 94.62 prior to the start of the program to 91.79 after the project's implementation.

Socioeconomic status. Finally, an independent variable *t*-test was performed on five years of free and reduced price meal percentages for the 12th grade. The level of risk was once again set at .05. Critical values of +4.30 and -4.30 were determined to

reject the null hypothesis and find a statistical difference in socioeconomic status after the implementation of one-to-one technology. The critical value reached for free and reduced price meal percentages was .58, which was too low to reject the null hypothesis and determine a significant statistical difference. However, the mean prior to implementation was 65, and after dropped to 60, showing a 5% drop.

The free and reduced price meal counts and percentages are graphed in Figures 26 and 27. Figure 26 shows the actual counts of those with free and reduced price meals and those without. It is important to note the total number of students decreased after the implementation of one-to-one technology. The senior class of 2013-2014 saw a significant decrease of 23 students receiving free and reduced priced meals over the previous school year. However, those counts rose again in 2014-2015 by 13 students (see Figure 26).

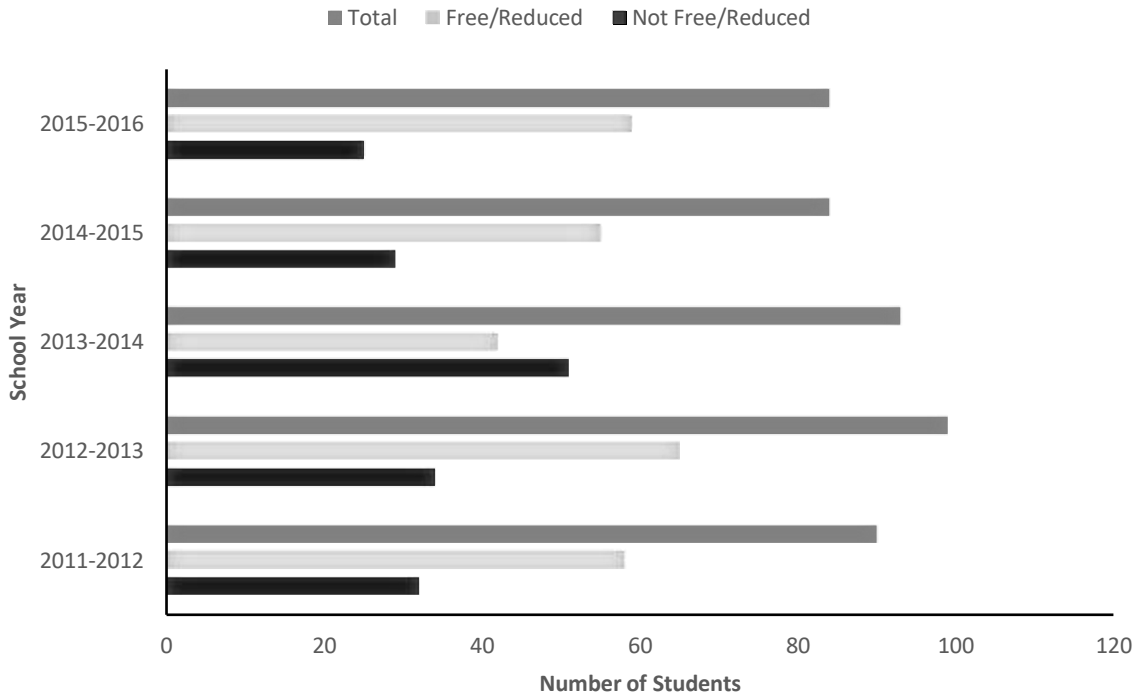

Figure 26. Free and reduced price meal count for the 12th grade 2011-2016.

In looking at the data gathered on the percentages of free and reduced price meal counts prior to and post-implementation of one-to-one technology (see Figure 27), it is important to note the graduating class of 2014 had a significantly lower free and reduced price meal percentage that most likely affected the results. The other four years tracked were all significantly more similar. If 2013-2014 is taken out of the equation, the lowest school year was 2011-2012 with 64%, and the highest was 2015-2016 with 70%. This means only a 6% difference before and after the implementation of the program.

