

The Pennsylvania State University

The Graduate School

College of Education

**PROMISING PRACTICES FOR USING TECHNOLOGY
IN PARENT INVOLVEMENT ACTIVITIES IN SCHOOL**

A Dissertation in

Education Leadership

by

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Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Education

May 2009

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ABSTRACT

Parent involvement has been cited as a critical element in a child's education as documented in the No Child Left Behind (NCLB) Act of 2001 and a review of the literature. School districts continue to struggle with strategies for promoting parent involvement programming. The purpose of this study was to explore the role of technology in parental involvement programs. Looking at types of parent involvement, communication and learning at home were chosen as areas of specific interest. The study addressed the following research questions: (a) What, if any, technologies are currently being used to promote and improve parent involvement? and (b) How are these technologies used to improve parent involvement? The research methodology used in this study included a preliminary state-wide survey that collected data on technologies being used in parent involvement programming. Additional data was collected through a case study involving two districts' use of technology in parent involvement. An analysis of in-depth interviews and a review of district websites were the primary methods of investigation. Results indicate a number of available technologies including district websites, e-mail, mobile phones, calling systems, handheld technologies, and video streaming and their uses. Furthermore, an overview of points for consideration is offered to administrators considering the use of technology with communication and learning at home.

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ACKNOWLEDGEMENTS

I would like to thank everyone who has provided encouragement and support during my graduate studies; from my school district and their willingness to be flexible with my schedule to the proof readers that spent many hours reviewing the text. I would especially like to thank my committee for their insight and support. Dr. Tippeconnic your patience, guidance, encouragement, and leadership throughout my graduate research have helped me immeasurably. Dr. Prestine your instruction and willingness to listen and advise helped me to get my thoughts organized and get off to a good start. Dr. Blume your feedback and willingness to be involved was greatly appreciated. Dr. Begley, thank you for instilling the desire to dig a little deeper. In addition, I would also like to thank those individuals and school districts that participated in this research.

I would like to honor the memory of my grandmother, Fay Karlie and grandfather, James McCartney who I know are both smiling from heaven with pride. You each have been a driving force throughout my graduate education and sources of inspiration.

I want to thank my mother and father for the hard work and sacrifices made to ensure that my options in life were plentiful and for their continual support and encouragement.

I want to thank my daughters Kaylee and Emily for their patience while I spent countless hours in the loft working toward this degree. I love each of you with all of my heart. I hope I will have instilled in you the value of education.

Finally, throughout my graduate education, side jobs, pursuit of hobbies, setbacks, and successes, my wife Terri has been at my side as my loving partner. You have my unending love, devotion, appreciation, and admiration for your support and encouragement. I know the sacrifice you have made for me. I love you.

Chapter 1

INTRODUCTION TO THE PROBLEM

In an era of school improvement stemming from the No Child Left Behind (NCLB) Act of 2001 and Goals 2000: Educate America Act, many factors are leading educators to develop stronger relationships with parents. The inception of school choice has put pressure on public schools to sell themselves to parents, increasing the importance for improved communication. Since entering the 21st-century, the world has seen a “flattening” described by Thomas Friedman (2006) in his book *The World is Flat*. This flattening emphasizes the increased ability to communicate not only nationally but globally through the use of fiber optics, the Internet, and a variety of other technologies. This ability to communicate has increased exponentially over the past 10 years and has opened the door for emerging technologies that promote and allow for increased communication. While the world’s ability to communicate has increased substantially, a void still exists in the ability of schools to communicate with parents and the community (Halsey, 2005). Considering the current ability to communicate globally, one would think it would be much easier to communicate within one’s school district; however, statistics have shown that communication is one of the leading barriers in promoting parent involvement within schools (Epstein, 2001).

The importance of parent involvement in a child’s education has been seen as critical, dating back to The Elementary and Secondary Education Act (ESEA) of 1965 and continuing through President Bush’s proposal for reauthorization of NCLB. The role of parent involvement takes on numerous forms in literature; however, NCLB’s Parental Involvement Guidance: Title I, Part A (U.S. Department of Education, 2004) found the need for a formal definition which includes regular, two-way, and meaningful communication involving student academic learning

and other school activities. Because parents play an integral role in their child's education, they should be included as full partners in the decision-making within the district.

Though the definitions of parent involvement, family involvement, parental participation, and school- family partnerships may all be used interchangeably, different districts and families have varied perceptions of such terms. Arguably, each component of a parent involvement program may represent varied degrees of importance; however, effective parent involvement programs require communication. Epstein (2001) stated:

Teachers' practices to involve families are as or more important than family background variables such as race or ethnicity, social class, marital status or mother's work status for determining whether and how parents become involved in their children's education. (p. 45)

If such practices are critical to parent involvement, the manner in which teachers and schools communicate these practices also warrants attention. Technology offers a means for new and improved communication opportunities between parents and teachers, therefore having the potential for improving current parent involvement programs. Technology also provides opportunities for learning at home that supplement traditional means. For the purpose of this study, the author has focused on using technology in parent involvement programming, specifically, looking at areas involving communication and learning at home.

Statement of the Problem and Research Questions

While research overwhelmingly has shown that children are more successful when their parents are involved in their learning (Carey, Lewis, & Farris, 1998; Epstein, 1995, 2001; Kinnaman, 2002; Kyle, McIntyre, Miller, & Moore, 2002; Patrikakou, Weissberg, Redding, & Walberg, 2005; U.S. Department of Education, 2002), parents can become involved in various

ways, including those mentioned above and also through a variety of means by which school districts encourage involvement. NCLB's Desktop Reference (Paige, Hickok, & Neuman, 2002) asserted "the more intensively parents are involved in their children's learning, the more beneficial the achievement effects" (p. 141).

The purpose of this study was to explore the role of technology in parental involvement programs. Specifically, the study addressed the following research questions:

1. What, if any, technologies are currently being used to promote and improve parent involvement?
2. How are these technologies used to improve parent involvement?

Technologies were defined as including, but not limited to computers; handheld devices, such as PDAs, or Play Stations and iPods; cell phones; the Internet; websites; computer software; voice messaging software; videos; online lesson plans; online grades; blogs; and blackboards were investigated in an effort to identify current trends. Such technologies' abilities to improve communication and parental participation were also investigated. For example, computers may be used in various ways to promote communication between the school and homes. As a communication tool, computers allow parents a means of gaining information such as student grades, assignments, and upcoming events. Computers may also be used as learning tools for both parents and students to aid in student learning. Through the use of software, parents and students may work toward improving areas of student deficit (i.e., mathematics, reading, science, etc.). Handheld devices have also grown in availability over the last few years; technologies such as Palm pilots, iPod's, cell phones and personal play stations are now widely available at affordable prices. In combination with the computer, these devices take on many forms including learning tools and communication devices. The Internet has also provided a means for

school districts to utilize various technologies to communicate with parents and to offer interactive opportunities for student learning.

Specific attention was also focused on the intended use of these technologies in parent involvement programming. Parents' involvement in their child's education has become a critical element over the past 30 years (Epstein, 2001; Patrikakou et al., 2005; U.S. Department of Education, 2004). The term "parent involvement" or "parent participation" has various definitions, including parents' participation in student learning activities outside the school day (i.e., homework, projects, specific programs that focus on parental involvement, and any other learning activity that contributes to the child's education), parent involvement in school programs (i.e., P.T.A., parent teacher conferences, etc.), and participation within the classroom to aid in student learning. For the purpose of this study, parent involvement included, but was not limited to, all of the aforementioned elements.

Because parents spend such a large portion of time, in comparison to teachers, with their children, it is important that they contribute to their children's education. Positive parent involvement has the potential to improve student achievement (Baker & Soden, 1997). Children with involved parents tend to have greater success along their learning pathway, in comparison to children without the same parental involvement (Henderson & Berla, 1994). Educators are held responsible for establishing communication between the school and home and also for providing parents with tools to aid in the education of their child. Because parent involvement has proven to be a valuable part of a child's education, one would think that all parents would contribute the valuable time needed to be involved in this process. However, school districts face difficulty getting many parents involved in their child's education ("Be strategic to boost family involvement," 2003; Halsey, 2005; White-Clark & Decker, 1996). Many contributing

factors reduce parent involvement, including single-parent structures/settings, families' work schedules, and neglect. A parent's socioeconomic status may also have a bearing on parent involvement. Trends show that parents tend to be highly involved as their children enter kindergarten, but then involvement begins to lessen as children move up the educational ladder (Eccles & Harold, 1993; Izzo, Weissberg, Kaspro, & Fendrich, 1999). Although membership in organizations such as PTA show signs of increased participation, membership in school associations only encompasses 16% (Rotolo, 1999, p. 209). Parent conferences at the middle school and high school levels are often nonexistent, while the limited number that does occur often revolves around discipline issues.

