ELEMENARY SCHOOL PARENTS' OPINIONS TOWARD EDUCATIONAL TECHNOLOGY AND ITS ROLE IN THEIR CHILDREN'S EDUCATION

A DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS FOR THE DEGREE DOCTOR OF PHILOSOPHY

BY

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Acknowledgements

To earn a doctorate degree is indeed a privilege and an honor for which, even at the end of this journey, I still feel somewhat unworthy. For a student that ended up in college only by way of an athletic scholarship, I have come to love higher education and the opportunities it has afforded me. I did not set out to be a “professional student”, but I have spent nearly all the years since earning my bachelor’s degree enrolled in one of several graduate programs culminating in a PhD at Ball State University. Had I known the effort required to research and write a doctoral dissertation, I may not have applied for admission to the program. However, now that it is finished, I am certainly glad I did. I was recently reminded that a doctorate is a terminal degree and I should probably consider ending my graduate studies upon the successful defense of this dissertation and subsequent graduation. The change will be an adjustment for me. Since I never took time off from my full-time job as a public school administrator during the program, I have to consider what I will do with all the time on my hands not having to study or write papers. I have a strong feeling my family may have something to say about that.

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It is my hope that this humble effort to add to the body of knowledge regarding educational technology and parental opinions at least in some way helps those who are interested in the topic and school administrators who may be considering how to better serve their students.
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Chapter I: Introduction

In recent years, integration of technology in K-12 education systems has been increasing exponentially. With their interactive whiteboards, tablet systems, iPads, iPods, e-readers, etc., many of today’s classrooms bear little resemblance to the classroom of a decade ago (Bonk, 2009). The shelves in the school library and classroom that previously housed encyclopedias and dictionaries have largely been replaced by computer stations for Internet research. In many instances guest speaker presentations are conducted via teleconferencing, and often, virtual field trips over the Internet take the place of traveling to a remote location. Leigh (2011) reports on the use of iPads with educational applications and digital reading materials by kindergarteners at an elementary school in Maine. Another example is a 1:1 computing initiative that many schools in the nation are either planning or implementing (Jackson, 2012). The explosion in the use of technology is occurring across the grade levels from pre-K through high school.

Commenting on this increase in the use of educational technology, Bonk (2009) says “this is not your parents’ education” (p. 12) as he predicts the prevalence of technology will make it so we might have every recorded lecture and book loaded on our watches. Brown and Cato (2008) add, “Contemporary classrooms are now filled with digital video players, computers and virtual/online instructional modules” (p. vii). Policy reflects this evolution as the United States Department of Education (2010) recognizes that there has been a significant increase in the use of technology to teach our students. The report of the department’s Office of Technology describes technology as “at the core of virtually every aspect of daily lives and work” (p. ix).

Naturally, the effectiveness of technologies will depend not only on their availability but also upon appropriate strategies for their implementation. Grabe and Grabe (2007) say, “It [technology] can help students learn to think and learn to learn. It can provide ways to cope with
today’s information explosion. Most of all, it can help encourage meaningful and effective learning” (p. 22). An assumption of this study then, is that educational technology should be integrated into today’s classroom in the content areas and that students should have an active role in their learning using that technology. Technology such as the Internet provides students with access to more information than ever before and can enhance interaction among students.

Writing in regard to online learning, Horton (2012) points out that students now have the ability to use the Internet as a way to search for information in a vastly superior way to anything before its inception. Google has become a verb. E-books are beginning to outsell their paper counterparts (p. iii). He goes on to say, “Mechanisms for online collaboration have advanced as well. Name a subject and there is a discussion forum, blog, podcast or news feed dedicated to it. Global conversations, enabled by social media, arise spontaneously and carom wildly” (p. iii).

Successful integration also requires the recognition that particular technologies have specific “affordances and constraints” (Koehler & Mishra, 2010, p. 5). In other words, some technologies used in the classroom are good for some educational activities and not good for others. It is important to select the best technologies for the students using them.

Obviously, many decisions have to be made, ranging from effective integration strategies to which hardware and software should be purchased. Weston and Bain (2010) contend that in order to realize the greatest benefits of technologies all members of the learning community, including parents, should be fully engaged as active agents in such decisions. Current scholarship on related parental perspectives is scant. However, studies such as those by Grimm (1998) and Freeman (1999) have found that parents wanted their children to have the advantages of experience with current technologies and of the immediate access to current information that they can provide. They were concerned, though, that their children learn to judge the quality of
information they find. Internet safety and loss of learning time to technical glitches were other hesitations parents expressed in regard to the adoption of technologies. Freeman made the important point that parental attitudes can be detrimental to support for funding for technology in schools.

Although few reports on parental perspectives on technology are to be found, recent trends in both policy and scholarship reflect an increasing emphasis on parental involvement in schools (Amatea, 2009; Hoover-Dempsey, Walker, Sandler, Whetsel, Green Wilkins, and Colsson, 2005; NCLB, 2004). Central to this study is the fact that current scholarship on parental interaction with schools in general suggests there may be important differences in the perspectives of parents from different SES groups (e.g., Lareau, 2003). Not all scholars agree as to the impact that any possible differences may have. Hoover-Dempsey et al. (2005) noted, “Although significant differences among SES groups have been reported…other findings suggest that SES is not routinely related to involvement” (p. 113). Parents’ knowledge, skills, time and energy shape their thinking about parental involvement and what they think may be possible for them to achieve. Of special importance here are additional findings by Hoover-Dempsey et al. that parental opinions related to children’s education influence students’ success in school.

If greater parental involvement such as parent-teacher communication is linked positively to student achievement (Hoover-Dempsey et al., 2005; Smith, 2006), and if research supports the notion that parents’ opinions related to children’s education influence students’ success in school (Hoover-Dempsey, et al., 2005), and if Lareau (2003), is correct that socioeconomic status does have an impact on parents’ opinions, then parents in higher SES families (middle class) may think and respond very differently regarding their children. As schools continue integrating
technology to enhance teaching and to improve their curricula, it is important to understand the range of parental perspectives and the roles that parents are playing in decision-making.

Statement of the Problem

Given the exponential increase in the integration of technology in recent years (Bonk, 2009) and the increased emphasis on parental involvement in education, understanding parental opinions toward the phenomenon is important. Scant research exists regarding elementary school parents’ opinions toward the educational technology in their children’s schools and no studies consider SES. This quantitative study represents an effort to determine whether socioeconomic status plays a role in parental opinions toward educational technology.

Purpose of the Study and Research Questions

The purpose of the study is to determine if there is a difference in elementary school parents’ opinions toward the use of educational technology based on SES. Of a particular interest is to determine the answers to the following two research questions:

1. What are parents’ opinions toward the educational technology in their children’s elementary school?
2. Is there a difference in opinion of the elementary school students’ parents based on socioeconomic status (SES)?

Significance of the Study

A review of the literature shows that parental involvement has an effect on student achievement (Epstein, Sanders, Simon, Salinas, Jansorn, and Voorhis, 2002; Hoover-Dempsey et al. 2005). It has also been shown that SES has an effect on parental involvement (Amatea, 2009; Lareau, 2003). Determining what parents’ opinions are toward the educational technology in their children’s elementary school and if there is a difference in opinion between the elementary
parents with low SES, compared to the elementary parents with high SES is significant because it adds to the current body of literature that does not address those concerns directly.

Stockman and Powers’ (1996) study showed that parents and educators ranked priorities concerning educational technology similarly; Grimm (1998) examined only high school parents’ opinions about Internet use in school, and Vekire (2010) showed some differences in confidence levels in information and communication technologies. However, little research has been done to show how SES affects parental opinions toward the educational technology used in the elementary school classroom. Generated insights about parents’ opinions based on their SES could prove useful in helping all students succeed through better planning of curricula and/or better tailoring the use of technology to students’ learning needs with different SES.

Limitations and Delimitations

This section contains the lists of limitations and delimitations for this study.

Limitations. Limitations for the study include:

- The findings are specific to the school in which the research will be conducted and therefore cannot be generalized to other parents or other schools.

- The responses to the survey questions represent only a snapshot in time as respondents’ opinions can change at any time after the survey was taken.

- As with all surveys, time constraints factored in as a limitation. Researchers were not able to reach all parents in the time window designed for conducting the phone calls.

- Changed phone numbers led to the inability to contact some parents.

- The entirety of the population, (the parents or guardians of all students enrolled in the school) did not respond to the survey.
Since it was a telephone survey, parents and guardians without phones or those unable to be reached within the time frame allotted for the survey phase of the project did not have their opinions considered.

A limitation of the design is that the associations between the variables are left unclear. That is to say, this type of research will not show causes, but only if there are differences in opinion of parents based on SES.

The participants labeled low SES are limited to those parents who self-reported by applying for free or reduced lunch.

**Delimitations.** Delimitations for the study include:

- Survey participants were delimited to only the parents of the students at MES
- It is delimited to examine parents’ opinions toward the educational technology in MES. These opinions were measured with a Likert-type scale designed specifically for the proposed study.
- Only those questions that are approved by a jury panel of experts were included in that instrument for use in the final document.

**Definition of Terms**

For the purpose of this study, these terms are defined as follows:

1. Educational technology: Educational technology includes, but is not limited to, software, hardware, as well as Internet applications, such as wiki's and blogs, and activities (Lowenthal and Wilson, 2010).

2. High SES: Families that do not receive free or reduced lunch as defined by the United States Department of Agriculture for the 2012-2013 school year (Income eligibility guidelines, 2012).
3. Low SES: Families that receive free or reduced lunch as defined by the United States Department of Agriculture for the 2012-2013 school year (Income eligibility guidelines, 2012).

4. Parent: Parent or guardian of MES students.

5. Parental Involvement: The participation of parents in regular, two-way, and meaningful communication involving student academic learning and other school activities including: (a) Assisting their child’s learning; (b) Being actively involved in their child’s education at school; (c) Serving as full partners in their child’s education and being included, as appropriate, in decision-making and on advisory committees to assist in the education of their child; and (d) the carrying out of other activities such as those described in section 1118 of the ESEA Section 9101(32) (NCLB, 2004).