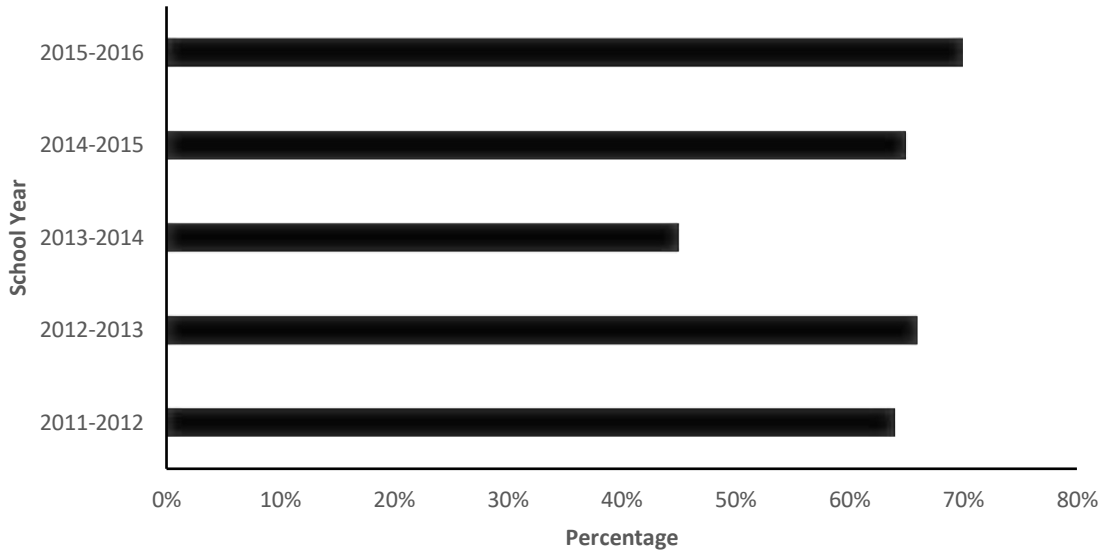

Figure 27. Free and reduced price meal count percentages for the 12th grade 2011-2016.

Summary

This chapter included a presentation of all the data collected for this research. To answer research questions one through three, the researcher sent surveys to high school seniors, the parents of high school senior students, and educators and administrators to gain their perceptions of the effects of one-to-one technology on a school district in a low-socioeconomic area. The views of all three groups were graphed and presented in this chapter. Finally, to answer research question four, data were gathered in the areas of attendance rates, English II end-of-course exam scores, graduation rates, and free and reduced price meal counts. A *t*-test was then run on each area. Each area resulted in not rejecting the null hypothesis, showing there is not a significant statistical difference in scores and percentages after the implementation of one-to-one technology. However, some areas did show differences in the means from before to after.

Chapter Five includes an overview of the study elements, findings, and conclusions. It begins with a review the findings of the study, followed by a presentation of the conclusions. This chapter also includes practical suggestions and answers to any questions raised during the research. Finally, implications are followed by recommendations for future research.

Chapter Five: Summary and Conclusions

According to Ruby Payne (2013), one way people move out of generational poverty is through education. In this study, the researcher investigated whether one-to-one technology has a positive impact on school districts with a high level of low-socioeconomic students. Chapter Five includes of review of the four research questions addressed in this study and provides an overview of the findings and conclusions drawn from the results. The researcher included implications for practice, and suggestions are provided on how one-to-one technology can impact school districts with low-socioeconomic status. Lastly, recommendations for future research are presented.

Findings

Four research questions were examined in this study. The first question was developed to examine the effectiveness of one-to-one technology in a low-socioeconomic school district from the perspective of high school seniors. Seniors were asked seven questions. The responses to the questions gave the researcher insight into how students view the success of a one-to-one technology program. The high school seniors all agreed technology has greatly increased their access to information and expanded their education, but aside from that, the responses varied. Even though only five students responded, the mix of students who responded was helpful. The researcher was able to gain the perspectives of two students planning to attend a four-year degree program, one planning to attend a two-year degree program, and two planning to go straight into the workforce. When this diverse group of students was then asked if the technology has helped prepare them for their post-graduation plans, the answers were split between 40% strongly agreeing and 40% disagreeing.

Next, similar questions were posed to parents of high school seniors. All of the survey questions were geared toward gaining the perceptions of parents on the effectiveness of the one-to-one technology program in the areas of achievement, engagement, access to information, and post-graduation plans. The questions were answered by six parents. Although most of the questions were answered diversely, the majority of parents agreed one-to-one technology does have a positive effect on achievement and engagement. However, it is important to note the majority of the parents were unsure if this program had an impact on their student's attendance. All of the parents were in agreement their student's access to information has definitely increased with the addition of the one-to-one program. Even though the majority of the parents agreed there was an impact on post-graduation plans, 33% of the parents still felt this program had no weight on their student's plans after graduating. In the end, 64% of the parents agreed or strongly agreed their student is receiving a better education because of the one-to-one technology program.

The third survey question was employed to uncover the perspectives of educators in a low-socioeconomic school district on the effectiveness of one-to-one technology. Once again the survey questions focused on eliciting the educators' perceptions on the impact of one-to-one technology in the areas of achievement, engagement, access to information, and post-graduation plans. The research design limited the participants to high school administrators and those teachers who taught English II. In the areas of achievement and engagement, the three respondents were split equally in their decisions from strongly agreeing to agreeing to being undecided.