Due to the importance of parent involvement, a challenge exists that leaves many educators searching for methods to increase involvement. Although many tactics exist for promoting parent involvement, technology offers various means for communicating with parents and provides opportunities for parents and students to engage in learning activities beyond the school day. With the increasing availability of personal computers, gaming devices, PDAs, iPods, and a vast array of computer software, school districts have many tools available that can be used creatively to bolster parent involvement. Being familiar with the availability of various technologies and the roles they play in improving communication between schools and homes is important for educators. The World Wide Web has been identified as a world flattener (Friedman, 2006), allowing an easy means of communication throughout the world. School websites provide educators with a tool for communicating a variety of information to parents, including student assignments, grades, upcoming events, and other performance indicators. Technologies can also be used to empower parents to become involved in their child's education. While some school districts may choose to offer sessions for parents on developmental reading

with their child, others may choose to video or audiotape such sessions and make them available as podcasts through their school website. The availability of technologies due to an expanding market and price reductions has opened the door for both educators and parents to implement new devices as communication and learning tools. The increased availability of such tools has also created a challenge for educators, because keeping up with the new developments in technology is a never-ending business. As educators often strive to keep up with new technologies, they attempt to determine how these technologies might be properly used or they struggle to find time to comprehend and implement them. Research on such technologies and their effectiveness with respect to parent involvement are very limited and suggest a need for additional research (Bauch, 1998; Blanchard, 1998). Being familiar with the opportunities that technologies have to offer is often considered as important as the technology itself is. Because these technologies are continuously changing, this study focused on the opportunities that technology currently has to offer in the process of improving parent involvement.

Finally, the study describes factors that guide administrators in selecting technologies to improve parent involvement. Federally funded Title I programs require administrators to implement programs that involve parents in a variety of ways. Information that guides administrators in this area is limited, especially where technology is concerned. Such information should prove beneficial in an era when school budgets are being cut, faculty and staff are being downsized, and accountability continues to grow. As administrators consider all facets of parent involvement and school improvement, the ever-present data-driven, decision-making process will surely come into play. Again, technology provides a means for collecting, storing, and analyzing data; having an overview of available technologies along with their uses may serve administrators as a guide in the decision-making process.

Conceptual Framework

The purpose of this study was to explore the role technology can play in parental involvement. The study was exploratory in nature, seeking to gather information on what technologies were being used throughout the state and how those technologies were being used in parent involvement programs (Stake, 1995). In building a conceptual framework, Miles and Huberman (1994a) suggest specifying the key factors or variables to be studied as well as the structure of relationships involved. The limited research in the area of technology's effect on parent involvement caused the researcher to develop a conceptual framework based on three sources: Epstein's (2001) model of overlapping spheres of influence and types of parent involvement; Miles and Huberman's (1994a) concepts of "bins" within a conceptual framework; and Dewey's (1985) conception of "community," which requires that members hold one or more goals in common and that each acts on achieving those goals.

A variety of new technologies in conjunction with a number of previous technologies offer novel opportunities for educators in the area of parent involvement with the main functions serving as communication devices or educational tools. Because both parents and teachers share common goals, it is important that they communicate and use the tools available to them to achieve these goals. As districts strive for parent involvement, technology may offer a variety of opportunities. Exploring various technologies available to parents and teachers allowed the researcher to make conjectures that may be useful to administrators. While Epstein (2001) suggests six types of parent involvement, the scope of this research was limited to communicating and learning at home, the areas that suggest the strongest ties among parent involvement and technology.

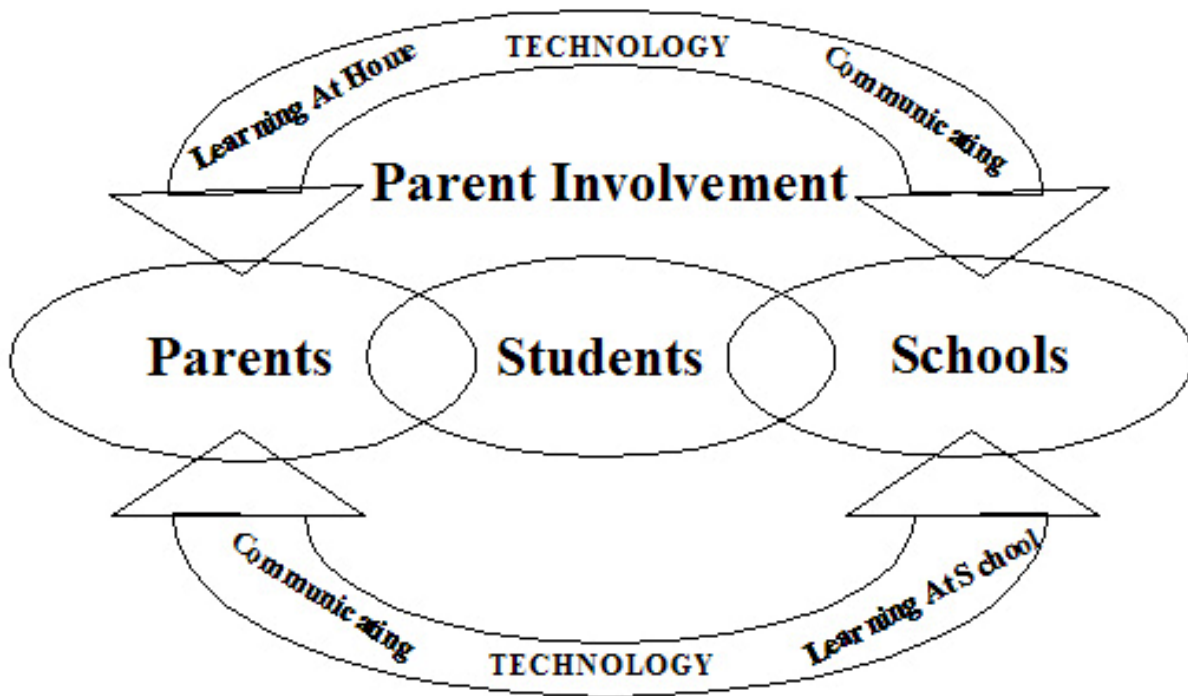


Figure 1. Model for Conceptual Framework demonstrating the student relationship between parents and schools and technology's connection in the process of parent involvement.

Miles and Huberman's concept of “bins” and Dewey’s concepts of “community” and “common goals” were also used to frame the study. Research has repeatedly supported that parent involvement factor into a child’s education (Epstein, 2002; Patrikakou et al., 2005; U.S. Department of Education, 2007a). Figure 1 represents a conceptual framework that merges these theories with overlapping spheres showing the common student link between parents and schools. Technologies that promote parent involvement through communicating and learning at home are also integrated into framework. These two types of parent involvement were chosen based on the possibilities offered through technology and to limit the scope of the study.

Significance of the Research

Many school districts have found themselves struggling to improve parent involvement programs and policies after the mandates of NCLB's Title I parent involvement requirements. States that receive federal funding, including Pennsylvania, have been required to establish district and school Title I parent involvement policies that include a number of required components. District requirements include involving parents in the following areas: joint development of the Title I plan; school review and planning; school's planning and implementing of effective parent involvement activities; coordinating Title I parent involvement activities with other parent involvement; annual evaluation process; and using the findings of the evaluation to design strategies for school improvement and to revise parent involvement policies. Districts receiving over \$500,000 in Title I funds are required to set aside 1% of their allocation for parent involvement programs (Paige et al., 2002). Due to such requirements, school districts are searching for new techniques to improve current parent involvement practices.