Organization

This dissertation is organized into five chapters. Chapter one, the introduction, provides the background of the study, statement of the problem, purpose of the study and research questions, significance, theoretical framework, limitations and delimitations, definition of terms, and a preview of the study’s organization. Chapter two contains the literature review with sections on Educational Technology, Parental Involvement, and SES as they relate to the study. Chapter three, the methodology chapter, explains the design of the study, selection of participants, instrumentation, procedures, and data analysis. Chapter four reports the results of the study. Reliability and analysis of each question is discussed. Chapter five includes discussion of the results and recommendations for further study. References and Appendices are included.
Chapter II: Review of the Related Literature

To conduct a review of relevant scholarship, various search terms were entered into the EBSCO Host using Academic Search Premier. Search words such as *educational technology, instructional technology, parent opinions, elementary school, computers, and computer-assisted instruction, low income, socioeconomic status, digital divide* yielded only about twenty articles that dealt in some way with parents’ opinions and technology in schools. Very early in the research process it became apparent that the topic of parents’ opinions toward the educational technology and accompanying research questions had been addressed very little and that further study of them might yield beneficial insights. The resulting literature review has been divided into four sections. The first deals with literature regarding changing trends in educational technology, the second with parental opinions toward educational technology, the third with literature about the importance of parental involvement in education, and the fourth section with SES and parental involvement.

Educational Technology Trends

Much has changed in education over the past thirty years in terms of educational technology and technology education. It was during the Reagan Administration that the report *A Nation at Risk* recommended, among many things, that high school graduates should be equipped to (a) understand the computer as an information, computation and communication device (b) use the computer in the study of other basics and for personal and work-related use, and (c) understand the world of computers, electronics, and related technologies (Gardner, 1983). Interestingly, in 2013 it seems that much of that part of the report’s recommendation has come to fruition but perhaps in spite of, not because of, the work of public schools. Change has come slowly in education over the past decades. Due to social networking and other
innovations, the use of technology in the way the report recommends is increasingly the preferred way for students to learn. It may be that one day schools as we know them will not exist. This is not to say that schools will not exist, but with the advent of distance education and other possibilities for students afforded by technology, schools as they are configured now may not exist.

Collins and Halverson (2009) predicted,

If education cannot successfully integrate new technologies into what it means to be a school, then the long identification of schooling with education, developed over the past 150 years, will dissolve into a world where the students with the means and ability will pursue their learning outside the public school. (p. xv)

Although some may argue that traditional face-to-face education is the preferred way to educate our youth, Simonson, Smaldino, Albright, and Zvacek (2009), pointed out that many research studies indicate distance learning can be as effective as face-to-face learning.

Much change has been advocated regarding the way our nation’s students have been educated in recent decades from the call for privatizing education to the call for more technology in our schools. Both have been realized to a great degree as of 2013. One wonders if the educators that read economist Milton Friedman suggest over thirty years ago that parents should be given vouchers and be able to choose which schools their children would attend would believe that is exactly what they would see happening today. He suggested, “That would both give every parent a greater opportunity to choose and at the same time …the public schools would then have to compete both with one another and with the private schools” (Friedman & Friedman, 1980, p. 161).
Also, it was probably hard to imagine three decades ago that technology would be as prevalent as it is today in our schools. In the preface to *Handbook of Technological Pedagogical Content Knowledge*, Brown and Cato (2008) state,

The role of technology and non-tactile information transfer have extended beyond opaque projectors, transparencies, reel-to-reel film, videocassette, typewriters, and recorded albums. Contemporary classrooms are now filled with digital video players, computers and virtual/online instructional modules. (p. vii)

With the many recommendations for change that have occurred since the beginning of the public educational system, several technologies have been advocated as “the answer” to the performance problems in school. Reiser (2001) discussed how over the decades several modes of instructional media were touted as likely to completely change the educational systems. For example, Edison thought that film would make books obsolete. In the 1920’s and 1930’s the audiovisual and instructional radio movement occurred. In the 1950’s instructional television was emerging. And in the 1980’s microcomputers had a major impact on instruction. Reiser pointed out that Papert predicted in 1984 that by 1990 one computer per child would be common in the schools in the United States. Reiser concluded that computers, unlike some of the other instructional media, are in fact changing education. Papert’s predicted revolution had not occurred by the 1990’s, however “data from the second half of the decade indicate a growing presence and perhaps instructional use of computers and the Internet in schools” (Reiser, 2001, p.62). The questions are how will the revolution in educational technology occur and will our educational system be able to change quickly enough to keep up? Weston and Bain (2010), who feared that technology is not fundamentally changing education, stated that technology should lead to schools where teachers and students have cognitive tools that shape and extend human
capabilities. They lamented that computers in schools are used more as “…replacements: books replaced by web pages, paper report cards with student information systems, chalkboards with interactive whiteboards, and filing cabinets with electronic data bases” (p.10).

Addressing both advocates and critics of one-to-one laptop computer initiatives such as the Maine Learning and Technology Initiative, the nation’s first statewide one-to-one initiative, and the Texas Technology Immersion Pilot, Weston and Bain indicated that the evidence suggests these initiatives failed to live up to the expectations of proponents.

The general trajectory of their findings makes it clear that Cuban does not lack support for his naked-truth argument that the results from 1:1 efforts do not match the expectations of their advocates. However, Cuban’s other assertion—innovative teaching as the best source for sustainable and scalable achievement gains—exposes a more disconcerting naked-truth about educational change, innovation, and reform. (p.7)

An example of findings they reviewed were those that reported,

Regarding student achievement … “Technology Immersion had no statistically significant effect on TAKS reading achievement for [eighth graders] or [seventh graders]—however, for [ninth graders], there was a marginally significant and positive sustained effect…” Moreover, they found that “Technology Immersion had a statistically significant effect on TAKS mathematics achievement for [eighth graders] and [seventh graders]. For [ninth graders], the sustaining effect of immersion on TAKS mathematics scores was positive but not by a statistically significant margin”. (p. 7)

Because they believed “…we should reasonably expect to see educational practices that have been transformed” (p. 12), Weston and Bain (2010) went on to suggest that in order to realize the benefits of computers as cognitive tools, at least the following six components should
be included. The first is that the students, teachers, school leaders and parents must have an explicit set of rules that defines the communities’ beliefs about learning. Secondly, these rules are systematically used to embed the big ideas, values, aspirations, and commitments in the day-to-day actions and processes in the school. Thirdly, all members of the community are fully engaged as active agents rather than consumers and providers. The fourth component involves opportunities for real-time feedback from all members of the community. The fifth component involves making the school a dynamic, ever-changing, and self-organizing school by using the rules, design, collaboration and feedback to develop a conceptual framework for practice. Lastly, community members should demand a ubiquitous use of technology, as opposed to idiosyncratic and sporadic use as described in the findings of much of the research on one-to-one computing program.

Storz and Hoffman (2013) were more optimistic in terms of technology’s potential to transform education. In their phenomenological study of student and teacher experiences in a one-to-one laptop initiative, they found that project-based assignments increased dramatically, less whole-group and lecture-format instruction took place, and more small-group, individualized, and hands-on instruction occurred. Students and teachers alike agreed that student creativity was enhanced and students were more engaged than before the laptop initiative. However, the study produced “no clear evidence that the resources in developing and implementing this project were yielding outcomes reporting gains in achievement” (p. 15).

In spite of many criticisms of school strategies for implementation K12 education is witnessing an increasingly widespread use of a variety of educational technologies. It may be difficult to disagree with Bonk (2009) when he says, “This is not your parents’ education” (p. 12) as he predicts the prevalence of technology will make it so we might have every recorded lecture
and book loaded on our watches. Indeed, the national educational technology plan for 2010 was entitled *Transforming American education: Learning powered by technology* (United States Department of Education Office of Technology, 2010). This increase in the use of educational technology is further evidenced by the National Center for Education Statistic’s Digest of Education Statistics (2011) shows that ratio of instructional computers with Internet access to students in all public schools more than doubled between 2000 and 2008.

**Parental Opinions toward Educational Technology**

Most of the scholarship dealing with parents’ opinions toward educational technology discovered in this review of literature was written in the 1990’s or early 2000’s. Finding many studies on the topic that took place in recent years proved difficult. Considering the evolution of educational technology over the past few years, it is legitimate to ask whether some of the opinions may have changed in some way in more recent years.

Although not exclusively dedicated to parents’ opinions toward educational technology Stockman and Powers (1996) dealt with the priorities parents, teachers, and a principal placed on educational technology and other aspects of schooling. They found that the use of educational technology rated last in priority among basic instruction, parent involvement, and access to educational technology. A 26-item survey was used to gather the perceptions of 278 parents, 29 teachers, and one principal (the educators for the purpose of the study) in a rural elementary school to determine if the priorities between educators and parents differ for their school. Areas such as curriculum development, parent/school involvement, character education, and use of instructional technology were examined. Twenty-six items fitting into one of these areas were ranked on a Likert-type scale one through five based on the respondent’s view of each item’s priority for the school. In this way, the researchers could compare the educator group to that of
the parents to see if there were significant differences in what the groups perceive as priorities. The results were that there was no significant difference in how parents and educators for the school prioritized. Access to various educational technologies rated as the lowest priority for both parents and educators.

According to Stockman and Powers (1996), “It was important to examine external parental perceptions of internally generated school priorities” (p.4). At the particular elementary school in which their research was conducted, apparently the internally generated priorities correlated very well with those of the students’ parents. It is not at all apparent that this is the case for all elementary schools’ decision makers’ priorities regarding the educational technology being obtained and used. It is logical to assume that parent perceptions regarding the purchase and use of computer hardware and software, and other technologies may have changed in the years since the research was done in one rural elementary school in Wisconsin in 1996. Also, the fact that respondents to the survey rated only four items regarding educational technology shows that a more in-depth study is needed to ascertain more and more specific data regarding these perceptions. Of further concern is the very small sample surveyed. It seems difficult to generalize any of the study’s findings far beyond the school or district involved. However, the survey instrument used by Stockman and Powers served as an inspiration for this study, in which a similar Likert-type scale was used for the purpose of rating the importance of various educational technology items.

Grimm (1998) examined parents’ opinions and expectations regarding Internet use among high school students. Grimm found that parents are impressed by the resources of information on the Internet; they were concerned that the students would have to have better skills evaluating and analyzing the materials on the Internet. The parents doubted that computers
in schools would lead to better academic achievement, but they expected their children to learn the technology skills that would be useful in the future. They expressed concerns about wasting time using technology equipment.

The study focused on a suburban Philadelphia high school and focused on Internet use. The researcher used a combination of closed and open-ended questions to interview five parents of students who attended the school as well as a modified version of the same interview that was accessible to parents worldwide. Thirty-one people completed the online questionnaire from five different continents. Besides the questions to gather background information, questions were designed to understand what parents believed the effects of Internet use would be on their children’s education, what their expectations and concerns were about Internet use, and how schools could prevent these concerns from materializing.