The comments included the opinion even though laptops might give students access to more information, they do not immediately ensure educational pedagogy is increased as well. When asked about access to information, all educators responded by agreeing or strongly agreeing. Educators believed with access to laptops comes unlimited access to information, but it also brings challenges in keeping students on task and not distracted by email and other websites. Contrary to the parents' viewpoint, the educators all strongly agreed one-to-one technology has an impact on post-graduation plans. The educators' stance in this area was that no matter what a student strives to obtain after high school, technology will be a part of their lives, whether in a job, school, or in their personal lives.

Finally, question four focused on gathering and comparing data prior to and after the implementation of one-to-one technology to see if there was a statistical difference in English II exam scores, attendance rates, graduation rates, and socioeconomic status. When looking at English II exam scores, the percentage of students who were proficient or advanced was 73.5% for the start of the program and 78.6% after. This shows there was an increase in the number of students achieving the advanced or proficient rating. The mean of the attendance percentages changed from .94 prior to .93 after showing a very slight change prior to and after execution of the program. This tends to be in line with the survey results from all survey respondents.

When considering graduation rates, the mean dropped again somewhat significantly from 94.62 to 91.72, showing the researcher the program does not encourage students to stay in school and graduate. Finally, when reviewing socioeconomic status, the researcher examined the free and reduced price meal counts

prior to and post one-to-one technology. When comparing the percentages before and after, the data gathered showed a drop in the mean from 65 to 60, which would be a step in the right direction for the school district and community. The null hypotheses in each area were not rejected as there was not a statistical difference in the data before versus after implementation of one-to-one technology.

Conclusions

When educators were asked how achievement was affected by one-to-one technology, they responded there are many families in the district who would not be able to provide a laptop for their children. This program gave students access to another tool that most students from a low-socioeconomic area would never have. According to Alexander (2014), student achievement can easily be tied to lack of resources. Within the first three years, this school district in southwest Missouri saw the percentage of advanced and proficient English II end-of-course exam scores go up by a little over 5%. Even though Payne (2013) identified poverty is more than the availability of financial resources, she also affirmed education is essential to break the cycle of generational poverty. If students are scoring better on exams, this school district is heading in a positive direction to help break the cycle of low-socioeconomic status by improving their students' education.

There seemed to be mixed results on engagement. In the surveys, parents and educators were split on whether they thought students are more engaged now than they were before the addition of technology, although 60% of the students who answered the survey either agreed or strongly agreed technology has helped them to be more engaged in learning. Some of the educators were concerned with laptops being a distraction in

class. With email and unlimited access to the internet, if teachers are not supervising the classroom effectively, students may be at times more distracted. On the other hand, the laptops offer more access to resources to help engage and interest students who are struggling. Jensen (2013) rationalized if students are excited and engaged to attend school, attendance will increase. When looking at attendance percentages before and after the implementation there was less than 1.5% difference, proving the mixed-to-negative responses from students, parents, and administrators are probably accurate, and one-to-one technology does not really have an impact on attendance.

Students, parents, and educators all overwhelmingly agreed access to information has increased with the addition of technology in the classroom. Educators found not only do students today simply have to Google something to find an answer, they also have current information at their fingertips at all times with access to the internet. In addition to educators noting the increased access, the Missouri School Board Association (MSBA) Future Builders Foundation (n.d.) identified that today students need to know how to access and evaluate information in addition to basic literacy to be successful in the workforce. Sell et al. (2012) concluded the one-to-one technology also improves collaboration. Technology has not only significantly changed education and training; it has become a key tool to increase workforce skill and competencies (Carruth & Carruth, 2013).

According to the U.S. Department of Education (2015), to ensure the economic strength of the country, education is critical. When looking at the data gathered on graduation rates, the rates dropped by 2.84% after the implementation of one-to-one technology. It is important to note, however, that the biggest drop came in 2014 followed

a significant increase once again in 2015. Since people who do not graduate high school are more likely to slip into or never come out of poverty (Schargel & Smink, 2014), it is important to note one-to-one technology by itself may not be having enough of an impact on students to keep them in school to graduate. Even though the graduation rate is not showing a positive impact from this program, it is important to observe all but 20% of educators and 33% of parents agreed or strongly agreed this program better prepares their students for post-graduation plans.

Despite the majority of parents and educators expressing technology will help students with their post-graduation plans, only 40% of students who answered the survey believed that to be true. Corrin et al. (2014) discovered even when students from low-socioeconomic backgrounds are able to graduate, most of them are not prepared for college and are forced into remedial coursework. If one-to-one technology is better preparing those graduating, then it is still a step in the right direction.

On a more positive note, free and reduced price meal counts dropped by an average of 5% after one-to-one technology was put into place. Greer and Levin (2015) expressed that to break the cycle of poverty, it is best to invest in children. As the educators surveyed in this study expressed, most of the low-income families in the district would not have been able to afford the technology now being offered students.