Weiss et al. (2005, p. xii) claimed, "Many teachers want to help parents, ... but lack the skills and school support that facilitate meaningful conversations with parents." Teacher preparation programs have placed little attention on parent involvement in the past; however, some programs are beginning to integrate parent involvement into the mainstream of their teacher training (Epstein, 2002; Greenwood, 1991). This lack of background knowledge and strategies that teachers bring into the field indicates a need for additional training in the area of parent involvement. School administrators are also often lacking in this area due to little formal training, education and experience.

Computer-assisted education has proven to offer various student learning opportunities with positive outcomes (Bollentin, 1998; U.S. Department of Education, 2007a). Technology

also creates new means for improving parent-teacher communication and parent involvement. Although many have explored technology's place in student learning over the past three decades and have acknowledged its ability to improve communication, little research is available regarding technology's role in parent involvement. Many traditional forms of parent involvement have been expanded through the use of technology, while few have been discussed extensively in the literature. New developments in technology may also allow for non-traditional approaches to parent involvement programming. An awareness of available technologies and their intended use for improving parent involvement were explored in this study and should aid administrators in selecting specific technologies to improve their parent involvement programs.

Chapter 2

REVIEW OF THE LITERATURE

Parent Involvement

Defining Parent Involvement and Various Forms of Parent Involvement

Epstein claims, “No topic about school improvement has created more rhetoric than ‘parent involvement.’ Everyone says it is important” (2001, p. 3). However, the term “parent involvement” is very broad and requires a detailed description so that its reach can be fully understood: “Terms such as ‘parent involvement,’ ‘parent participation,’ ‘home-school connections,’ and ‘school-family partnerships’ are used to describe a broad array of parent beliefs, behaviors, and practices” (Patrikakou et al., 2005, p. 2).

Three perspectives that currently guide researchers and practitioners in their thinking about family and school relations include separate responsibilities of families and schools, shared responsibilities of families and schools, and sequential responsibilities of families and schools. Several theories also contribute to the dynamics of family and school relationships, including symbolic interactionism, reference group theory, and ecological systems theory. Symbolic interactionism is a major theoretical perspective in sociology consisting of organized and patterned interactions among individuals. This theory focuses on face-to-face interactions such as teacher, parent, student interactions and expectations rather than on macro-level structural relationships involving social institutions (Blumer, 1969), while reference group theory considers esteem and interaction between groups or individuals, as would be the case in teacher, parent, student programs, planning, and instruction (Dawson & Chatman, 2001; Epstein, 2001). Ecological systems theory is also considered when discussing the importance of context in children's development; such context is established through various systems that influence the

child's development either directly or indirectly (Bronfenbrenner & Crouter, 1982). This system has been represented visually as a set of concentric circles surrounding the child, while differing degrees of the system develop in the outer layers of the concentric circles. This development begins with the "microsystem" that includes the child's family, peers, school, and child care providers. The next layer is known as the "mesosystem," which includes the child's home, school, community institutions, and peer groups. The "exosystem" follows with extended family members, health and social services agencies, and the parental workplace. Finally, the "macrosystem" encompasses dominant beliefs, cultural values, and attitudes and ideologies (Kyle et al., 2002; Patrikakou et al., 2005). Theories such as these should be taken into consideration when conceptualizing the term "parent involvement" and the relationships between students, families, and schools.

Over time, family-school relationships have evolved due to changing trends, technology, and societal shifts. Theories that once represented these relationships have been modified or integrated into new theories. Several recent trends, including more mothers with bachelor's degrees, baby and child care, federal regulations in funding for parent involvement, and changing family structures have contributed to the shift in family-school connections in the United States. Epstein (Epstein, 1995, 2001, 2002) used her work over the past 25 years to establish and modify a framework utilizing her model of three overlapping spheres of influence (family, school, and community) on children's learning. This model takes into consideration both external and internal structures. The external structure includes overlapping and non-overlapping spheres which are affected by three main forces, including background and practices of families, background and practices of schools and classrooms, and time. The degree to which the spheres overlap is dependent upon the interaction of the three forces. The internal structure focuses on

communication, both institutional and interpersonal, and how it occurs across the scope of school, home, and community. The resulting framework suggests a typology of parent involvement that falls within the areas of overlap in the spheres of influence model. The six types of school-family-community involvement include:

Type 1 – Parenting. Assist families with parenting and child-rearing skills, family support, understanding child and adolescent development, and setting home conditions to support learning at each age and grade level.

Type 2 – Communicating. Communicate with families about school programs and student progress with school-to-home and home-to-school communications.

Type 3 – Volunteering. Improve recruitment, training, work, and schedules to involve families as volunteers and audiences at the school or in other locations to support student and school programs.

Type 4 - Learning at Home. Involve families with their children in learning activities at home, including homework and other curricular-linked activities and decisions.

Type 5 – Decision Making. Includes families as participants in school decisions, governance, and advocacy activities through PTA, committees, councils, and other parent organizations.

Type 6 - Collaborating with the Community. Coordinate the work and resources of community businesses, agencies, colleges or universities, and other groups to strengthen school programs, family practices, and student learning and development. (Epstein, 2001, pp. 43-44)

Through her research, Epstein (2001, p. 17) “offers a clear perspective on the importance of theory-driven and research-based approaches to school, family, and community partnerships.” This framework for parent involvement parallels that of the federal government, as stated in section 1118 of NCLB (U.S. Department of Education, 2004).

History of Parent Involvement

In the early 20th century, parents had very little involvement in their child's school education. During this time, parents sent their children to school to learn academic skills with parents having little interaction with school. Parents took responsibility for working with children to develop moral principles. Parent involvement has evolved over time with the National Parent-Teacher Association (PTA) being founded in 1897, in Washington, D.C. Traditional activities such as home-school meetings, fund raising events, homework monitoring, and report card review were common.

McLaughlin and Shields found, "In the mid-1960s educators and policy-makers focused on parent involvement as a promising way to improve educational outcomes for poor and underachieving students, and they developed a variety of models and strategies to promote such involvement" (1987, p. 157). Three specific developments during that time frame in education included: the Civil Rights Act of 1964 and James C. Coleman's research which stressed the importance of family involvement in the education of disadvantaged children; and the introduction of the Elementary and Secondary Education Act (ESEA) of 1965, which tasked parents with the responsibility of assuming a more direct role in their child's education (Coleman et al., 1966).

Parents continued to assume minimal responsibility related to their child's education until the late 1960s and early 1970s. Political and economic factors prompted parents to change their views during this time span. Research also found that increased parent involvement did not translate into decision-making or governance. Although best practices and models to support parent involvement were developed, federal mandates were withdrawn by the new Regan administration. In 1994, the federal government became involved again with "Goals 2000" in an

effort to reform education and improve student achievement. The National PTA released its National Standards for Parent/Involvement Programs shortly afterwards in 1997; however, parent participation still remained limited in both scope and depth. The Individuals with Disabilities Education Act was also reauthorized in 1997 with specific requirements regarding active participation of parents (Cowan, Napolitano, & Sheridan, 2004).

Finally, “No Child Left Behind” (NCLB) the reauthorization of the Elementary and Secondary Education Act (ESEA) provides specific direction requiring home-school communication. Information related to student and school performance is mandated with various requirements related to student demographic information. This legislation focuses on providing families with information needed to make critical decisions in an effort to involve parents in the role of educating their children (Paige et al., 2002).

Significance of Parent Involvement

Few would argue the significance of parent involvement in children's learning. The U.S. Department of Education reported, “Education research over the past three decades has established a direct correlation between increased parent involvement and increased student achievement (2007a, p. 2). The monumental National Education Longitudinal Study of 1988 also pointed to parents’ active involvement in their child's education as a pivotal factor in promoting educational success (Blanchard, 1998).

Parents become involved in their child's education long before they set foot in a school building, and “a parent is a child’s first and most important teacher” (U.S. Department of Education, 2007a). Parents of school-age children generally spend more time with children than their teachers do. Therefore, most teachers realize the importance of connecting with parents; however, this connection often poses difficulty. Parents, teachers, and schools certainly share

overlapping goals when it comes to children. While teachers struggle to meet the needs of their classrooms, high-stakes test accountability, and other demands of today's bureaucratic schools, they often find themselves overwhelmed by their day-to-day requirements. Parents also face struggles within their homes, with their jobs, and with their children. Children likewise face new challenges growing up in the 21st-century, including challenging family structures, drug and alcohol use, violence, and added academic pressure. Due to the increasing struggles teachers, parents, and students face, one area often overlooked is communication. This lack of communication frequently creates a void in parent involvement. Communication among parents, teachers, and schools is likely the most critical piece of the parent involvement puzzle. Without communication, expectations and other vital parent involvement components are unlikely to be expressed (Peisner-Feinberg, 1999).