As may be expected, parents believed that increased access to information and immediate access to current information was of great value. However, they also complained that the ease of access might lead to scholarly laziness and procrastination. Some parents liked the idea that the computer information was more interactive than the information in traditional books. One parent mentioned the benefits to teachers as they have easier access to information such as primary documents. Several parents touted the use of email as a great advantage to using the Internet in education as it increased student collaboration and communication. Others mentioned the increased parent-teacher communication email affords.

As much as parents were impressed by what they saw as the positive aspects of Internet use in education, they identified several concerns as well. For example, one respondent remarked regarding the students need for Internet resource evaluation skills,
Children have to be taught how to find [useful] information, and distinguish good (truthful) information from bad (lies and distortions of the truth). They have to be taught to consider the source and distinguish advertising and partial information from whole information. (p. 20)

Grimm saw the bulk of the respondents as “technorealists”, that is to say those who, despite the mass media’s attempt to portray the Internet either as a utopia for information or a place of perversion and pornography, actually have a realistic view of what the Internet can do for our society (p. 28).

Grimm’s study yielded interesting data regarding how high school parents viewed the Internet almost fifteen years ago, but because of the major increase in the amount of information on the Internet, the increased access students have to that information that did not exist a decade and a half ago such as smart phones and e-readers, it is legitimate to ask questions such as the following: Have those opinions changed? Do elementary parents’ opinions differ than those of high school parents? What about other technologies that were not addressed in Grimm’s study? Grimm (1998) recommended further study to understand the impact the Internet is having on education (p. 30). It is evident that a study that addresses parents of elementary students regarding all sorts of educational technologies will add to the body of research.

Freeman (1999) discussed concerns regarding Internet safety such as how students can access pornography on the Internet. She mentioned how parents may have a negative view of technology in the schools as a result of their own negative experience with computer “glitches” affecting credit card balances or poor instruction they received in a televised course, for example. She quoted from an article from her local newspaper entitled “Cruising the Red Light District at the Library: Even Kids Can Uncover Porn on Internet” (p. 45) She said that parents were already
skeptical about the use of the Internet. Because of the parents concerns and the cost of hardware, software, wiring, and networking, parents become resistant to increased education funding for technology in schools.

She outlined three strategies for “selling” parents on technology (p. 46). The first is acknowledging and respecting parents’ apprehensions about the use of technology in their children’s schools. The second is to recommit to the educational goals shared by educators and parents. Articulating how technology can help create “world class” or “globally competitive” schools that produce competent communicators”, “problem solvers or “critical thinkers” can help to sell parents. The third concerns a focus on student achievement. Parents must be kept informed about how technology is helping students to achieve.

Again, Freeman’s article was written over thirteen years ago and offers suggestions for educators based on parents’ opinions at that time. Certainly, some of the concerns and opinions of parents toward educational technology may remain the same, but it is reasonable to question how they may have changed since the article was published. The parents from whom Freeman (1999) gleaned her information regarding opinions toward educational technology in their children’s education, perhaps, were not the digital natives many parents of elementary students are today. Also, in the time that has passed since the article was published, most people have gained much more experience in the use of technology that could have an effect on their opinions toward the technology in elementary schools. The mistrust of computers may not be present today as it was in the late nineties. Some of the suggestions for “selling” parents on technology may remain, but so much has changed in education, technology, and educational technology that an updated study is very much warranted to determine what attitudinal changes have occurred to help educators and policymakers understand these opinions.
Indeed, Kristiansen (1991) demonstrated how attitudes toward technology change over time:

Technological development often creates an impression of change and a need to re-define realities. This has been very clear when studying the use of electronics and microelectronics in society and education…The rapid development in the electronic commodities market has changed the opinions toward these new media. Similarly, the development of computers into a “household size and cost” creates a new understanding and possibly a new set of attitudes towards their potential, power and practicality. (p. 200)

Kristiansen surveyed Norwegian teachers in 1970 and again in 1978 to attempt to understand teachers’ opinions about what he called “new information and communication technologies” or “NICT” (p. 200). He then did a similar study in 1990 that surveyed not only teachers, but students and parents as well to study if teachers, parents and pupils share the same expectations and opinions towards computers, and eventually find some important factors influencing active use of computers in education. Evidence that Kristiansen’s study is dated and new research is necessary is the response to the survey by 81% of teachers that “teachers should know how to use computers in the classroom” and that only 61% would welcome one in the classroom (p. 202).

In answer to the main question of his study, “Do teachers, parents and pupils share the same expectations and opinions toward computers?” (p. 203), Kristiansen concluded,

When compared to students and parents, teachers have, in general, differing views on knowledge, are less motivated and enthusiastic concerning own use of computers, and
seem to underestimate the actuality and necessity of using computers in education as compared to parents. (p. 205)

Kristiansen’s study was completed in Norway. While there may be similarities in Norwegian and American parents’ opinions, and the opinions may or may not correlate, the assumption cannot be made that they are similar to current parents of students in the Midwestern United States.

Although conducted in the mid 1990’s, research by Davidson and Ritchie (1994) has some relevance to this project. Their quantitative study sought to find how opinions of parents, teachers, and students toward computers affect the integration and use of computer technology in schools and whether these opinions changed with the introduction of computer technology. Implications of involving parents in the planning of curriculum and activities were also considered. A survey involving 470 students, 34 teachers, and 230 parents was given in an attempt to ascertain answers to two research questions: How do opinions toward computers affect the integration and use of computer technology in schools? And do these opinions change or remain constant after the implementation of technology into the classroom? Results indicated that among parents, opinions were generally positive and that they believed that the emphasis on computer use at the school was at the appropriate level. The researchers concluded that one “implication of study may be that serious consideration of the notion of school community involvement must be given when planning for the integration of computers (or any innovation) in schools” (p. 170). However, SES was not investigated as a factor in Davidson and Ritchie’s study.

A more recent study by Wilcox, Dugan, Campbell and Guimond (2006) focused on assistive technology specifically, but supports the case that further study on parent perspectives
on technology in schools needs to be conducted. The authors lament, “However, neither parent perspectives of AT underutilization or families’ experiences with AT have been reported in the literature” (p.1). In addition they state, “It has been suggested that families are unlikely to use [AT] devices when they have little input into their selection” (p. 2).

**Parental Involvement**

Integral to the basis of this study is the notion that parents’ opinions matter because parents’ opinions affect parental involvement. According to the consensus of the literature reviewed for this study, parental involvement correlates with student achievement and SES correlates with parental involvement. Therefore parental opinions toward educational technology are important and may be affected by SES.

The National Elementary and Secondary Act defines parental involvement as:

The participation of parents in regular, two-way, and meaningful communication involving student academic learning and other school activities including: (1) Assisting their child’s learning; (2) Being actively involved in their child’s education at school; (3) Serving as full partners in their child’s education and being included, as appropriate, in decision-making and on advisory committees to assist in the education of their child; and (4) The carrying out of other activities such as those described in section 1118 of the ESEA Section 9101(32). (NCLB, 2004)

Epstein (2011) described six types of parental involvement: (a) Basic obligations of families, (b) Basic obligations of schools, (c) Involvement at school, (d) Involvement in learning activities, (e) Involvement in decision making, governance, and advocacy, and (f) Collaboration and exchanges with community organizations. Hoover-Dempsey and Sandler (1995) show that the more positive parental involvement, the better for the child. Basic obligations of family
means that parents provide for the basic health and safety of their children. Parents build positive home conditions and understand child development through the grade levels. Schools provide and offer workshops for training parents. Basic obligations of schools include communicating with parents about their child’s progress and about school programs. Schools use various types of communication such as memos, phone calls and conferences. Basic obligations of the school would include communications about educational technology and how it is being used in schools.

Involvement at school may mean parents volunteer to help at school or come to support school performances, sports, and other events. Schools can create schedules that allow for more parental participation and find ways of recruiting parent volunteers. Involvement in learning activities at home has to do with parents requesting guidance from teachers so they can assist their children with their schoolwork at home. Schools provide information to parents that helps them be able to assist their children be successful in each grade. They also provide information to help parents assist their children in making decisions about school programs and activities. Involvement in decision-making, governance, and advocacy is a deeper level of parental involvement. It means participating in parent/teacher organizations, Title 1 programs, or other committees on a district or state level. Parents could also be involved in other parent advocacy groups in the community. Schools help by training parent-leaders in decision-making skills and ways to communicate with the parents they represent and by providing information needed by these groups for school improvement activities. It logically follows that a consideration of parents’ opinions toward educational technology may benefit the schools as they make decisions regarding purchase of hardware, software, and Internet use policies.
According to Amatea (2009), a difference exists between the terms parent involvement and family-school collaboration.

At first glance, the term family-school collaboration may be easily confused with the term parent involvement. Yet these terms represent significantly different paradigms about the nature of the family-school relationship. Whereas parent involvement depicts a one-way flow of information between schools and parents, family-school collaboration involves a two-way exchange of information (Christenson & Sheridan 2001). In addition, while parent involvement focuses on parents becoming involved in their children’s education, family-school collaboration focuses on the joint involvement of parents/caregivers and school staff in children’s education. (p.27)

Amatea (2009) discusses three paradigms of family-school relations: the separation paradigm, the remediation paradigm and the paradigm of collaboration. The collaboration paradigm began in the 1980’s based on the work of Brofenbrenner’s ecological systems theory of child development and Vygotsky’s theory of learning and teaching. These theories led educators to believe that the interactions with children at school and their interactions at home are interconnected. They began to believe that they should examine how their interactions with families may affect how families interact with them. Research about how teachers treated low-income families compared to middle-class families showed that there was a difference Amatea, 2009). Lareau (2003) documents how such inequalities permeate the fabric of our culture.

The paradigm of collaboration then promotes shared authority in the success children will have in school. Parents are seen as capable and are partners in solving their children’s problems and contribute to their learning. Students are also included as active participants in family and school interactions. Regular communication takes place between family and school so that
parents and students are seen as important resources. The collaboration paradigm contrasts with the separation and remediation paradigms in that it would have “educators interact with students and their families to identify together those resources that exist in the family and school for taking action to solve children’s problems or to celebrate their learning. The picture of a two-way bridge between home and school best illustrates the collaboration paradigm of family-school relations (Amatea, 2009). The definition of parental involvement given in NCLB: Action Briefs in Chapter One most closely describes the collaboration paradigm as the preferred model the federal government would like to see in our schools.