Implications for Practice

In the Midwest, 6.4 million children come from low-income households (Jiang et al., 2015). Due to the increased dependence on technology in the workforce, school districts that offer one-to-one technology are taking steps to narrow the achievement gap by better preparing students for their future (Doykos et al., 2015). The study showed

mixed results on the impact of one-to-one technology. The greatest impacts shown during this study were English II end-of-course exam scores increasing by a little over 5% and free and reduced price meal counts decreasing by approximately 5%.

Student engagement was evaluated through the perspectives of students, parents, and educators. The survey showed varied results when participants were asked if students are more engaged. Parents and educators had mixed results, but the majority of students who responded felt they were more engaged with technology; therefore, the researcher was unable to prove the success of technology on engagement. Carver (2016) revealed teachers view one-to-one devices as a way to engage students, but Jensen (2013) was critical of teachers and put the burden of engaging students on the shoulders of teachers. Simply giving students access to laptops will not engage them; teachers whose classrooms are boring or irrelevant will still not motivate students, even with unlimited resources (Jensen, 2013). According to the research gathered, most students were not more engaged, as attendance rates were barely impacted and graduation rates dropped by 2.84%. To decrease dropout rates, students need to feel a connection to the school, and that connection begins with good attendance (Edwards, 2013). It will be necessary in the future to examine teacher effectiveness with the addition of technology to truly gauge the full impact of the program.

Due to the results of this study the researcher recommends school districts focus on professional development that will educate teachers on how to ensure they are engaging students through teaching and not relying solely on the device to engage the students. The device needs to simply be a tool to assist teachers in the engagement of the students. Districts also need to research ways to monitor student active on the devices to

help limit distractions in the classroom. According to Jensen (2013) engaging the students is the first step to increasing attendance and test scores as engaged students are more excited to learn and participate.

Recommendations for Future Research

Education is a key factor to move from poverty to middle class (Barrow & Rouse, 2006). Silvernail et al. (2014) identified, "High School seniors from low-income families are, on average, four years behind their higher-income peers" (p. 2). The researcher recommends comparing several districts within southwest Missouri with approximately the same socioeconomic makeup to evaluate the effectiveness of one-to-one technology on students from school districts with a high population of low-socioeconomic households. It is also recommended to increase the number of participants in the surveys. With limited responses to the surveys, it was difficult to gain good insight on the perspectives of students, parents, educators. These steps will expand the research and allow researchers to get a clearer understanding of the effectiveness of one-to-one technology programs.

Alexander (2014) acknowledged, "Poverty has a direct impact on academic achievement. This is likely due to the availability of fewer resources available for student success" (p. 4). The students in this study have only had access to one-to-one technology for three years or fewer. Grundmeyer (2013) found unless technology programs are well-timed and planned, there is potential to see a decline in scores soon after a big change in education. For future research it is recommended researchers expand the study to include additional years after implementation. The results would then show if there is a greater statistical difference in those students who have had access

to the additional technology for a longer period of time. It is important to note if educated parents are less likely to raise children in poverty (Jiang et al., 2015), it may take time to change the socioeconomic status of a community.

Since this study revealed that engagement is not positively affected by one-to-one technology, the researcher also recommends focusing future studies on what educators can do to increase engagement. The study could be expanded by interviewing students to uncover what engages them. Interviewing parents and successful educators would also be valuable to the study. Expanding the engagement research to include both districts with and without one-to-one technology could be beneficial as well.

Summary

Education is oftentimes envisioned as the great equalizer (Coley & Baker, 2013). Unfortunately, children from lower incomes tend to have lower attendance, struggle with test scores, and are less likely to graduate (Coley & Baker, 2013). This dissertation focused on the impact of a one-to-one technology program on students in a school with a high level of low-socioeconomic-status students. The study focused on the areas of achievement, engagement, access to information, and post-graduation plans. The perspectives of students, parents, and educators from a rural school district in southwest Missouri were examined. Data were gathered on English II end-of-course exams, attendance percentages, graduation rates, and socioeconomic status (free and reduced price meal counts) to see if there was a statistical difference before and after the implementation of one-to-one technology.

Research was reviewed in Chapter Two through the conceptual framework of Ruby Payne's (2013) characteristics for generational poverty. The literature reviewed

focused on socioeconomic status, free and reduced price meal counts, one-to-one technology, student engagement, access to information, graduation rate, standardized test scores, and attendance. The research gathered showed these areas are all affected by poverty, and the achievement gap between poor and non-poor students is significant (Coley & Baker, 2013). School districts need to first have an understanding of a child's experiences and how those affect his or her learning process to be most effective in helping students exit poverty (Payne, 2013).