Mounting evidence posed by Baker and Soden supports children's academic achievement based on the following parent involvement variables:

1. Provision of a stimulating literacy and material environment.
2. High expectations and moderate levels of parental support and supervision.
3. Appropriate monitoring of television viewing and homework completion.
4. Participation in joint learning activities at home.
5. An emphasis on effort over ability.
6. Autonomy promoting parenting practices. (1998, p. 3)

These variables and others may potentially be improved through effective parent involvement programs.

Constantino stated,

The actions of parents within the context of the educational lives of their children can be described in two categories, involvement and style. The involvement of parents or families includes the engagement of families in the instructional and noninstructional (cocurricular, extracurricular) lives of their children as well as the family's educational experiences and values about the importance of education. The style with which parents and families are involved in their children's school lives has more to do with the educational culture of the family rather than the socioeconomic level or other factors that are more widely perceived by educators. (2003, p. 9)

Promoting true engagement is seen as impacting the educational culture of the families.

Though most parents want their children to succeed in school and want to help them, they often do not know how to contribute. Teachers can provide encouragement and information that allow parents to participate in their child's education. Though some parents are familiar with strategies to help their children learn, many do not realize that simply reading aloud is one strategy to help a novice reader. The significance of parent involvement cannot be overlooked: "Children of all ages do better in school when their parents talk to them about school, expect them to do well, and involve them in constructive activities at home" ("Be strategic to boost family involvement," 2003, p. 44).

Epstein suggested that all teachers and administrators share one commonality, that being "All teachers' students have families," and "All schools serve children and families" (2001, p. 4). She also stated, "Even when they do not come in person, families come in children's minds and hearts in their hopes and dreams. Without exception, teachers and administrators have explicit or implicit contact with their students' families every day" (Epstein, 2001, p. 4) As one can see, schools must connect to students' families. Educators need to understand their students beyond

the schoolhouse walls; they need to be familiar with the environment in which students live, work, and play. The importance of effective parent involvement programs has never been more important: “Without partnerships, educators segment students into the school child and the home child, ignoring the whole child” (Epstein, 2001, p. 5).

Need for Improved Parent Involvement

Mutual interests and influences of schools and families suggest a need for revised tactics as schools strive for improved parent involvement. Recognizing important similarities, overlap in goals, responsibilities, and mutual influence of both families and schools is critical to student success. These two major environments simultaneously affect children’s learning and development and offer the opportunity for a positive alliance to be formed that will guide students throughout their education (Epstein, 2001). Time spent out of school may still include school-related activities such as homework and extra-curricular activities. Students may also be influenced by teachers or others’ opinions established through school activities. On the other hand, while at school, it is hard for students not to bring with them thoughts related to home situations. Parent and sibling pressures, family problems, and hobbies or interests all have the potential to detract from a child’s focus while in school.

Tiles (Garrison, 1995, p. 266) notes that Dewey understood the word of ‘community’ as more than a noun depicting people with their environment in common; rather, “Dewey believed, they behave more as a community to the extent that they share equally in the identification and articulation of those interests in the formulation of policies designed to further them.”

Consideration needs to be given to all potential contributors within the community. Because parents and teachers both contribute to the education of children within their domain, it is important to consider both parties’ goals and the knowledge and information they possess.

Focusing on common goals opens the door, suggesting the need for communication. Because technology offers a means for increasing communication, it may allow individuals to collaborate on their common goals. While Dewey recognized that there were differing degrees of abilities and expertise within the community, he also noted that there was “no incompatibility between democracy and the recognition of authority” (Garrison, 1995, p. 266). Parent and teacher authority varies; however, it is bound by common goals both share, so the input of both contributes to the community, giving intelligent direction to common concerns.

Through an extensive review of over 51 research studies and literature reviews, Henderson and Mapp found the following:

Students with involved parents, no matter what their income or background, were more likely to earn higher grades and test scores and enroll in higher-level programs; be promoted, pass their classes, and earn credits; attend school regularly; have better social skills, show improved behavior, and adapt well to school; and graduate and go on to postsecondary education (U.S. Department of Education, 2007a, p. 2).

The Northwest Educational Regional Laboratory also reported in their Regional Needs Assessment for 2003, “Schools need information, technical assistance, and training on the language of NCLB regarding parent involvement, the implications for schools and districts, and strategies for ensuring meaningful and constructive parent involvement under the law” (Northwest Regional Educational Laboratory, 2003). While the American Association for the Advancement of Science (1998) reported that parents expressed a deep concern about the need for active engagement in the educational process, many, including those who understand the need, are not involved. Parents also reported that poor communication created large gaps in their

knowledge of school issues, along with suspicion of reform and resistance to change. Such information suggests a need for improving parent involvement. The increasing diversity in the United States also requires new techniques for communicating with parents beyond traditional approaches. Though the research shows strong support for parent involvement, the research is lacking in terms of approaches. New developments in technology along with innovative tactics may prove to be valuable means for attaining such goals.

History of Technology in Education

Technology in Education Over Time

From film projectors to learning communities in cyberspace, technology has established its place as an educational tool over the past one hundred years. Although Thomas Edison's prediction that motion pictures would revolutionize our education system and possibly replace textbooks never came to fruition, the evolution of technology began with audio-visual equipment and progressed to calculators and early computing devices. However, today's teachers and students have the opportunity to expand upon the use of technology as a tool far beyond the capacity of previous integrators. Developments in hardware, software, and networking allow for an array of possibilities that place drill and practice procedures in the shadows of complex multimedia products which give students the power to be more engaged in projects, to communicate worldwide and instantaneously, and to expand research outside the walls of a building.

New technology has placed new requirements on school districts, teachers, parents, and students. Understanding past technologies and research focused on technology within education is important if one plans to keep up with continual technological changes. Entrance into the information age has created new developments in wireless technology, multimedia innovations,

and general gadgetry. However, challenges facing educators preparing students for the 21st Century may parallel those of educators during the American industrial revolution in the late 19th century. Regular developments with cellular phones may seem to be an evolution of Alexander Graham Bell's original telephone. Educators of today and tomorrow will continuously be faced with the challenge of change, just as previous educators of the industrial age were (Kraebber, 1999).

Although current goals such as preparing students for tomorrow's workforce or higher education; developing problem solvers and critical thinkers; and instilling a desire for lifelong learning may mirror those of past generations, today's educators are faced with more rapid technological change. Perhaps Guglielmo Marconi's 2100-mile wireless transmission sent across the Atlantic Ocean in 1901 foreshadowed technological feats to come (Pierce & Karwatka, 1999) or just the beginning to an evolution of communication the world has yet to see. Some would argue that the change facing the world today is no more trying than that which confronted individuals at the beginning of the 20th century (Reuben, 1996). Kraebber (1999) stated:

The basic objectives for technical education remain much the same as they were at the start of the century. We are preparing our students to enter and function in a difficult and changing world. They need to be able to use current technology and be prepared to learn and use the technology of the future, and more. (p. 24)

Later inventions such as telegraphs, typewriters, televisions, audio and video recording devices, and film projectors allowed teachers the opportunity to expand upon instructional techniques within the classroom. Cuban (1986) stated "[t]he promises implied in these [technological] aids caught educators' attention: individualized instruction, relief of the tedium of repetitive activities,

and presentation of content beyond what was available to a classroom teacher” (p. 4). During the 1950s, instructional television became popular although it began to fade as computers gained in popularity in the early 1960s.