Research that relates parental involvement to technology includes work by Bauch (1998) that posited, “Parent involvement is considered one of the most powerful means for improving schools and for increasing the satisfaction of parents and the community” (1998, p. 25). Bauch argued that technology can be used to increase communication to produce a high level of school-home interaction. While he did not specifically study the parents’ opinions toward that technology, he found that parental involvement can be increased by its use. Bauch researched how parent involvement was effected by technology applications such as telecommunication between home and school and can eliminate the gaps between school and home thus leading to improved schools. Assuming that parental involvement is indeed key to school success, “The Transparent School Model,” the original plan for using these linkages, can produce a high level of school-home interaction and give positive results in student performance and parent opinions (p.225). Bausch’s assertion that student performance is positively affected by high levels of school-home interaction gives reason to consider how important parent opinions of educational technology may in fact be to the success of its use and that parent perceptions toward educational technology should be considered.
Grant’s (2011) study exploring children’s, parents’, and teachers’ experience of communication between home and school using digital technologies showed that parents welcomed the idea of third spaces created by the digital communication that connected the school and home. However, parents wanted to preserve the boundaries between the two institutions. Part of the purpose of this study was to see if MES parents have similar opinions or if the two SES groups’ opinions differ. A question regarding opinions toward digital communications was included in the survey (Appendix E).

Murphy, King, and Brown (2007) study compared the opinions of students, teachers, and parents toward a program that provided ninth graders with a laptop for school use. Their study used both qualitative and quantitative methods to determine what these opinions were. The researchers found that “parents tended to express positive opinions (above the Likert center point) toward technology and at the same time, were below the mean of self-efficacy for performing basic technology skills” (p. 69). Among the recommendations by the researchers in that study was the following concerning parental support for technology initiatives in schools:

Finally, our last recommendation would be to have optional technology training courses, held at convenient times, for the parents. Parental knowledge of technology would, hopefully, translate into parental support of educational technology in the schools, additionally; parental knowledge would also aid the support that students receive on technology, both in school and at home. (p. 71.)

SES and Parental Involvement

Parents’ life contexts play a role in the level of parental involvement (PI) they have with their children’s education. Hornby and Lafaele (2011) suggested that schools have been going
about trying to improve the parental involvement of those with disadvantages that may result from low economic status or ethnicity in the wrong way,

It does so with an essential bias of white, middle-class values that ignores difference and diversity. It is a rhetoric of PI that benefits, and is committed to a dominant, white, middle-class involvement which, unsurprisingly is precisely the group of parents who are main participators in PI (Batiani 1989). Those largely involved are as defined by teachers, the “good parents” who typically are white, middle-class, married and heterosexual. (p. 41)

They went on to say that the middle-class parents connect well with the middle-class teachers, whereas the working-class parents feel separated from them. Minorities are often less involved because they tend to be less represented, less informed, and have fewer resources such as transportation and childcare. “In comparison, white middle-class parents face no such obstacles in becoming involved at school. They have the resources and power to enable them to continue to seek advantages for their own children”. (p. 41)

Lareau’s (2003) work studying children from different social contexts had this observation regarding the students she observed from lower SES concerning their parents’ interaction with their schools,

Other working-class and poor parents also appeared baffled, intimidated and subdued in the parent-teacher conferences…When working-class and poor parents did try to intervene in their children’s educational experiences, they often felt ineffectual. Billy Yanelli’s mother appeared relaxed and chatty when she interacted with service personnel, such as the person who sold her lottery tickets on Saturday morning. With “the school,
however, she was very apprehensive. She distrusted school personnel. She felt bullied and powerless. (p. 243)

Other research shows that socioeconomic status plays a role in parental involvement but differs as to the impact it actually has,

Although significant differences among SES groups have been reported…other findings suggest that SES is not routinely related to involvement programs…Even in studies reporting variations across SES groups, SES does not generally explain why parents become involved, nor does it explain why parents in similar or identical SES categories often vary substantially in involvement practices or effectiveness. (Hoover-Dempsey et al., 2005, p. 113)

Whatever the life context that affects parental involvement for families in our schools, it is incumbent on schools to address these issues to ensure these families are able to be involved in the education of their children to the greatest possible degree. Scholars have created several models that are designed to show how to increase parental involvement and thus have a positive effect on student achievement. Epstein’s (2002) model indicates the following six steps,

- **Parenting.** Assist families with parenting skills, family support, understanding child and adolescent development, and setting home conditions to support learning at each age and grade level. Assist schools in understanding families’ backgrounds, cultures, and goals for children.

- **Communicating.** Communicate with families about school programs and student progress. Create two-way communication channels between school and home.
• **Volunteering.** Improve recruitment, training, activities, and schedules to involve families as volunteers and as audiences at the school or in other locations. Enable educators to work with volunteers who support students and the school.

• **Learning at Home.** Involve families with their children in academic learning at home, including homework, goal setting, and other curriculum-related activities. Encourage teachers to design homework that enables students to share and discuss interesting tasks.

• **Decision-Making.** Include families as participants in school decisions, governance, and advocacy activities through school councils or improvement teams, committees, and parent organizations.

• **Collaborating with the Community.** Coordinate resources and services for families, students, and the school with community groups, including businesses, agencies, cultural and civic organizations, and colleges or universities. Enable all to contribute service to the community.

Other models exist including Hoover-Dempsey’s et al. (2005) model that indicates five levels of parent involvement divided into two categories (1) Welcoming and Honoring Parents and (2) Connecting Parent Involvement to Increased Student Learning. The five levels are (a) Personal motivation, invitations, and life contexts, (b) Parent involvement forms and Parent mechanisms of involvement, (c) Mediated by child perception of parent mechanisms, (d) Student attributes conducive to achievement, and (e) Student achievement. They review recent work based on their title question and go on to say,

…Research suggests that schools may take steps to enhance parents’ active role construction and sense of efficacy for helping children learn, enact practices that support
school, teacher and student invitations to involvement...Because motivators of involvement are influenced by elements of the social context, school action may enhance parents’ involvement in motivation, school inaction or negative action may diminish motivation for many parents. (p. 123)

Research on parental involvement specifically related to technology includes a Greek study by Vekiri (2010) that dealt with the possible links between student SES, beliefs about information and communication technologies (ICT’s), and out-of-school learning resources. Vekiri found that SES did, in fact, have an effect on parent and student perspectives:

Findings showed that students from all SES family backgrounds tended to have positive views about the value of ICT’s, but students from low SES families expressed lower confidence in their ICT skills. Parents from all SES backgrounds appeared to view equally favorably their children’s engagement with ICT’s, and perceived parental support correlated highly with students; ICT value beliefs. However, students from low SES families appeared to have fewer opportunities to develop ICT competencies, which may explain why they expressed less positive self-efficacy beliefs. (p. 941)

In another study Hollingworth, Mansaray, Allen, & Rose (2011) explored how social class impacts parental engagement with technology and its relation to their children’s schooling and how the harms and risks of technology are experienced, negotiated and managed by parents from different social classes. They concluded that lower SES families did have more difficulty in many cases than higher SES parents in playing a role in their child’s learning with technology

Whatever approach schools want to use to base their efforts to improve parental involvement, it must be kept in mind that in a democratic society that values the education of its citizens and believes that the very democracy depends on it, parental involvement for all students
of all social contexts should be improved (Dewey, 1966). In the age of digital communication parental involvement becomes easier as parents can be communicated with and involved easier now than ever before. Conferences can be held via Skype, websites can be used for streaming video of student presentations, electronic grade books can be viewed by parents in real time, and of course communication via texts and emails is instantaneous. Amatea’s (2009) paradigm of collaboration of family-school relations shows a way to “offer opportunities for both parents and educators to take on active roles in which all parties can bring their knowledge and strengths to improving students’ academic achievement and social and emotional competence” (p. 35).

Considering parents’ opinions and having them actively involved in decisions regarding educational technology could be a way to improve that parental involvement.

Summary

This chapter was a review of the literature and was divided into four sections. The first section illustrated the rapid increase of technology in schools with resulting changes and controversies. The second addressed a somewhat scant body of research findings on parental opinions toward educational technology. The third section presented current scholarship on the importance of parental involvement in education, and the fourth summarized findings on connections between parental involvement and SES. Given the scarcity of recent research on the subject of parents’ opinions toward educational technology, the theory that the amount of parental involvement is a factor in student achievement and that there may be a difference in how SES correlates with parental involvement and opinions about educational technology, this study describing MES parents’ opinions toward educational technology and its role in their children’s education represents a significant contribution to the body of literature on the topic.
Chapter III: Methodology

The purpose of the study is to determine if there is a difference in elementary school parents’ opinions toward the use of educational technology based on socioeconomic status (SES). The methodology is a quantitative study that surveyed parents of the students at Montpelier Elementary School (MES). The two research questions for the study are as follows:

1. What are parents’ opinions toward the educational technology in their children’s elementary school?
2. Is there a difference in opinion between the elementary students’ parents with low SES, compared to the elementary students’ parents with high SES?

This chapter presents the methodology of the study, including its design and a critique of the phone survey method. The participants, the survey instrument, data collection procedures, and the treatment of the data are also set forth.

Study Design

This study is a non-experimental quantitative survey design in which a telephone survey was employed to collect data. The research is considered non-experimental because there was no pretest involved and randomization was not used. According to Trochim, “[Non-experimental research] is probably one of the most common forms of research and, for some research questions -- especially descriptive ones -- is clearly a strong design” (2006). A survey of the parents of the students at MES was used to determine the students' parents' opinions toward educational technology and its role in their children’s education. Survey research is used in order to provide quantitative data regarding trends, opinions, or opinions (Babbie, 1990). Therefore, this strategy was used to conduct the study.
Phone Survey Methodology Critique

Limitations and strengths of this design are as follows:

Limitations. According to Frey (2004) there are five disadvantages to using a phone survey.

- It is easier to hang up than it is to stop a face-to-face conversation.
- The length of a telephone survey must be shorter than a face-to-face survey, so questions tend to be close-ended rather than open-ended.
- Because the interviewer is not physically present, (s)he cannot observe non-verbal cues.
- Answering machines, caller identification, call waiting, etc. all present obstacles to the interviewers call being taken. Callbacks for phone surveys are rare.
- Legitimate telephone surveys are generally viewed negatively by the public’s experience with annoying telemarketing or political propagandizing disguised as phone surveys (p. 1117)

Persaud (2010) identifies some other potential disadvantages to telephone interviews such as the following:

- Real-time answers are required, so they may not be as accurate as if the respondents had more time to complete the survey.
- Good social skills are required to gain respondents’ cooperation and trust ( p.635).

Strengths. Frey (2004) lists the following advantages of telephone surveys:

- Costs to conduct a telephone survey are low.
- Social norms dictate that people answer their phones and that the person calling should be the one to terminate the conversation.
• The time to complete the survey and get results is faster than other survey methods.