Chapter Three included the methodology of the study. It outlined the research questions and hypotheses that guided the study. The population consisted of high school seniors from a rural school district in southwest Missouri in which 73% of the student enrollment qualifies for free and reduced price meals; parents of high school seniors and educators from this district were also part of the sample. This school district just completed their third year of a one-to-one technology initiative. The students, parents, and educators were surveyed on their perspectives of the one-to-one technology. Then English II end-of-course exams scores, attendance rates, graduation rates, and free and reduced price meal counts were gathered over a five-year period to see if there was a statistical difference in the data from before to after the implementation of one-to-one technology.

The data were presented in Chapter Four and Chapter Five along with findings and conclusions, as well as implications for practice and recommendations for future research. Chapter Four included graphs of all results from the surveys. Overall, the surveys resulted in widespread results. All the survey respondents, including students,

parents, and educators, agreed there was limited impact on attendance but a great impact on access to information.

Next, the data gathered were presented. The results of the *t*-tests performed on the data gathered were also presented. The null hypothesis was not rejected for English II end-of-course exams, attendance rates, graduation rates, and socioeconomic status (free and reduced priced meal count), as there was not a statistical difference in each area. However, the data revealed a positive step for the district in the areas of English II end-of-course exams and socioeconomic status. The test scores increased, and the free and reduced price meal counts were lowered. However, graduation rates dropped and there was only slightly over a 1% increase in attendance rates.

From the study, the researcher concluded one-to-one technology has had a positive impact in two of the four areas. Although the positive impacts show a step in the right direction for the district, the changes were still minimal. It is also recommended after this study to examine the scores from districts with a longer history of one-to-one technology to see if the impact is greater further into the program. The researcher agreed with Grundmeyer (2013). He found in his research there is potential for productivity to drop at the beginning of a one-to-one technology initiative, so it is important to make sure implementations are well-timed and training is in place to make the transitions smooth (Grundmeyer, 2013). This low-socioeconomic district in rural southwest Missouri showed success in two of the four areas in the first three years and should be proud of the success already gained through the initiative.

Appendix A

LINDENWOOD

LINDENWOOD UNIVERSITY ST. CHARLES, MISSOURI

DATE:	June 20, 2016
TO:	Ryan Persinger
FROM:	Lindenwood University Institutional Review Board
STUDY TITLE:	[915145-1] The Effects of One-to-One Technology on Students in Schools with a High Population of Students from Low-Socioeconomic Households
IRB REFERENCE #:	
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
APPROVAL DATE:	JUNE 20, 2016
EXPIRATION DATE:	JUNE 20, 2017
REVIEW TYPE:	

Thank you for your submission of New Project materials for this research project. Lindenwood University Institutional Review Board has APPROVED WITH CONDITIONS your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

THE FOLLOWING CONDITION APPLIES:

IT IS THE UNDERSTANDING OF LU IRB THAT NO ONE UNDER THE AGE OF 18 WILL ACTIVELY PARTICIPATE. THE ONLY CONTRIBUTION BY THOSE UNDER AGE 17 MAY BE IN THE FORM OF SECONDARY DATA, ONLY.

STATEMENT FROM THE APPLICATION: "All high school students selected to receive the invitation to participate will be over the age of 18."

This submission has received EXPEDITED REVIEW based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to the IRB.

This project has been determined to be a project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the completion/amendment form for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of

JUNE 20, 2017 .

Please note that all research records must be retained for a minimum of three years.

If you have any questions, please contact Sherrie Wisdom at (636) 949-4478 or swisdom@lindenwood.edu. Please include your study title and reference number in all correspondence with this office.

If you have any questions, please send them to IRB@lindenwood.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Lindenwood University Institutional Review Board's records.

Appendix B

Letter of Permission

April 4, 2016

Title
Address

Re: Permission to obtain and use [redacted] senior class emails and parent contact information in order to conduct a Research Study on One-to-One Technology

Dear [redacted],

I am writing to request permission to obtain [redacted] graduation class of 2017 student email addresses and parent contact information. I am currently enrolled at Lindenwood University in St. Charles, MO, and am in the process of writing my dissertation for a doctoral degree in Educational Administration. The study is titled, *The Effects of One-to-One Technology on Students in Schools with a High Population of Students from Low-Socioeconomic Households.*

The purpose of this study is to evaluate the effectiveness of one-to-one technology in combating poverty. This study will use data obtained from a rural southwest Missouri school district with a high population of low-socioeconomic families. Data obtained will focus on graduation rates, End-of-Course scores, and attendance. Free and reduced price meal percentages will be used in evaluating low socioeconomic status in the district. The data and scores will be compared to pre- and post-implementation of one-to-one technology and will review the success of one-to-one technology. Quantitative data will be gathered and reviewed to view the perspectives of high school seniors, parents, and educators on the impact that the program has on the district. This study will investigate the effectiveness of a one-to-one technology program on improving achievement, attendance, and graduation rate in regard to low-income students.

The seniors of the [redacted] high school graduating class of 2017, as well as their parents, educators, and principals working with these students, will be identified and surveyed electronically regarding attitudes about the one-to-one program at [redacted]. Results will be collected electronically, and all participants will remain anonymous. A descriptive approach will be used to investigate how technology motivates students and parents to improve education in a school district with a high level of free and reduced price meal count.