The introduction of the Elementary and Secondary Education Act of 1965 brought schools new money for technology. Some schools began to place mainframes and minicomputers in their buildings at this time; however, not until the early 1970s were microprocessors and microcomputers introduced. During the mid-to-late 70s, personal computers (PCs) gained popularity with Apple I making its debut. The early 80s, which many classify as the beginning of the information age, saw mainframe manufacturer IBM develop its first PC, while Texas Instruments’ TI 99 was a popular PC. Apple II computers proliferated in the educational arena with teachers beginning to utilize computers for computer-aided instruction (CAI). Drill and practice programs became accessible for PCs and allowed for increased integration in the classroom. In 1984, Apple introduced its Macintosh computer with a focus on its graphical user interface, and for the remainder of the 1980s, computer-aided instruction gained popularity. In addition, college and career guidance became a popular use of the PC. By the early 90s, multimedia found its way to the PC, and many programs were being delivered on CD-ROM disks. The mid-90s proved to be a pivotal time for information technology with the introduction to the Internet and the World Wide Web. Computer-aided instruction also gained popularity with a growing number of software opportunities. As school districts prepared for Internet access within their buildings, many were faced with additional technology costs associated with wiring, servers, and additional computers. Many districts began to create line items within their budgets specific to the integration and expansion of technology and also to hire new personnel to meet expanding technological needs. The last 10 years have seen society’s

as well as education's growing reliance on computers, cellular phones, and handheld devices. Each provides a wealth of information at one's fingertips. The Internet has provided the world's largest database of information, graphics, and streaming video, making it an invaluable resource for educators (Lewis & Zuga, 2005).

During the 2006 school year, 12 cyber charter schools in Pennsylvania educated about 13,245 students, which presents new possibilities for students of the 21st century (Duncan, 2006). Pennsylvania also budgeted \$90 million in the 2007-2008 budget for Classrooms for the Future. This initiative strives "to continue changing the way teachers teach and students learn in Pennsylvania high schools by putting a laptop on every student's desk and using the power of the Internet to engage the Technology Generation and make learning come alive ("2007-08 Enacted budget highlights," 2007, p. 1). Other states share similar initiatives, indicating potential trends for the future; however, it is important that educators and policy makers continue to evaluate such initiatives. Handheld devices, multimedia, and new information distribution techniques have allowed new developments such as podcasting, which show potential for the future. As in the past, research and evaluation will continue to be important indicators of the success of technology in the field of education.

Research on Technology in Education

Technology as a tool in education has evolved over time. Greater availability and reduced cost have allowed educators to incorporate technology to a greater degree in recent years. The US Department of Education (2007b) reported "In the past 10 years, all levels of government have invested significant resources to support the integration of school-based technologies in teaching and learning practices" (p. 13). A variety of research has shown positive results through the incorporation of technology with students, parents, teachers, and

administrators. As society begins to rely more heavily on technology, educators must become more familiar with a variety of technologies and prepare students and families to become competent users as we move through the 21st century.

Student Research

Baker and O'Neil (1994) suggested that a large body of data and a long history of use indicate that using educational technology for drill and practice can be highly effective. Kosakowski (1998, p. 1) stated, "This has been shown to be the case across all subject areas, from preschool to higher education, and both in regular and special education classes." While drill and practice has stood as one form of technology utilization for years, other forms of implementation have been found to be much more valuable. The research on educational technology is vast and shows it is not transformative on its own, however, must be kept in perspective. Using accumulated knowledge based on circumstances with which technology supports parent involvement will allow educators to make informed choices about what technologies will best serve the field of education in the future (North Central Regional Educational Laboratory, 2005).

Early computer use in education by Barwise and Etchemendy in 1984 with Macintosh's newly introduced graphical user interface proved to help their students think about complex concepts. After completion of three popular computer programs in the area of formal logic Turing's World, Tarski's World and Hyperproof they received overwhelmingly positive feedback from students. Barwise (as presented in Bollentin, 1998) said "Turing's World let students go much farther much faster and have more fun at the same time" and "[t]here was simply no

comparison in the quality of understanding between students who used Turing's World and those who had come earlier and did not have it available” (p. 3).

Over the years, technology has found its place within the American curriculum. Science and technology education seemed to overlap with design and inquiry being a focal point of both areas. Both the National Science Education Standards and Benchmarks for Science Literacy have devoted special attention to the area of technology. Being technologically informed and capable of technological design has become a focus across grade levels (Lewis & Zuga, 2005). Technology has also been used as a tool for hypothesis testing and concept development as computers and other technologies have become more available in education. Kneller (1997) wrote that all investigations involving a hypothesis have a common set of activities that parallel those of problem solving. This sequence includes “problem, hypothesis, inference, test, feedback, change of hypothesis, and then sequence repeated” (p. 13). The North Central Regional Educational Laboratory (2005) also reported the following Information and Communication Technology (ICT) Literacy skills as critical to students’ success in the workplace: communicate effectively, analyze and interpret data, understand computational modeling, manage and prioritize tasks, engage in problem solving, and ensure security and safety.

Wenglinsky (1998) found that students using technology in fourth and eighth grade saw "positive benefits" on achievement as measured in NAEP's mathematics testing. Although Wenglinsky found using computers to solve simulations increased students' math scores significantly, he also found that using computers for drill and practice had a negative impact on academic achievement.

Heid, Blume, Hollebrands, and Piez (2002) studied the effects of computer algebra systems (CAS) in mathematics instruction and made the following conclusions based on fifteen years of research:

1. CAS use in secondary school mathematics does not lead to the atrophy of by-hand symbolic manipulation skills or to the slower development of these skills.
2. CAS use allows more time for developing conceptual understanding and for enabling students to understand real-world quantitative situations.
3. A CAS can produce results in forms that students may not expect, so students must interpret new forms of expressions and develop an enhanced ability to identify equivalent forms of symbolic expressions.
4. Successful use of the CAS will require students to have a deeper understanding of the concepts of function, variable, and parameter.
5. The CAS can give students greater flexibility in their problem solving, allowing students to access multiple approaches to a single problem and to use one approach for multiple purposes. (pp. 588-589)

Recent research on the use of information and communication technology in education considers technology's potential to facilitate social interaction between teacher and students and among students (Lehtinen, 2003). Crook, as stated in Lehtinen (2003), "has widely analyzed how computers can facilitate collaborative learning in schools" stressing "the use of computers as tools to facilitate face-to-face communication between student pairs or in a small group."

Chan et al. (2006) contends, “Over the next 10 years, we anticipate that personal, portable, wirelessly-networked technologies will become ubiquitous and pervasive in the lives of learners” (p. 3). Many countries have adopted devices like mobile phones, graphics calculators, and personal digital assistants (PDAs) in education, while others have started to focus on one-to-one computing as their current initiative. A study done by the Mitchell Institute (2004) in cooperation with the Bill and Melinda Gates Foundation in the state of Maine found, “Most students agree that laptops make schoolwork more interesting (79%) and that they are more motivated to do schoolwork with their laptops (60%).” In this study, teachers also reported that at-risk or low-achieving students made the greatest number of improvements with over three-quarters reporting improved student engagement, class participation, motivation, ability to work in groups, and ability to work independently for this group.

Chan et al. (2006) claimed, the “rapid advancement of mobile, connected, personal technology is already transforming the lives of students outside of school” and suggested that as devices become more affordable, they will be more likely to gain the attention of educational institutions. Additional research may find specialized tools designed for learning in the future. The \$100 laptop introduced in 2005 by Negroponte at the World Economic Forum (MIT, 2005) is such an accomplishment; this innovation was introduced as an “ultra-low-cost, full-featured computer designed to dramatically enhance children's primary and secondary education worldwide” (p. 4). Such innovations along with increased availability of wireless access and networking capabilities will aid in implementing new programs involving one-to-one computing.

While many suggest that technology has the ability to increase engagement, motivation, understanding, and student achievement in general (Kulik, 1994; Lehtinen, 2003; Lewis, 1999; Lewis & Zuga, 2005; North Central Regional Educational Laboratory, 2005), Bollentin (1998)

found “Oppenheimer deconstruct[ed] the protechnology arguments” and “conclude[d] there is no hard evidence that computers and technology have any measurable effect on learning. They may in fact, he sa[id], hold some responsibility for educational decline” (p. 1). Though the general consensus seems to be that technology can be beneficial to education, Bollentin (1998) suggested that technology “is not - nor should it be - an all-or-nothing proposition” (p. 1). Papanastasiou, Zemblyas, & Vrasidas (2003) examined the relationship between computer use and students' science achievement based on standardized assessment data and found computer use itself had no positive or negative effect on achievement of students; however, the way in which computers are used had a substantial impact.