• Confidentiality is enhanced because fewer identifiers are known to the interviewer.

• Interviewer characteristic effects are less because the contact is only by voice.

• Telephone surveyors can be monitored easily if the interviews are conducted from a call center.

• Coverage is not a major concern as nearly all families have telephones. (p. 1116)

Persaud (2010) adds that telephone interviewers, like face-to-face interviewers, can more easily clarify confusing questions as compared to mail surveys (p. 635).

The phone survey method of collecting data was selected for the following reasons: (a) the survey consists of only close-ended questions, (b) the survey contains relatively few questions, (c) the research assistants have proven to have the necessary social skills, and (d) the survey will be conducted from a call center so as to have good supervision of the interviewers,

Participants

Participants for this study were the parents of MES students. They were selected for the study because of the convenience of the population. The school is geographically located near the researcher. Also, the school principal and other district administrators are known by the researcher and agreed to allow the survey to be given to the parents of student in the school. Because of the manageable number of the enrollment of the school, parents of all students that attend MES served as the population. Therefore, the population for the study was comprised of one parent of all students at MES. The school currently has an enrollment of 227. The objective then was to survey the entire population, which is one parent from the home of each of the
students. Several parents had more than one child attending the school. Those parents were surveyed only once. Only one parent per child was surveyed. The MES principal provided the parents’ phone numbers. Permission to conduct the phone survey using Blackford County Schools’ facilities was granted by the superintendent (Appendix C) and permission was granted by the principal of MES to survey the parents (Appendix D).

**Instrumentation**

The survey consisted of 13 questions that had answer choices on a five-point Likert-type scale. Respondents selected a rating for each question based on their opinion relating to that question. The survey is located in Appendix D. Part of the pre-survey process was to conduct a jury panel survey to ensure a logical and smooth–flowing order of questions and shed light on the amount of time the interview will take (Burke & Miller, 2001). The jury panel’s feedback helped ensure the face validity of the survey (Gay & Airasian, 2000). Any suggestions for adjustments to the questions were considered and necessary revisions were made to the survey.

The survey contained questions eliciting parents’ opinions regarding the educational technology used in the school such as software, hardware and how it is used in the classroom. The only demographic data needed was free/reduced or paid lunch status, which was provided by the school principal along with names and phone numbers of the parents. The free/reduced or paid lunch data provided the SES data needed for comparison of the two groups.

The 13 questions on the survey solicited responses on a five-point Likert-type scale. Likert scales are commonly used to measure opinion, but it was not presumed that the scale’s categories constitute an interval-level measurement only a rank order or ordinal level of measurement (Jamieson, 2004). Respondents selected a rating for each question based on their opinion relating to that question. For questions one through eight the answer choices were as
follows: (1) Very Unsatisfied, (2) Unsatisfied, (3) No opinion, (4) Satisfied, or (5) Very satisfied. For questions nine through 12 the response choices were (1) Strongly disagree, (2) Disagree, (3) No opinion, (4) Agree, or (5) Strongly agree. The response choices for question 13 were (1) Not involved at all, (2) Slightly involved, (3) No opinion, (4) Involved, or (5) Very involved.

**Data Collection Procedures**

Seven weeks were allotted for the research project to be accomplished. Weeks one and two were used to administer the survey to a jury panel of colleagues to get input from them as to any revisions they may suggest to the survey instrument. Week three was spent making any accepted revisions and sending a pre-letter home to parents indicating that the phone survey was forthcoming. Dillman (2000) indicates that a pre-letter sent to targeted population has been shown to increase the response rate to the telephone survey significantly. These letters (Appendix B) were mailed home and sent home with the weekly teacher newsletter. The survey was conducted during weeks four and five. Three assistants who passed the Collaborative Institutional Training Social & Behavioral Initiative Basic/Refresher Course assisted in giving the phone survey. Analysis of the data took place on week seven.

Four attempts were made to complete the survey as recommended by Tyebjee (1979, p. 72). A log was kept to keep track of the attempts to call the parents and the results of the contact. The survey data were collected between June 17, 2013 and June 26, 2013. Parents were called the first time between the hours of 9:00 a.m. and 5:00 p.m. for the first attempt. If there was no answer or the parent requested, the next attempt was made after 6:00 p.m. If a third or fourth attempt was necessary, they were made after 6:00 p.m. Those conducting the survey read
a script that follows the introductory approach recommended by Burke and Miller (2001) that includes:

1. Introduce yourself,
2. identify the sponsor of your study,
3. give the general topic of the study,
4. relay the confidentiality of the study,
5. explain how the information will be used, and
6. give an estimate of the interview’s length. (2001 p.3)

If an answering machine or voice mail was reached on the first, second, or third attempt, a message was left indicating the researcher would try again. After the fourth attempt, the parent was considered a non-respondent as recommended by Tyebjee (1979, p. 73).

Phone survey data was kept on a spreadsheet that included the results of a maximum of four attempts at administering the survey. Each respondent’s survey responses were recorded and entered on to an Excel spreadsheet so that the individual responses could be easily tabulated for aggregate data.

**Treatment of the Data**

This section describes the analysis of the data collected for this study.

**Purpose of the study and research questions.** The purpose of the study is to determine if there is a difference in elementary school parents’ opinions toward the use of educational technology based on SES. The research questions were as follows:

1. What are elementary parents’ opinions toward the educational technology in their children’s elementary school?
2. Is there a difference in opinion of the elementary school students’ parents based on SES?

Data analysis procedures. To address research question number one, the descriptive statistics are shown as mean of responses by question for each SES group (High SES and Low SES in Table 4.1). To see the differences as asked in research question two, the survey responses for each question from both groups were compared to each other using the multivariate analysis of variance (MANOVA) to determine if there was a significant difference in the responses between the two groups. In order to determine if there was an overall difference in opinions between the two groups, a Wilks’ Lambda test was conducted. Wilks’ Lambda is a test statistic used with MANOVA to test whether there are differences between the means of identified groups of subjects on a combination of dependent variables and is the most commonly used for this purpose with MANOVA testing. These results also appear in Table 4.1.

According to Kraska (2010), advantages of the MANOVA designs are:

* MANOVA procedures control for experiment-wide Type I error rate. If the alpha level is set at .05, there is a 95% chance of not making a Type I error.

* MANOVA decreases the Type II error rate by detecting group differences that appear only through combinations of two or more dependent variables. (p.858)

In this study SES groups were determined by the free/reduced or paid lunch status of the student. If the students paid the full price for their school lunches, they were considered high SES. If they had free/reduced status, they were considered low SES. The MANOVA was run through the general linear model (GLM) command of IBM SPSS Statistics Version 20 software. MANOVA designs are appropriate when multiple dependent variables are included in the analysis. MANOVA was selected because its ability to “evaluate differences in population on
more than one dependent variable across levels of a factor” (Kraska 2010, p. 858). MANOVA tests whether mean differences among groups on a combination of dependent variables are likely to occur by chance. The dependent variables (DV) were the responses to the survey questions while the independent variables were the SES status of the two groups. High SES respondents were labeled as group “1” while low SES respondents will be labeled as group “2.” A significance value is .05 or less indicated there was a significant difference in the responses between the two groups. According to Rosner (2006), if the significance value is .05 or higher, there was not a significant difference between the responses of the two groups which indicates that there was no difference between the two groups’ opinions. The analysis also indicated if SES groups differ significantly for each question on the survey by providing a significance value for each question. For the questions in which it was determined that there was a significant difference in opinion between the two groups, they were be identified and discussed as they relate to SES. The Bonferroni Correction was used to protect against an inflated alpha as demonstrated by Abdi (2007).

Summary

This chapter described the methodology for the quantitative study to describe elementary school parents’ opinions toward the use of educational technology and to determine if there is a difference in parental opinions based on SES. The non-experimental design utilized a phone survey to collect data from parents at MES, selected because of its convenience and geographic location. Survey questions solicited responses on a Likert-type scale. Responses were recorded for each question from both high SES and low SES groups. Research question one was addressed by reporting the means of responses by each groups and the total means to each survey question. To address question two those responses were compared to each other using the
general linear model by way of a multivariate analysis of variance (MANOVA) test to determine if there is a significant difference in the responses between the two groups. The MANOVA was run using IBM SPSS Version 20 software.
Chapter IV: Results of the Study

The purpose of this chapter is to report the results of the study. The survey response rates will be discussed in the first section of this chapter. Next the socioeconomic status (SES) of the respondents will be reported. The reliability of the survey will then be discussed followed by descriptive statistics regarding research question one, and an analysis of the data regarding research question two determining whether or not there is a significant difference in the responses of the SES groups by question and overall.

Survey Response Rates

Montpelier Elementary School (MES) had a total enrollment of 223 students. Their parents were the respondents for the survey. Because some families have multiple children attending the school there were 161 parents. Four attempts were made to contact each family before they were considered a non-respondent. Sixty-seven responses (41.6%) to the survey were obtained.

SES data

Of the 67 respondents, 36 (53.7%) were in the low SES group and 31 (46.3%) were in the high SES group. These percentages mirror total the school population which had 53% low SES and 47% high SES. SES group was determined by placing those students who receive free or reduced lunch in the low SES group and those students who paid full lunch prices in the high SES group.

Reliability

In order to test the internal consistency of the results by determining how the items on the survey relate to each other and to the total test. Because the survey instrument was in the form of a Likert-type scale, Chronbach’s alpha was the approach used to measure reliability (Gay &
Airasian, 2000). Cronbach’s alpha for the 13 survey questions was found to be reliable ($\alpha=.86$). According to Cortina (1993), many studies show an alpha $>.70$ is adequate to show reliability.

**Data Analysis**

Research question one asks the parents’ opinions toward the educational technology in their children’s elementary school. Research question two asks if there a difference in opinion between the elementary students’ parents with low SES compared to the elementary parents with high SES. An analysis of the 13-question survey is reported in this section.

Of the 67 responses to the survey, only question number nine went unanswered by one respondent. All other questions were answered by 100% of respondents. Table 4.1 shows the means of the Likert-type scale responses of high SES and low SES groups along with the standard deviations of both the groups’ responses for each of the 13 questions.

In order to determine if there was an overall difference in opinions between the two groups, a Wilks’ Lambda test was conducted. Wilks’ Lambda is a test statistic used with MANOVA to test whether there are differences between the means of identified groups of subjects on a combination of dependent variables and is the most commonly used for this purpose with MANOVA testing. The overall opinions are different as the Wilks’ Lambda test statistic demonstrated the combined dependent variables, the 13 survey questions were significantly related to the independent variable, SES ($F (13, 52) = 3.903, p = .000$) at $\alpha = .05$.