If approval is given, high school seniors, parents, and [redacted] educators and principals will be contacted via email after contact information is collected from [redacted]

[redacted]. The students, parents, and principals will be informed of the research, and a survey link will be attached to the email. Through the link, the participants will agree to participate in the research and will answer the survey questions. No one will be forced to participate. The survey will be anonymous. No cost will be incurred. Participants will be asked about their views regarding one-to-one technology and its effectiveness.

Approval to conduct this study will be greatly appreciated. Please do not hesitate to contact me with any questions or concerns about participation at [redacted].

You may also contact Dr. Shelly Fransen at [redacted] or [redacted]. A copy of this letter and your written consent should be retained by you for future reference.

Thanks you for your consideration.

Ryan Persinger
Doctoral Candidate

Permission Letter

I, [redacted], grant permission for Ryan Persinger to obtain email addresses from [redacted] high school senior students, parents, teachers, and administrators in order to study the perceptions of the effectiveness of the one-to-one technology program. By signing this permission form, I understand that the following safeguards are in place to protect the participants:

1. I may withdraw my consent at any time without penalty.

2. The identity of the participants will remain confidential and anonymous in the dissertation or any future publications of this study.

I have read the information above, and any questions that I have posed have been answered to my satisfaction. Permission, as explained, is granted.

_____ _____

Superintendent [redacted] Date

Appendix C

Introduction Email

As a doctoral candidate at Lindenwood University, I am extending an invitation to you to participate in a study.

I am conducting a research study titled, *The Effects of One-to-One Technology on Students in Schools with a High Population of Students from Low-Socioeconomic Households,* in partial fulfillment of the requirements for a doctoral degree in Educational Administration at Lindenwood University. The research should assist in providing insight on the perspectives of students, parents, teachers, and principals of high school seniors participating in a one-to-one technology program.

Participation in this survey is voluntary. The survey will only take 10 minutes to complete. Participants may withdraw their consent at any time without penalty. The identity of the school district and participants will remain confidential and anonymous in the dissertation or any future publication of this study.

If you are interested in participating in this study, please see the attached informed consent. Once reviewing the consent, click on the link below giving your consent to participate. The link will take you to the survey. The survey consists of six questions about your perceptions of the effectiveness of the one-to-one technology program. Please do not hesitate to contact me with any questions or concerns about participating in the research (email: [redacted]). You may also contact the dissertation advisor for this research study, Dr. Shelly Fransen (email: sfransen@lindenwood.edu). A copy of this letter should be retained for future reference.

Ryan Persinger
Doctoral Candidate

Appendix D

LINDENWOOD

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES

"The Effects of One-to-One Technology on Students in One School District with a High Population of Students from Low-Socioeconomic Households"

Principal Investigator: Ryan Persinger

Telephone: [redacted] E-mail: [redacted]

Participant_____Contact info _____

1. You are invited to participate in a research study conducted by Ryan Persinger under the guidance of Dr. Shelly Fransen. The purpose of this research is to examine the effectiveness of one-to-one technology programs on students from low socioeconomic areas.

All high school students selected to receive the invitation to participate will be over the age of 18.

a) Your participation will involve completing the electronic survey (Survey Monkey) regarding your perceptions of the effectiveness of one-to-one technology programs. Once the survey is submitted, no other participation will be required.

b) The amount of time involved in your participation will be approximately 10 minutes, and you will receive no compensation for your time.

2. Approximately 75 people will be involved in this research.

3. There are no anticipated risks associated with this research. However, please be aware the anonymity of the participants in this study could be threatened due to the small sample of administrators and teachers. Even though pseudonyms and data codes have been utilized, the possibility exists responses could be linked to a participant when the sample size is small.

4. There are no direct benefits for you participating in this study. However, your participation will contribute to knowledge about the impact of one-to-one technology on student attendance, achievement, and persistence to graduation.

5. Your participation is voluntary, and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any questions you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.

6. We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication or presentation that may result from this study, and the information collected will remain in the possession of the investigator in a safe location. Survey Monkey will collect all survey data and only present the group results. Please be aware the anonymity of the participants in this study could be threatened due to the small sample of administrators and teachers. Even though pseudonyms and data codes have been utilized, the possibility exists responses could be linked to a participant when the sample size is small.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Ryan Persinger, at [redacted], or the Supervising Faculty, Dr. Shelly Fransen, at [redacted]. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Marilyn Abbott, Provost, at mabbott@lindenwood.edu or 636-949-4912.

I have read this consent form and have been given the opportunity to ask questions. I may retain copy of this consent form for my records. I consent to my participation in the research described above by completing the survey.