Research on educational technology has been mixed over the years and should be analyzed for implications. The North Central Regional Educational Laboratory suggested:

...[r]esearch on successfully developing, evaluating, studying, and implementing a wide range of technology-based educational programs suggests that the value of technology for students will not be realized unless attention is paid to several important considerations that support the effective use of technology. These considerations are:

1. Specific educational goals and a vision of learning through technology
2. Ongoing professional development
3. Structural changes in the school day
4. A robust technical infrastructure and technical support
5. Ongoing evaluation. (p. 6)

Another area that has gained in popularity over the past 20 years is distance education. The revolution of electronic telecommunications in the late 1980s has paved the way for

improved delivery of distance education classes in distance education schools (e.g., cyber schools). The ability of such classes and schools to overcome time, cost, distance, and schedule constraints has contributed to their demand. Keegan (1996) stated “the challenge for the field in the 21st century will be the harnessing of the new telecommunications technologies, already developed but not yet integrated into distance education theory and practice” (p. xi).

As time passes, additional information will become available showing how new technologies are being used in education. One can see that applications of educational technologies have progressed beyond that of drill and practice. Today's students have the ability to work collaboratively with other students on a global horizon. Traditional lecture methods are beginning to give way to research, engagement, and communication within the classroom, creating positive changes in student attitudes. Through the use of various technologies, students have increased interactivity within the classroom, improved critical and analytical thinking, and become empowered to take control of their own learning (Kosakowski, 1998).

Teacher Research and Administrator Research

Over the past 10 years, the environment in classrooms throughout the nation has been changing. Additional computers and handheld devices have entered the classroom, allowing for deviation from teacher-centered instruction. With the exponential growth of new information from around the world, the World Wide Web (WWW) and the Internet have captured the imagination and the interest of educators while creating a learning environment that allows for flexibility outside the boundaries of the classroom (Owston, 1997). Chalkboards nationwide are being traded for interactive, computer-driven whiteboards. Cohn (2005) reported that these devices “allow students and teachers to share assignments, surf the web, and edit video using their fingers as pens” (p. ¶ 2). Teacher and administrator access to technologies is changing

regularly as well. New technologies have caused many educators to rethink the possibilities and make adjustments accordingly. Communicating with parents through online lesson plans, online grade books, and e-mail has in many cases replaced report cards and telephone calls. This change has required teachers to become familiar with new technologies so that they can keep up with everyday expectations. In addition, educators may still face a variety of issues with technology. In 1999, the National Center for Educational Statistics (U.S. Department of Education, 2000) reported three major barriers related to the incorporation of technology within instruction including: availability of and access to computers and the Internet; lack of time; and institutional and technical support for using technology, which shows that technology still has its own limitation.

Other opportunities such as distance learning have also expanded greatly over the past 20 years, allowing educators flexibility for student instruction and professional development. The flexibility of asynchronous learning (self-paced and self-directed learning often at a time other than that of the original presentation) coupled with synchronous learning (in real time at a distance or locally) allows for changing lifestyles and more demanding schedules causing the incorporation of distance education to grow exponentially.

Additional state requirements involving continuing education for teachers and administrators have caused many to look to technology as a solution. Again, time constraints have been cited as a common barrier in professional development. The Internet offers cyber education opportunities through distance education for students and educators alike (Harvey & Purnell, 1995). Educators are also able to access a wealth of information via the Internet in the form of professional journals and research along with classroom materials such as lesson plans.

Online communities of education professionals have become a valuable tool for professional development within education. Having the ability to discuss topics related to education worldwide has broadened the horizons of many educators. However, Schlager and Fusco (2003) argued that although online technology allows for networking on a global scale and provides a mechanism for training teachers, the Internet offers even greater potential for strengthening local communities of practice within which teachers work.

The growing demand for data-driven decision-making has also required educators to look to technology. The ability of spreadsheets, databases, and other specialized programs to record and organize data has proven to be an asset that educators need in this process. With additional assessment measures becoming more prevalent within education, computers allow for detailed analysis that may guide educators and policymakers. The ability to aggregate and disaggregate data allows educators to determine trends and areas for further exploration. Data may also be used to evaluate current and prospective programs within the decision-making process.

Educators and administrators use technology as a means for organization and productivity, giving them additional time for instruction and professional development (Kosakowski, 1998). School information system data is critical to the organization of a school district. Attendance data, personal information, and grades are important records that are required within the day-to-day operations of schools. Technology allows for improved organization of these areas and also allows expanded opportunities for educators (Jonassen, 2004). Many administrators currently use the combined technology of cellular phones and PDAs in the form of a smart phone that allows for access to the school's management system. Such devices can be used while away from the desk to find children's schedules, emergency contact information, grades, previous assessment data, and a variety of other school records. These

devices may also be used to access the Internet, e-mail, or remote information stored on a server. Additional software allows for organization of usernames and passwords, access to a variety of documents such as Excel spreadsheets, PowerPoint presentations, and files in personal document format (PDF). Smart phones and other handheld technology also allow individuals to be mobile while having access to a plethora of information.

Clearly, technology has the ability to contribute to both teacher and administrator productivity. As various forms of technology become more accessible and new technologies become available, educators will certainly find new ways of implementing technology and improving upon previous practices. However, technology already has the ability to vary instructional techniques, analyze and organize data, and provide a variety of means for communication.

Technology in Parent Involvement

Technology has become an integral part of life for most Americans. It is difficult to go through a day without facing some form of technology in one's home, community, or school. Individuals have become accustomed to expecting new advancements in technology almost daily and have become dependent on many forms of technology. Technological expectations have grown rapidly in recent years and these expectations are very prevalent within the American education system. Blanchard (1998) reported that technology has been tasked with "nurturing the moral, social, and educational development of American children" (p. 235). This obligation requires that technology overcome the challenge of connecting families and schools, which has proven to be a monumental task in the past. The challenge is created by characteristics, beliefs, and practices held by both families and schools. Overcoming differences can be difficult and can create gaps and sometimes barriers within the family-school connection. Technology offers an

opportunity to bridge these gaps or to break down barriers such as time, culture, parental and family uncertainty, trust, school size, location, and curriculum .

Through an analysis of four research projects, including Project TELL, ThinkLink, Lightspan Partnership, and the Indiana Buddy System, Blanchard (1998) offered four areas in which technology can serve the family-school connection: “(1) communication and information, (2) learning and instruction, (3) interest and motivation, and (4) resources and costs” (p. 235). This information is also supported by Bauch (Bauch, 1997b; 1998) in his work with The Bridge Project and The Transparent School Model. Each of these areas will be reviewed as factors with potential for improving parent involvement.

Communication and Information

Communication among schools, families, and students has been stressed as an important component to improve parent involvement. Epstein (2002) listed *Communicating* as one type of parent involvement that should include information about school programs and student progress. Patrikakou, Weissberg, Redding, and Walberg (2005) also include communication as one of the multidimensionality factors of successful school-family partnerships, stating “it is *key* to forming and maintaining meaningful and productive home-school connections” (p. 185). A Maryland Parent Advisory Council (M-PAC) used a state-wide survey of parents, educators, administrators, and community members to identify three areas of study for council subcommittees; one of these areas included “using nontraditional (i.e., alternative) forms of communication to engage a broader range of parents” (U.S. Department of Education, 2007a, p. 3). Many other researchers (Bauch, 1998; Blanchard, 1998; Henderson & Mapp, 2002; Mapp, 2002; Scott-Jones, 1995; Swap, 1993; U.S. Department of Education,

2007a) have included communication as a vital component in parent involvement, stressing two-way communication as opposed to one-way communication.

Technology offers a variety of tools that allow families and educators to bridge the home-school gap. Technology in itself is only a tool that requires a human element to implement it for successful results. Four advanced telecommunications tools that can be used to bridge this gap include: TVs, telephones, computers, and access to networks and databases such as the Internet (U.S. Department of Education, 1997). Such technologies give educators flexibility in tailoring communication to meet the needs of families. Although most Americans have TVs and telephones within their homes, computers and Internet access have been limited in low-income families until recent years. With growing affordability, the percentage of families with all four advanced telecommunications tools has grown to 73.6% percent in North America ("Internet usage statistics: The internet big picture," 2008). However, a limited percentage of families do not have the same resources that may be used as tools to improve parent involvement.