As a post hoc follow up to identify which of the independent variables are associated with the significant SES MANOVA result, individual univariate ANOVA analyses were conducted in which SES was related to each of the survey questions individually. The univariate results are displayed in Table 4.1 and indicate that SES was significantly related to survey question number two ($F(1,64)=26.48; (p =.000)$ at the $\alpha<.05$). As illustrated in Table 4.1 below,
SES was also significantly related to survey questions three, four, five, six, seven, nine, 10, 11, and 13. The responses to Question one, “How satisfied are you with how the two computer labs are used in your child’s school”; Question eight, “How satisfied are with your opportunity to give input regarding decisions made for the one-to-one computer initiative in your school”; and question 12, “Textbooks should largely be replaced by computers”, were not significantly different by SES group.

Table 4.1 also shows the f value and the significance value for each question. One respondent from the low SES group omitted an answer and this respondent’s data was not included in the univariate analysis, therefore N for all questions is 35 for low SES and 31 for high SES for a total N of 66.
Table 4.1

Means and Tests of Between-Subject Effects

<table>
<thead>
<tr>
<th>Questions</th>
<th>High SES n=(31)</th>
<th>Low SES n=(35)</th>
<th>Mean Total</th>
<th>Low Standard Deviation</th>
<th>High Standard Deviation</th>
<th>Total Standard Deviation</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How satisfied are you with the two computer labs are used in your child's school?</td>
<td>3.90</td>
<td>3.89</td>
<td>3.89</td>
<td>0.932</td>
<td>0.908</td>
<td>0.914</td>
<td>0.006</td>
<td>0.939</td>
</tr>
<tr>
<td>2. How satisfied are you with the use of the Smart boards in your child's classroom?</td>
<td>4.55</td>
<td>3.66</td>
<td>4.08</td>
<td>0.765</td>
<td>0.624</td>
<td>0.829</td>
<td>26.478</td>
<td>0</td>
</tr>
<tr>
<td>3. How satisfied are you with the use of the seven iPads in your child's school?</td>
<td>4.03</td>
<td>3.43</td>
<td>3.71</td>
<td>0.655</td>
<td>0.875</td>
<td>0.818</td>
<td>10.214</td>
<td>0.002</td>
</tr>
<tr>
<td>4. How satisfied are you with the use of the 30 iPod Touches in your child's school?</td>
<td>4.03</td>
<td>3.51</td>
<td>3.76</td>
<td>0.781</td>
<td>0.875</td>
<td>0.86</td>
<td>6.438</td>
<td>0.013</td>
</tr>
<tr>
<td>5. How satisfied are you with the use of the document camera in your child's classroom?</td>
<td>3.87</td>
<td>3.43</td>
<td>3.64</td>
<td>0.778</td>
<td>0.991</td>
<td>0.905</td>
<td>4.114</td>
<td>0.047</td>
</tr>
<tr>
<td>6. How satisfied are you with the way the Internet is used in your child's school?</td>
<td>4.42</td>
<td>3.94</td>
<td>4.17</td>
<td>0.725</td>
<td>0.564</td>
<td>0.692</td>
<td>8.708</td>
<td>0.004</td>
</tr>
<tr>
<td>7. How satisfied are you with the way practice software such as Waterford and Acreity are used in your child's school?</td>
<td>4.03</td>
<td>3.57</td>
<td>3.79</td>
<td>0.917</td>
<td>0.948</td>
<td>0.953</td>
<td>4.023</td>
<td>0.049</td>
</tr>
<tr>
<td>8. How satisfied are you with your opportunity to give input regarding decisions made for the one-to-one computer initiative in your school?</td>
<td>4.03</td>
<td>3.57</td>
<td>3.79</td>
<td>1.17</td>
<td>1.016</td>
<td>1.117</td>
<td>2.882</td>
<td>0.094</td>
</tr>
<tr>
<td>9. All students at Montpelier Elementary should have a laptop computer or tablet device to use in school.</td>
<td>4.19</td>
<td>3.4</td>
<td>3.77</td>
<td>1.168</td>
<td>1.078</td>
<td>1.187</td>
<td>8.155</td>
<td>0.006</td>
</tr>
<tr>
<td>10. Technology has made the communication between our home and Montpelier school satisfactory.</td>
<td>4.16</td>
<td>3.6</td>
<td>3.86</td>
<td>0.881</td>
<td>0.779</td>
<td>0.875</td>
<td>7.433</td>
<td>0.008</td>
</tr>
<tr>
<td>11. Students should be able to submit assignments electronically.</td>
<td>4.16</td>
<td>3.17</td>
<td>3.64</td>
<td>1.248</td>
<td>0.898</td>
<td>1.198</td>
<td>13.36</td>
<td>0.001</td>
</tr>
<tr>
<td>12. Textbooks should largely be replaced by computers.</td>
<td>3.39</td>
<td>2.71</td>
<td>3.03</td>
<td>1.363</td>
<td>1.498</td>
<td>1.457</td>
<td>3.65</td>
<td>0.061</td>
</tr>
<tr>
<td>13. What was your level of involvement in the decision making process for Montpelier School to going to 1 to 1 computers for students?</td>
<td>2.81</td>
<td>2.06</td>
<td>2.41</td>
<td>1.187</td>
<td>1.74</td>
<td>1.509</td>
<td>4.258</td>
<td>0.043</td>
</tr>
</tbody>
</table>

* Significance was determined using Bonferroni’s protected f (.05/13)
Summary

This chapter reported the results of the data collected from the 13-question survey given to the parents of students at MES regarding their opinions toward the educational technology used there. The response rate to the survey was 41\% of the population of the school which was made up of 53\% low SES and 47\% high SES families. Research question one was answered with descriptive statistics of the responses of both SES groups to the 13 questions. Research question two was addressed by comparing the responses of both groups by performing a MANOVA test to determine which questions had significantly different responses by the two SES groups. Chronbach’s alpha (\( \alpha=0.86 \)) found the survey to be reliable. A Wilks’ Lambda test showed that there was an overall significance difference in the opinions between the high SES and low SES groups. Individual univariate ANOVA analyses showed that 10 of the 13 questions indicated significant differences between the two SES groups.
Chapter V Discussion and Recommendations

The purpose of this chapter is to review the purpose and research methods employed in the study and analyze the survey responses of the participants in order answer the research questions. Conclusions drawn from the analysis will be discussed and recommendations for further study will be made at the close of this chapter.

Review of Purpose and Research Methods

As indicated in Chapter One, the purpose of the study is to determine if there is a difference in elementary school parents' opinions toward the use of educational technology based on SES. The methodology is a quantitative study that surveyed parents of the students at Montpelier Elementary School (MES). The two research questions for the study were as follows:

1. What are parents’ opinions toward the educational technology in their children’s elementary school.
2. Is there a difference in opinion between the elementary students’ parents with low SES, compared to the elementary students’ parents with high SES?

This study is a non-experimental quantitative survey design in which a telephone survey was employed to collect data. The research is considered non-experimental because there was no pretest involved and randomization was not used. According to Trochim (2006), “[Non-experimental research] is probably one of the most common forms of research and, for some research questions -- especially descriptive ones -- is clearly a strong design” (p.1). A survey of the parents of the students at MES was used to determine the students' parents' opinions toward educational technology and its role in their children’s education. Survey research is used in
order to provide quantitative data regarding trends, attitudes, or opinions (Babbie, 1990). Therefore, this strategy was used to conduct the study.

The population for the study was comprised of one parent of all students at MES. The school had an enrollment of 227. The objective then was to survey the entire population, which is one parent from the home of each of the students. Several parents had more than one child attending the school. Those parents were surveyed only once. Only one parent per child, the first parent who was contacted by telephone that agreed to complete the survey, was surveyed. The MES principal provided the parents’ phone numbers.

The survey consisted of 13 questions that had answer choices on a five-point Likert-type scale. Respondents selected a rating for each question based on their opinion relating to that question. The survey is included as Appendix E. Part of the pre-survey process was to conduct a jury panel survey to ensure a logical and smooth–flowing order of questions and shed light on the amount of time the interview will take (Burke & Miller, 2001). The jury panel’s feedback helped ensure the face validity of the survey (Gay & Airasian, 2000). Any suggestions for adjustments to the questions were considered and necessary revisions were made to the survey. The survey contained questions eliciting parents’ opinions regarding the educational technology used in the school such as software, hardware and how it is used in the classroom. The only demographic data needed was free/reduced or paid lunch status, which was provided by the school principal along with names and phone numbers of the parents. The free/reduced or paid lunch data provided the SES data needed for comparison of the two groups.

The 13 questions on the survey solicited responses on a five-point Likert-type scale. Likert-type scales are commonly used to measure opinion, but it was not presumed that the scale’s categories constitute an interval-level measurement only a rank order or ordinal level of
measurement (Jamieson, 2004). Respondents selected a rating for each question based on their opinion relating to that question. For questions one through eight the answer choices were: (1) Very Unsatisfied, (2) Unsatisfied, (3) No opinion, (4) Satisfied, or (5) Very satisfied. For questions nine through 12 the response choices were (1) Strongly disagree, (2) Disagree, (3) No opinion, (4) Agree, or (5) Strongly agree. The response choices for question 13 were (1) Not involved at all, (2) Slightly involved, (3) No opinion, (4) Involved, or (5) Very involved.

**Data Collection Procedures**

Seven weeks were allotted for the research project to be accomplished. Weeks one and two were used to administer the survey to a jury panel of colleagues to get input from them as to any revisions they may suggest to the survey instrument. Week three was spent making any accepted revisions and sending a pre-letter home to parents indicating that the phone survey was forthcoming. Dillman (2000) indicates that a pre-letter sent to targeted population has been shown to increase the response rate to the telephone survey significantly. These letters (Appendix B) were mailed home and sent home with the weekly teacher newsletter. The survey was conducted during weeks four and five. Three assistants who passed the Collaborative Institutional Training Social & Behavioral Initiative Basic/Refresher Course assisted in giving the phone survey. Analysis of the data took place on week seven.

Four attempts were made to complete the survey as recommended by Tyebjee (1979, p. 72). A log was kept to keep track of the attempts to call the parents and the results of the contact. The survey was conducted between June 17, 2013 and June 26, 2013. Parents were called the first time between the hours of 9:00 a.m. and 5:00 p.m. for the first attempt. If there was no answer or the parent requested, the next attempt was made after 6:00 p.m.. If a third or
fourth attempt was necessary, they were made after 6:00 p.m. If an answering machine or voice mail was reached on the first, second, or third attempt, a message was left indicating the researcher would try again. After the fourth attempt, the parent was considered a non-respondent as recommended by Tyebjee (1979, p. 73).