Appendix E

Survey Questions

Teachers/Administrators

1. Has the one-to-one technology provided by your current school district positively affected the students' education?

Strongly Agree Agree Undecided Disagree Strongly Disagree

2. In your opinion, in what ways has the one-to-one technology provided by your current school district positively or negatively affected the students' education?

3. Do you feel the use of technology in the classroom helps keep students more engaged in learning?

Strongly Agree Agree Undecided Disagree Strongly Disagree

4. In what ways do you feel the use of technology in the classroom has or has not helped students become more engaged in learning?

5. Do you believe access to a laptop increased the students' access to information and expanded their education?

Strongly Agree Agree Undecided Disagree Strongly Disagree

6. In what ways do you feel access to laptops increased or decreased students' access to information and expanded their education?

7. Do you think one-to-one technology will better prepare students for their post-graduation plans?

Strongly Agree Agree Undecided Disagree Strongly Disagree

8. In what ways do you think one-to-one technology has or has not better prepared students for their post-graduation plans?

9. Has the technology provided by your current school district encouraged students to have better attendance at school?

Strongly Agree Agree Undecided Disagree Strongly Disagree

10. Do you think the education students receive at your current school district is better because of the technology?

Strongly Agree Agree Undecided Disagree Strongly Disagree

Appendix F

Survey Questions

Students

1. Has the one-to-one technology provided by your school district positively affected your education?

Strongly Agree Agree Undecided Disagree Strongly Disagree

2. Do you feel the use of technology in the classroom helped keep you more engaged in learning?

Strongly Agree Agree Undecided Disagree Strongly Disagree

3. Do you believe access to a laptop increased your access to information and expanded your education?

Strongly Agree Agree Undecided Disagree Strongly Disagree

4. Do you think the technology-enhanced education provided at your school district will better equip you for your post-graduation plans?

Strongly Agree Agree Undecided Disagree Strongly Disagree

5. Has the technology provided by your school district encouraged you to have better attendance at school?

Strongly Agree Agree Undecided Disagree Strongly Disagree

6. Do you think the education you are receiving at your school district is better because of the technology?

Strongly Agree Agree Undecided Disagree Strongly Disagree

7. Which of the following best describes your post-graduation plans?

Enroll in a four-year degree program Enroll in a two-year degree program

Enroll in a technical school Go straight into the workforce

Appendix G

Survey Questions

Parents

1. Has the one-to-one technology provided by your student's school district positively affected his or her education?

Strongly Agree Agree Undecided Disagree Strongly Disagree

2. Do you feel the use of technology in the classroom helped keep your student more engaged in learning?

Strongly Agree Agree Undecided Disagree Strongly Disagree

3. Do you believe access to a laptop increased your student's access to information and expanded his or her education?

Strongly Agree Agree Undecided Disagree Strongly Disagree

4. Do you think the technology-enhanced education provided at your student's school district will better equip him or her for post-graduation plans?

Strongly Agree Agree Undecided Disagree Strongly Disagree

5. Has the one-to-one technology provided by your student's school district encouraged him or her to have better attendance at school?

Strongly Agree Agree Undecided Disagree Strongly Disagree

6. Do you think the education your student is receiving at his or her school is better because of the one-to-one technology?

Strongly Agree Agree Undecided Disagree Strongly Disagree

Appendix H

Student Survey Results

1. Has the one-to-one technology provided by your school district positively affected your education?
    a. Strongly Agree 20%
    b. Agree 40%
    c. Undecided 40%
    d. Disagree 0%
    e. Strongly Disagree 0%
2. Do you feel the use of technology in the classroom helped keep you more engaged in learning?
    a. Strongly Agree 40%
    b. Agree 20%
    c. Undecided 20%
    d. Disagree 20%
    e. Strongly Disagree 0%
3. Do you believe access to a laptop increased your access to information and expanded your education?
    a. Strongly Agree 100%
    b. Agree 0%
    c. Undecided 0%
    d. Disagree 0%
    e. Strongly Disagree 0%

4. Do you think the technology-enhanced education provided at your school district will better equip you for your post-graduation plans?
    a. Strongly Agree 40%
    b. Agree 0%
    c. Undecided 20%
    d. Disagree 40%
    e. Strongly Disagree 0%
5. Has the technology provided by your school district encouraged you to have better attendance at school?
    a. Strongly Agree 40%
    b. Agree 20%
    c. Undecided 20%
    d. Disagree 20%
    e. Strongly Disagree 20%
6. Do you think the education you are receiving at your school district is better because of the technology?
    a. Strongly Agree 40%
    b. Agree 0%
    c. Undecided 20%
    d. Disagree 20%
    e. Strongly Disagree 20%