A variety of information proves important when communicating with parents including the following: grades, student assignments and lesson plans, assessment data, school activities, and attendance. Today's technologies allow educators to provide this information through both telephone and computer formats. In comparison to previous methods (e.g., report cards, notes, telephone calls, etc.) these alternatives offer both extended opportunities to communicate with many positive results. Some of these effects include the opportunity for parents to monitor such communications at times that are convenient to their schedules, the opportunity to access information on a continuous basis as opposed to waiting until a specific time within the school year, the opportunity to communicate through modes such as voice mail or e-mail, allowing for more flexibility and less schedule conflicts.

Although research on technology's role in this process is limited, several studies have shown potential and their outcomes may be used to guide educators in the future. Bauch (Bauch, 1997a; 1998) found the Transparent School Model in the Bridge Project allowed for expanded and improved parent-teacher interaction throughout the 1990s. This model provided rich and frequent communication between schools and homes through a voice messaging system. The system allowed teachers to access their voice mailbox and record a message for parents that included information about their child's classroom, an explanation of concepts and content covered in class, specific homework assignments and instructions, and suggestions for parents. After the message was recorded, parents had the option to call the school hotline and access the information at their convenience. They also had the option to leave a response or question for the teacher. Teachers and schools were able to send phone messages to any combination of parents whenever necessary. Bauch (1998) noted that although the telephone proved to be a telecommunications device in 93 percent of American homes, many teachers did not have the convenience of easy access to a telephone.

Constantino (2003) reported “[b]efore starting the Bridge program, the mean number of parent contacts per teacher per day for Bridge Project schools was 2.66; however, “[a]fter one month of using the voice messaging technology, in tandem with concepts learned in Transparent School Model training, parent contacts per teacher per day increased to 11.46” (pp. 40-41). This was a gain of approximately 430 percent which rose to about 487 percent after more schools reported data. Expansion of the program allowed for Internet-based applications along with voicemail messaging; however, with the growing popularity of cellular phones, telephones still offer the opportunity for coverage of the largest population. They have also proven their

longevity while other emerging technologies are just beginning to reach the masses within the home market. Such results indicate potential for increasing family engagement programs.

Another voice messaging initiative that ran from 1990 to 1993 was Project TELL. This project also included a mixture of computers in the home and computers in the classroom and involved six New York City schools. While positive results which will be mentioned in the next section surfaced from the computer implementation within the project, voice messaging prove to be unsuccessful (Blanchard, 1998).

Several authors have documented the potential for growth in the area of parent involvement with technologies such as e-mail and cellular phones. However, the limited research and mixed findings suggest a need for additional research. Rogers (2007) found that technology offers a quick and easy way to communicate with parents although schools do not always take advantage of these opportunities. Reilly (2008) also suggests that technology offers added means for communicating with parents and building home-school connections.

In conclusion, technology has the ability to make communication easier, establish and improve two-way communication and distribute information between homes and schools. It can also help schools involve families that are difficult to reach and parents that have difficulty reaching the school. This may help the process of getting families involved in governance issues and shared decision-making within the school. Finally, technology can aid in building communication networks among students, families, schools, and communities.

Learning and Instruction

As mentioned previously in this review of the literature, technology has been used as a tool for increasing student engagement and achievement for decades. Epstein (2001) listed Learning at home as another type of parent involvement which includes homework and other

curricular-linked activities and decisions. Swap (1993) also suggested enhancing learning at home and at school, while Scott-Jones (1995) focused on parents' monitoring and helping within the home.

Educators have long realized that parents are valuable contributors to their child's education (Coleman et al., 1966; Epstein, 2001; Patrikakou et al., 2005; U.S. Department of Education, 2007a). Therefore, partnering with parents and providing them with proper tools and information to fulfill this venture seem to make good sense. Various technologies offer such means for both student and parent learning. As mentioned previously, technologies such as telephones and computers can be used to communicate with parents and to provide them with information that may aid in learning at home. Other technologies such as TVs, VCRs, DVD players, and other multimedia devices provide yet another form of communication that may help parents to better prepare to accomplish this task.

Several research projects that have involved school-driven technology initiatives within the home include Project TELL, ThinkLink, and the Lightspan Partnership. The three projects involved utilization of a variety of technologies within the household to promote parent involvement.

Project TELL included placing computers with modems and printers in 124 at-risk, sixth-grade students' homes. These students attended six different schools in the city of New York. Students participated in weekly user group meetings through electronic bulletin boards. The meetings were staffed by teachers and lasted approximately 2 hours in total per week. Students participating in the project were encouraged by their classroom teachers to be actively involved. The authors offered several conclusions based on their findings (Birenbaum & Kornblum, 1998): (1) students and families welcomed the technology in the household; (2) participation influenced

students' self-esteem and learning capacity; (3) children involved in the project were three times less likely to move to another school district; and (4) students valued and respected the equipment placed in their homes.

ThinkLink, a project that ran during the years of 1993 and 1994, was structured around video-on-demand which involves prescheduled videos. A sample of approximately 150 fifth-grade students and families from two elementary schools in Sterling Heights, Michigan were involved in the Ameritech-sponsored project. A custom-built fiber-optic network connected all phones and classrooms to a central media server. Blanchard (1998) reported that project evaluators found that "ThinkLink affected students' home-viewing habits either by adding to their daily viewing time or by cutting into viewing time for non-educational programs, positively affected Michigan Educational Assessment Program Science Test scores, and positively affected motivation for schooling" (p. 240).

The Lightspan Partnership project focused on the K-6, reading, language arts, and mathematics curriculum. The technology in the project involved personal computers and CD-based instruction within the home and at school. In a 1996 evaluation of the project, Godin (1996) surveyed 81 teachers and 445 families participating in the project. Family survey data revealed that 69% of children used the multimedia educational software one or more hours per day; 72% of parents reported participating with their child for at least one-half hour per day; 52% of students were reported to have spent at least an additional one-half hour beyond the work with parents; 60% of parents also indicated that the project had increased parent and child discussions about schoolwork, and finally; 70% parents reported an increased awareness of school activities. These positive results have indicated that the project had its successes. Increased interest and

motivation were two indicators that were reported frequently by both parents and teachers (Blanchard, 1998).

These projects have shown that technology can be used as a learning tool in the home. In all cases, schools created an opportunity for parents to get involved with their child's education at home through the use of technology. Technology can help parents acquire the knowledge and skills needed to extend learning opportunities and to act as instructors. With the growing availability of affordable technologies, a greater percentage of families are purchasing computers for their homes. Video gaming and multimedia are commonplace for today's youngsters, which create a familiarity that generates a natural atmosphere for technology in education. Dynamic multimedia learning software is becoming more affordable and readily available, making it easier for families to provide reinforcement and exploration activities at home. These products may provide schools focusing on rigorous state standards and assessments an extended learning opportunity within the home. As educators are being forced to reevaluate all opportunities to expand upon student learning, partnering with parents as educators within the household through the use of technology may prove to be beneficial. The research presented, while limited, suggests an avenue for educators to pursue as they strive for more meaningful family-school relationships.

Interest and Motivation

Technology offers a variety of tools for educators to use in promoting parent involvement. Communication has been discussed as an important component shown to generate parent interest and, perhaps, motivation. When parents are familiar with what is going on in schools, and with their children, they are often more inclined to get involved (Epstein, 2001, 2002; Patrikakou et al., 2005). Technology also offers a means for providing support and

coordination for families and schools. It can be used both for promoting and for sustaining parent involvement.

Research (Blanchard, 1998; Treat, Wang, Chadha, & Hart Dixon, 2006; U.S. Department of Education, 2007a) has shown that technology has the ability to motivate students and to increase engagement. For example, Barwise and Etchemendy found that the use of computer software allowed his students “to appreciate the power of Turing’s abstract machines, and have fun while doing it” (1998, p. 5). Actively involving students in their learning has also increased their self-esteem (Davies, Hayward, & Lukman, 2005). Students spend many of their out-of-school hours using and enjoying technology, supporting the rationale for pairing it with learning activities. Creating a meaningful environment where students can expand and reinforce daily instruction with family and school support is a valuable plan that will promote student engagement and will allow educators and families to work together.