Phone survey data was kept on a spreadsheet that included the results of a maximum of four attempts at administering the survey. Each respondent’s survey responses were recorded and entered on to an Excel spreadsheet so that the individual responses could be easily tabulated for aggregate data. The survey responses for each question from both groups (high and low SES) were compared to each other using the multivariate analysis of variance (MANOVA) to determine if there was a significant difference in the responses between the two groups. Again, SES groups were determined by the free/reduced or paid lunch status of the student. If the students paid the full price for their school lunches, they were considered high SES. If they had free/reduced status, they were considered low SES. The MANOVA was run through the general linear model (GLM) command of IBM SPSS Statistics Version 20 software. MANOVA designs are appropriate when multiple dependent variables are included in the analysis. MANOVA was selected because its ability to “evaluate differences in population on more than one dependent variable across levels of a factor” (2010, p.858). MANOVA tests whether mean differences among groups on a combination of dependent variables are likely to occur by chance. The dependent variables (DV) were the responses to the survey questions while the independent variables were the SES status of the two groups. High SES respondents were labeled as group “1” while low SES respondents will be labeled as group “2.” A significance value of .05 or less indicated there was a significant difference in the responses between the two groups. If the significance value is .05 or higher, there was not a significant difference between the responses
of the two groups which indicates that there was no difference between the two groups’ opinions. (Rosner, 2006, p. 234). The analysis also indicated if SES groups differ significantly for each question on the survey by providing a significance value for each question. For the questions in which it was determined that there was a significant difference in opinion between the two groups, they were identified and discussed as they relate to SES. The Bonferroni Correction was used to protect against an inflated alpha as demonstrated by Abni (2007).

**Conclusion and Discussion**

This study is limited in its scope and conclusions. The findings are specific to this study and therefore cannot be generalized beyond the participating parents or to parents in other schools. The responses to the survey questions represent only a snapshot in time as respondents’ opinions can change at any time after the survey was taken. As with all surveys, time constraints factor in as a limitation. Researchers were not able to reach all parents in the time window designed for conducting the phone calls. Changed phone numbers led to the inability to contact some parents. The study was designed to determine if there are significant differences between the groups’ responses, but the associations between the variables are left unclear. The data for this study as represented in Table 4.1 led to the conclusion that there is a difference of opinion of parents regarding the educational technology at MES based on SES based on the results of the MANOVA and post hoc univariate tests. Questions one through five of the survey asked how satisfied parents were with the different types of technology hardware students use in the school. Only question one that asked “How satisfied are you with how the two computer labs are used in your child’s school?” did not have a significantly different response between the two groups. The low SES group had a mean rating of 3.89, while the high SES group had a mean rating of 3.90 on the five point, Likert-type scale. The other four questions regarding the use of Smart
boards, iPads, iPods, and document cameras had the low SES group rating as significantly less satisfied than the high SES group. Could this difference in satisfaction level be explained by a digital divide between the groups?

Kelly (2008) suggests the likelihood that the issue of access to technology will grow in importance as the use of technology in education increases. He sees a possible digital divide based on income, ethnicity, language, or cultural minority status. MES does not have large numbers of minorities or English language learner families, but there is a substantial number of low income families. While this study did not ascertain information regarding the parents’ level of knowledge or proficiency with different technologies, it may be that the higher SES parents had more access to more devices than the low SES parent accounting for them having a more positive opinion toward their use in school. It would seem that if a family owns an iPad and uses it at home, for instance, they may be more positive about the educational use of that device by teachers in their child’s classroom. Perhaps the higher SES parents are more used to using document cameras in their workplace and are therefore more likely to be positive about their use in school. Lareau (2003) discusses this type of disparity in parents’ opinions about school. The disparity in access to technology between high and low SES groups is consistent with a report from the National Center for Education Statistics that shows the digital divide is being addressed by schools but still exists in the home.

The dependence on access in schools for poor and/or children of color is most evident in the data about home use of computers. Only 37% of poverty-level families have computers at home, compared to 88% of families with incomes above $75,000 a year the data are similar when based on the education level of the parent. (Lewis, 2007, p. 71)
Interestingly, question number 12 that asked parents their level of agreement or disagreement with the statement “Textbooks should largely be replaced by computers”, found no significant difference in the responses by the two groups. The low SES group agreed less but the mean for both groups was 3.03 indicating that on average both groups were rather uncommitted as the rating of three meant “no opinion”. Researchers have varying opinions as to the effectiveness of the way educational technology is being used. For example, Weston and Bain (2010) feared that the use of technology was not transforming education by providing teachers with cognitive tools instead of simply by textbooks with electronic reading material. MES parents as whole did not agree or disagree strongly with that question about replacing textbooks with computers. The survey however, does not tell us if this is because they feel they would not be used in a way that would improve instruction as Weston and Bain describe or if they just do not have an opinion.

The high SES group agreed much more strongly than the low SES group on question eleven that stated students should be able to submit assignments electronically. The mean score for the high SES group was 4.16 while the mean for the low SES group was 3.17. This high level of agreement from the high SES group is consistent with Grimm’s (1998) study that found parents expected their children to learn the technology skills that would be useful in the future. This may be even truer today since online banking, bill paying, purchasing, and the like are much more prevalent today than they were at the time of Grimm’s study. This does not explain why the low SES group had a lower level of agreement on the question.

Hollingworth et al. (2011) concluded that lower SES families did have more difficulty in many cases than higher SES families in playing a role in their child’s learning with technology. If this is the case with the case with low SES families of MES, this may explain why they tended
to be less satisfied with its use in their school even though specific questions regarding the parents’ role in learning with the technology were not asked.

Parental involvement was dealt with in questions eight and thirteen. Question eight asked, “How satisfied are you with your opportunity to give input regarding decisions made for the one-to-one computer initiative in your school? Question 13 asked “What was your level of involvement in the decision making process for MES to go to one-to-one computers for students.

There was no significant difference between the two groups for question eight. The combined mean score both groups was 3.79. However, the actual level of involvement was rated as significantly lower by the low SES group as indicated in question 13. This is consistent with what current scholarship tells us regarding SES and parental involvement. Smith (2006) sums it up this way,

Researchers agree that rates of parental involvement are lower in low-income communities that in higher income schools (Abrams & Gibbs, 2002; Epstein, 1995; Lareau, 2000; O’Conner, 2001). Therefore, low-income children, with less involved parents, often experience fewer of the academic benefits than children coming from higher income homes. It follows, then, that children of higher income families are receiving more of the academic and attitudinal benefits of parental involvement than low-income children. (p. 44)

Educational policies addressed the problem of lower parental involvement among low SES groups beginning in the mid-twentieth century and continuing through today as noted by Stitt (2013). She discusses how the Secondary Education Act of 1965 with Title 1 initiated the ideas of involving parents in education. “By targeting children from low socioeconomic or ‘at-risk’ homes and their parents, it was hoped that the achievement gap between lower and middle-
class students would be diminished. Involving parents in their children’s education began to pick up momentum during the Reagan administration and the release of the National Commission on Excellence in Education, A Nation at Risk, in 1983 increased the push for parental involvement in education and that push continued through today’s No Child Left Behind Act which was the drive behind linking parental involvement to standardized test scores (p. 66).

Apparently, parents from both SES groups at MES agree that they had adequate opportunity to be involved in the decision-making process regarding the one-to-one initiative, but lower SES parents did not participate as much as higher SES parents. Perhaps MES could learn from Smith’s (2006) assertion that,

School personnel continue to request parental involvement without taking into account the SES of the family (Lareau, 2000). Policies have been created at the local district level, as well as state and federal levels, which ignore the particular needs of underrepresented groups (Delgado-Gaitan, 1991). Instead of raising academic performance for low-income students, too often parental involvement policies only serve to widen the achievement gap (de Carvalho, 2001) and create barriers between schools and families (Delgado-Gaitan). (p.44)

There is no indication that the low SES group was intentionally left out. On the contrary, question eight indicates that low SES parents were as satisfied as high SES parents with their opportunity to be involved, they just did not become as involved in the process for some reason. It is recommended that school officials investigate to see if this is a consistent phenomenon with other areas involving parental involvement in the school. It may be necessary to reconsider the way involvement is offered to parents. As Stitt (2013) noted,

A growing body of scholarship is showing that for parents who do not quite
fit middle-class norms, specifically parents of single family homes, the working poor, diverse races and ethnic groups, and even families in which English is not the primary language, modifications and adaptations to the current [parental involvement] models need to be considered in order to recognize these families efforts and engagements as parental involvement. (p. 24)

Regarding decision making process of an educational technology plan such as the 1:1 initiative MES parents were asked about on the survey, the International Society for Technology in Education’s regard parents’ input to be an essential condition. They believe in a “Shared Vision Proactive leadership in developing a shared vision for educational technology among all education stakeholders, including teachers and support staff, school and district administrators, teacher educators, students, parents, and the community” (ISTE, 2009).

Cuban (2001) shows in his research that although schools have spent millions on computer hardware and software, schools may not be using the technology to improve student achievement by using them to their fullest potential. He predicts, “…Every student like every worker will eventually have a personal computer. But no fundamental change in teaching practices will occur. I can imagine a time, for example, when all students use portable computers the way they use notebooks today” (p. 196). In spite of Cuban’s pessimism, however, the work of Weston and Bain (2010) and of Wilcox, Dugan, Campbell and Guimond (2006) suggests that involving parents in decisions regarding the adoption of educational technology could possibly enhance its chances of being successfully implemented.

As mentioned in Chapter II, Freeman (1999) outlines three strategies for “selling” parents on technology (p. 46). The first is acknowledging and respecting parents’ apprehensions about the use of technology in their children’s schools. The second is to recommit to the educational
goals shared by educators and parents. Articulating how technology can help create “world class” or “globally competitive” schools that produce competent communicators”, “problem solvers or “critical thinkers” can help to sell parents. The third concerns a focus on student achievement. Parents must be kept informed about how technology is helping students to achieve. While this article was written several years ago, these suggestions for convincing parents may still prove helpful especially to the low SES parents at MES since their opinions were significantly lower that the high SES group overall and on the question involving the use of technology to communicate.

Bauch (1998) posited, “Parent involvement is considered one of the most powerful means for improving schools and for increasing the satisfaction of parents and the community” (1998, p. 25). He argued that technology can be used to increase communication to produce a high level of school-home interaction. While he did not specifically study the parents’ opinions toward that technology, he found that parental involvement can be increased by its use. Bauch researched how parent involvement was effected by technology applications such as telecommunication between home and school and can eliminate the gaps between school and home thus leading to improved schools. Since low SES parents at MES reported less satisfaction regarding the use of educational technology overall and specifically less involvement in the 1:1 initiative (survey question 13), it may be beneficial for MES administration to investigate ways to improve the use of technology to communicate with low SES parents.