7. Which of the following best describes your post-graduation plans?

    a. Enroll in a four-year degree program 40%

    b. Enroll in a two-year degree program 20%

    c. Enroll in a technical school 0%

    d. Go straight into the workforce 40%

Appendix I

Parent Survey Results

1. Has the one-to-one technology provided by your student's school district positively affected his or her education?
    a. Strongly Agree 33%
    b. Agree 17%
    c. Undecided 17%
    d. Disagree 33%
    e. Strongly Disagree 0%
2. Do you feel the use of technology in the classroom helped keep your student more engaged in learning?
    a. Strongly Agree 33%
    b. Agree 17%
    c. Undecided 17%
    d. Disagree 33%
    e. Strongly Disagree 0%
3. Do you believe access to a laptop increased your student's access to information and expanded his or her education?
    a. Strongly Agree 33%
    b. Agree 67%
    c. Undecided 0%
    d. Disagree 0%
    e. Strongly Disagree 0%

4. Do you think the technology-enhanced education provided at your student's school district will better equip him or her for post-graduation plans?
    a. Strongly Agree 17%
    b. Agree 50%
    c. Undecided 0%
    d. Disagree 33%
    e. Strongly Disagree 0%
5. Has the one-to-one technology provided by your student's school district encouraged him or her to have better attendance at school?
    a. Strongly Agree 0%
    b. Agree 17%
    c. Undecided 50%
    d. Disagree 33%
    e. Strongly Disagree 0%
6. Do you think the education your student is receiving at his or her school is better because of the one-to-one technology?
    a. Strongly Agree 33%
    b. Agree 33%
    c. Undecided 0%
    d. Disagree 17%
    e. Strongly Disagree 17%

Appendix J

Educator Survey Results

1. Has the one-to-one technology provided by your current school district positively affected the students' education?
    a. Strongly Agree 33.3%
    b. Agree 33.3%
    c. Undecided 33.3%
    d. Disagree 0%
    e. Strongly Disagree 0%
2. In your opinion, in what ways has the one-to-one technology provided by your current school district positively or negatively affected the students' education?
    - The technology has provided broader access to content, but I am not convinced that education has improved due to pedagogy.
    - 1:1 has provided students from low-income families the opportunity to experience technology that would not have been possible if the school district had not provided them with a laptop.
    - It has increased the flexibility to reach each student's individual interests and needs while still covering the expected state standards.
3. Do you feel the use of technology in the classroom has helped keep students more engaged in learning?
    a. Strongly Agree 33.3%
    b. Agree 0%
    c. Undecided 33.3%

d. Disagree 33.3%

e. Strongly Disagree 0%

4. In what ways do you feel the use of technology in the classroom has or has not helped students become more engaged in learning?

- It is difficult to tell if students are more engaged in the learning or more distracted by the other elements present on the device.
- Laptops have given students the availability to surf the web, send other students emails, etc. during classroom instruction. It is extremely hard for teachers to monitor students' laptop usage while teaching and actually places one more task for them to do. As an administrator, I have not seen a decrease in classroom disruptive behavior due to 1:1.
- Students have a tendency to become engaged when they enjoy the content they are learning. Flexible lesson plans and project-based instructional methods draw the student to become invested in a topic of interest.

5. Do you believe access to a laptop has increased students' access to information and expanded their education?

a. Strongly Agree 66.7%

b. Agree 33.3%

c. Undecided 0%

d. Disagree 0%

e. Strongly Disagree 0%

6. In what ways do you feel access to laptops has increased or decreased students' access to information and expanded their education?

- Instead of textbooks, students have access to any source that is always current and up-to-date.
- With 1:1, students can now "Google It" when they need information which expands their DOK.
- The wealth of knowledge available online is much more vast than in a traditional library alone.

7. Do you think one-to-one technology will better prepare students for their post-graduation plans?

a.	Strongly Agree	100%
b.	Agree	0%
c.	Undecided	0%
d.	Disagree	0%
e.	Strongly Disagree	0%

8. In what ways do you think one-to-one technology has or has not better prepared students for their post-graduation plans?

- Regardless of the post-graduation plan, computers (and the Internet) are ubiquitous. Whether students learn how to do research, critically analyze a website's credibility, or simply use the device, this initiative has given our students a leg up in this area.
- Whether going to college, military, or straight into the workforce, students will use computers. I know for a fact that my own two boys are more technologically advanced in the many uses of computers due to 1:1. Their

knowledge of how to research, prepare, and present information to others has been enhanced due to 1:1.

- We live in a digital age where responsibly being able to navigate the internet is quickly becoming a part of everyday life and thus most job opportunities.

9. Has the technology provided by your current school district encouraged students to have better attendance at school?

a.	Strongly Agree	0%
b.	Agree	0%
c.	Undecided	33.3%
d.	Disagree	66.7%
e.	Strongly Disagree	0%

10. Do you think the education students receive at your current school district is better because of the technology?

a.	Strongly Agree	33.3%
b.	Agree	33.3%
c.	Undecided	33.3%
d.	Disagree	0%
e.	Strongly Disagree	0%

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Vita

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