SES was not investigated as a factor in Davidson and Ritchie’s (1994) study. The researchers concluded that one “implication of study may be that serious consideration of the notion of school community involvement must be given when planning for the integration of computers (or any innovation) in schools” (p. 170). While MES obviously made the attempt to
involve parents in their decision making process to implement a 1:1 computer program, the survey shows that the low SES group was not as involved as the high SES group. Literature cited in this section suggests it is possible that if they had been more involved in general, their opinions about computers or other technology might be different.

**Implications for Practice**

Based on the findings of this study, there are implications for MES. As Davidson and Ritchie (1994) suggest, serious consideration of the notion of school community involvement must be given when planning for the integration of technology in schools. MES should consider finding ways to involve low SES parents in this planning. Perhaps providing the opportunity (which those parents agreed they had) is not enough. Concerted efforts should be made to include these parents as “full partners in their child’s education and being included, as appropriate, in decision-making and advisory committees to assist in the education of their child…” (NCLB, 2004).

Providing training sessions for students and parents at the time of distribution of the computers could prove helpful in involving all parents. Likewise, opening up the building throughout the year for parents to learn about use the technology available to their children at the school may be a way to secure more involvement. If parents are able to see the benefits of the technology for themselves, they may be more willing to be involved in decision making and supporting its use with their child. This may lead to more of a family-school collaboration paradigm rather than just parent involvement. As Bauch (1998) argued, the very technology we are discussing could help improve communication between the school and parents to increase the level of school-home interaction. This may lead to greater involvement and collaboration
between the school and low SES parents which in turn could lead to more input and ultimately increased satisfaction with the educational technology.

**Recommendation for Further Research**

As with all studies, the limited nature of this study raises many questions. The data as expressed in Table 4.1 tends to indicate that low SES parents are less satisfied with the educational technology used in MES and were less involved in the decision-making process of the school’s one-to-one computer initiative. However, it is recommended that further research be done to better understand elementary school parents’ opinions toward the educational technology and its role in their children’s education.

Recommendations for further research include:

- Conduct similar studies involving larger sample sizes with perhaps multiple schools involved. This may lead to being able to generalizing results further.
- Conduct similar research in different parts of the country to see if Midwestern opinions differ from other regions.
- Expand groups beyond SES. Gender, ethnic background, urban and rural settings, could all be considered as factors that affect parental opinions. This may help determine to what extent digital divides (Kelly, 2008) exist based on one or more of these variables.
- Determine age and relationship of respondents to students. As the study was conducted, it was noted that many students were in the care of grandparents rather than parents. While that information was not taken into account regarding opinions, it may be a factor.
- Ask questions regarding parents’ experience with technology. This experience may have a bearing on their opinions about educational technology at their child’s school.
Further research that includes questions regarding some of these variables might provide more insight into parents’ opinions toward educational technology and its role in their children’s education.
References


share the same expectations and opinions towards computers? *Education and Computing, 7*(3/4), 199-207.


Appendix A

Institutional Review Board

DATE: June 7, 2013
TO: Kevin Bidde, MA
FROM: Ball State University IRB
RE: IRB protocol # 473141-1
TITLE: Elementary School Parent Attitudes Toward Educational Technology and its Role in their Children’s Education
SUBMISSION TYPE: New Project
ACTION: DETERMINATION OF EXEMPT STATUS
DECISION DATE: June 7, 2013

The Institutional Review Board reviewed your protocol on June 7, 2013 and has determined the procedures you have proposed are appropriate for exemption under the federal regulations. As such, there will be no further review of your protocol, and you are cleared to proceed with the procedures outlined in your protocol. As an exempt study, there is no requirement for continuing review. Your protocol will remain on file with the IRB as a matter of record.

Editorial notes:

1. Approved- Exempt

While your project does not require continuing review, it is the responsibility of the P.I. (and, if applicable, faculty supervisor) to inform the IRB if the procedures presented in this protocol are to be modified or if problems related to human research participants arise in connection with this project. Any procedural modifications must be evaluated by the IRB before being implemented, as some modifications may change the review status of this project. Please contact John Mulcahy at (765) 285-5108 or jmulcahy@bsu.edu if you are unsure whether your proposed modification requires review or have any questions. Proposed modifications should be addressed in writing and submitted electronically to the IRB (http://www.bsu.edu/irb) for review. Please reference the above IRB protocol number in any communication to the IRB regarding this project.

Reminder: Even though your study is exempt from the relevant federal regulations of the Common Rule (45 CFR 46, subpart A), you and your research team are not exempt from ethical research practices and should therefore employ all protections for your participants and their data which are appropriate to your project.
March 10, 2013

Kevin J. Biddle

Good Afternoon Mr. Biddle,

I have received your request to conduct a survey regarding parents’ attitudes about the educational technology in our building. You have my permission to conduct this phone survey with our students’ parents. As long as you will not publish names or other identifying information, my secretary will print a list of phone numbers and free/reduced lunch status of our families for you and send it to you via intercampus mail.

Amy Dishman

Principal
Montpelier Elementary School
Appendix C

Mr. Kevin Biddle
6857S-SR3
Warren, IN 46792

May 29, 2013

Dear Mr. Biddle:

You have my permission to use the facilities and phones at Northside School for the purpose of conducting a phone survey in order to complete your research. As superintendent, I fully support assisting our teachers and administrators in their endeavor to acquire additional education.

Sincerely,

Kenneth R. Kline
Superintendent
Blackford County Schools
Appendix D

Montpelier Elementary School
107 E. Monroe Street
Montpelier, IN 47359

Dear Parents:

Mr. Kevin Biddle, principal of Northside Elementary School of Blackford County Schools is conducting research for his doctoral dissertation at Ball State University. The topic he is researching is elementary school parents’ attitudes toward the educational technology in their children’s classroom. He has been given permission by me to give a brief survey to the parents of Montpelier Elementary School parents.

You will likely be receiving a phone call asking you a few short questions regarding your opinions. Neither your name nor your child’s name will be used in any way in his reporting. While this survey will be quick and easy, you are free to choose not to participate.

The results of Mr. Biddle’s survey can provide us with parent feedback that could be helpful to us as we make decisions regarding the educational technology in our school.

Thank you.

Mrs. Amy Dishman
Principal
Appendix E

Hello, My name is _______________ This is a survey for the parents of students at Montpelier Elementary School entitled Elementary School parent Opinions toward Educational Technology and its Role in their Children’s Education. Is this _________________? To be included in this survey, you must be a parent or guardian of a Montpelier Elementary School student and at least 18 years of age. Mr. Kevin Biddle, a doctoral student at Ball State University is the principal investigator for this study. Your responses will be helpful for understanding the opinions Montpelier parents have about how the technology is used to teach your children and your role in the decision making process regarding the one-to-one computer initiative. If you choose to participate we will only take about 5 to 7 minutes of your time to answer 13 brief questions.

This is an anonymous survey. We will not collect any identifiable information for this survey. Your name and your child’s name will not be attached to this survey or used for any purpose in this research study. There are no anticipated risks or benefits to the participants of this survey. The data will be kept in a secure locked filing cabinet for three years, and then destroyed. Your participation is completely voluntary and you are free to withdraw your permission at any time for any reason without penalty or prejudice from the investigator. Please feel free to ask any questions of the investigator before agreeing to participate or at any time during the survey. You can contact Mr. Biddle at kbiddle@bsc.k12.in.us or 765-348-7595. His faculty advisor is Dr. Nancy Brooks at Dept. of Educational Studies, Ball State University, Muncie, IN 47306, or njbrooks@bsu.edu. You can also contact the office of Research and Integrity at Director, Office of Research Integrity, Ball State University, Muncie, IN 47306 or irb@bsu.edu.
Are you a parent or guardian of a student at Montpelier Elementary School age 18 or over? Do you agree to participate in this survey?


1. How satisfied are you with how the two computer labs are used in your child’s school?
   ___1 Very Unsatisfied ___2 Unsatisfied ___3 No Opinion ___4 Satisfied ___5 Very Satisfied.

2. How satisfied are you with the use of the Smart boards in your child’s classroom?
   ___1 Very Unsatisfied ___2 Unsatisfied ___3 No Opinion ___4 Satisfied ___5 Very Satisfied.

3. How satisfied are you with the use of the seven iPads in your child’s school?
   ___1 Very Unsatisfied ___2 Unsatisfied ___3 No Opinion ___4 Satisfied ___5 Very Satisfied.

4. How satisfied are you with the use of the 30 iPod touches in your child’s school?
   ___1 Very Unsatisfied ___2 Unsatisfied ___3 No Opinion ___4 Satisfied ___5 Very Satisfied.

5. How satisfied are you with the use of the document camera in your child’s classroom?
   ___1 Very Unsatisfied ___2 Unsatisfied ___3 No Opinion ___4 Satisfied ___5 Very Satisfied.

6. How satisfied are you with the way the Internet is used in your child’s school?
   ___1 Very Unsatisfied ___2 Unsatisfied ___3 No Opinion ___4 Satisfied ___5 Very Satisfied.
7. How satisfied are you with the way practice software such as Waterford and Acuity are used in your child’s school?

___1 Very Unsatisfied ___2 Unsatisfied ___3 No Opinion ___4 Satisfied ___5 Very Satisfied

8. How satisfied are you with your opportunity to give input regarding decisions made for the one-to-one computer initiative in your school?

___1 Very Unsatisfied ___2 Unsatisfied ___3 No Opinion ___4 Satisfied ___5 Very Satisfied

For the following statements please respond with one of the following answer choices:


9. All students at Montpelier Elementary should have a laptop computer or tablet device to use in school.

___1 Strongly Disagree ___2 Disagree ___3 No Opinion ___4 Agree ___5 Strongly Agree

10. Technology has made the communication between our home and Montpelier school satisfactory.

___1 Strongly Disagree ___2 Disagree ___3 No Opinion ___4 Agree ___5 Strongly Agree

11. Students should be able to submit assignments electronically.

___1 Strongly Disagree ___2 Disagree ___3 No Opinion ___4 Agree ___5 Strongly Agree

12. Textbooks should largely be replaced by computers.
13. What was your level of involvement in the decision making process for Montpelier School to go to 1:1 computers for students?

___1 Not involved at all ___2 Slightly involved ___3 No Opinion ___4 Involved ___5 Very involved