Resources and Costs

Additionally, technology has the ability to directly affect resources and costs. Since school districts are constantly attempting to maximize resources while minimizing costs, administrators must look at technology’s ability to contribute to this practice. Blanchard (1998) reported “Technology can help reduce the financial, emotional, time, and resource costs of educating children, easing burdens for homes and school” (p. 242). He also stated “Technology can help address issues of equality of resources and learning opportunities” (p. 242). Both schools and families tend to draw unevenly on the resources provided by one another. Technology can help to level the playing field and overcome imbalances, allowing both to utilize resources more equitably.

In conclusion, technology provides a powerful tool for promoting and for allowing parent involvement. Four key components that can serve the family-school connection include communication and information, learning and instruction, interest and motivation, and resources and costs. Practices such as communication and learning at home have been advocated by a number of researchers (Epstein, 2001; Patrikakou et al., 2005; Scott-Jones, 1995; Swap, 1993), while interest and motivation along with resources and costs also provide a sound rationale for the incorporation of technology.

Chapter 3

DESIGN AND METHOD OF THE STUDY

Many students in today's society require additional academic support over the course of their education. The 2001 reauthorization of the Elementary and Secondary Education Act, known as No Child Left Behind recognized this growing need and made special provisions in Title I, a program that was presented in the original authorization in 1965. Although this education reform focused on student achievement and changing the culture of America's schools (Paige et al., 2002), Section 1118 of Title I, Part A deals with the topic of parental involvement and a number of requirements that aim to improve the family's presence in education. This study focuses on technology's role in parents' involvement within their child's education. With growing worldwide reliance on technology, educators would be remiss if they did not take advantage of the increasing opportunities to utilize technology in promoting parent involvement and in increasing communication between schools and families (Epstein, 2002).

Purpose and Research Questions

The purpose of this study was to explore current practices to determine how parent involvement can be improved through the use of technology. Specifically, the research questions addressed in the study included the following:

1. What, if any, technologies are currently being used effectively to promote and improve parent involvement?
2. How are these technologies used to improve parent involvement?
3. What factors should be used to guide administrators in selecting and using technologies to improve parent involvement?

Rationale for Qualitative Approach

Selecting the research study design is based on the research problem and questions. Studies can involve quantitative, qualitative, or mixed-method design (Creswell, 2003). Quantitative and qualitative research studies are both conducted in education. These methods are based on six factors, including assumptions about the world; research purpose; research methods and process; prototypical studies; researcher role; and importance of the context in the study (Denzin & Lincoln, 2003; McMillan & Schumacher, 2006). Firestone (1987) claimed “qualitative studies are usually based on a positivist paradigm while qualitative research is often based on a phenomenological one” (p. 16). In the formulation of a qualitative research strategy, Rist (1982) suggested that researchers seek a holistic understanding of the phenomenon, apply inductive reasoning, and perform work that is naturalistic.

This study used quantitative data as the process began; however, the nature of the research problem and questions addressed in this study were better explored through a qualitative approach. Merriam (2002) stated “qualitative inquiry is richly descriptive” and can be used when “there is lack of theory or an existing theory fails to adequately explain a phenomenon” (p. 5). Due to the rapid changes and development within technology, many new opportunities are being introduced continuously. Hardware and software allow for new means of communication that creates possibilities for improved parent involvement in children’s education. Though many studies have been done on parent involvement, limited research addresses the role of technology in this process. It is important that data not only be collected on “what” technologies are being used, but also on “how” these technologies are being used in practice. A deeper understanding

was desired in these areas prompting this research project. The exploratory nature of “what” and “how” questions in this study led the researcher to the qualitative case study.

According to Creswell (2003), qualitative methods in the form of a case study serve as the best design when little information is present on the phenomenon and when an exploratory approach is desired; in this case, “the research is emergent rather than tightly prefigured” (p. 181). McMillan and Schumacher (2006) contends that qualitative research allows one “to describe and explore and describe and explain” (p. 316). Case study design also allows one to focus on one phenomenon, in this case improving parent involvement through the use of technology, while selecting multiple sites for data collection.

Justification for Research Design

Case studies allow researchers to explore in depth a program, activity, or practice (Creswell, 2003; Marshall & Rossman, 2006; McMillan & Schumacher, 2006; Stake, 1995; Yin, 2003). Yin (2003) suggested that a case study’s design can be modified based on new information or discoveries made during data collection. This flexible design will be important in this study due to the lack of previous data. Allowing the design to be emergent, “in which each incremental research decision depends on prior information,” produces a more compelling study that other educators can use in the future (McMillan & Schumacher, 2006).

Case studies can be classified into two types: single vs. multiple and holistic vs. embedded (Yin, 2003). In an effort to gain information on technology’s role in parental involvement, a single case study approach was used. Due to the global nature of the research problem, a holistic design was implemented. Multiple districts participated in interviews allowing for a wider range of information. This approach produced multiple technologies across various sites, and provided support for specific technologies being used within those sites.

Specifically, a state-wide questionnaire was used initially to collect data related to what technologies were being used in parent involvement programming throughout the state. Two districts were then chosen to participate in the case study in an effort to determine how various technologies were being used in parent involvement activities. In addition to identifying technologies and their use, the study also looked at implications for administrators.

Site Description and Sample Selection

Determining a site and selecting a sample for a study are important steps in the process. Merriam (2002) suggested that researchers should carefully consider these variables as they choose their sites and sample populations. In education studies, probability samples are not generally used; instead, nonprobability sampling is most common. When one wants to understand something about a case, however, generalization to all such cases is not necessary; instead, Patton (as cited in McMillan & Schumacher, 2006, p. 319) suggested “selecting information rich cases for study in-depth.” Conversely, McMillan and Schumacher (2006) identify “purposeful sampling” as an option:

Purposeful sampling is done to increase the utility of information obtained from small samples. It requires that information be obtained about variations among the sub-units before the sample is chosen. The researcher then searches for *information-rich* key informants, groups, places, or events to study. (p. 319)

This latter type of sampling was used to involve districts utilizing specific types of technology.

Parent involvement has become a topic of growing interest over the past few years. Although parent involvement has always been included in Title I of ESEA, the most recent reauthorization added a number of requirements that have caused increased attention. In response to these requirements, the Pennsylvania Department of Education has created a rubric

for school districts to use in the evaluation of their parent involvement programs and practices. This task is generally assigned to the district's federal programs coordinator(s), an individual or group of individuals responsible for overseeing all district or school federal programs. The Department monitors districts every three years to check for compliance in all areas of Title I. Because the federal programs coordinators are directly responsible for this process and the implementation of the parent involvement plan, they are generally the most knowledgeable individuals in the district with respect to parent involvement programming; thus, they present a good starting point.

Four sources intended to generate credible candidates were used in this case study:

1. Federal programs coordinators throughout the state of Pennsylvania;
2. Membership in a state-wide executive committee for federal programs coordinators;
3. Pennsylvania Intermediate Units; and
4. The 2007 Family Involvement Conference.

The researcher is a federal programs coordinator who has access to the state-wide communication network for federal programs coordinators. This tool was used to contact all 501 federal programs coordinators in the state of Pennsylvania in an attempt to ascertain information regarding their parent involvement programs. The goal was to identify districts that use a variety of technologies effectively in parent involvement programming. A scaled questionnaire using a Likert scale was used to measure the presence of technology as it relates to parent involvement efforts. The questionnaire was also used to determine the extent to which the technology is being incorporated. The criterion for school selection was based on questionnaire results. Each questionnaire was scored based on the Likert scale and ordered to determine the rank of each

school. This information was used to determine what technologies were being used, and also to identify the degree of implementation. District scores were used in an effort to identify two schools for further investigation.

The researcher also utilized contacts through membership in the Pennsylvania Association of Federal Programs Coordinators (PAFPC) Executive Committee to verify district's potential. This group consists of six regional representatives and six regional alternates, along with representatives and alternates from Philadelphia and Pittsburgh school districts. These individuals geographically represent all areas within the state of Pennsylvania. Their direct contact with federal programs coordinators within their region or district gave them a general knowledge of district programs. Affiliation with this organization was used to verify information gathered in the state-wide survey. Patton (2002) recommended this type of networking method for sample selection and suggests that the method is a good way of finding "information-rich" informants. The uniform distribution of these members also provided representation from the entire state. Committee members were also asked to send federal programs coordinators within their region an e-mail encouraging their participation in the study. This strategy aided in validating the credibility of the researcher and may have increased the overall response percentage.

Intermediate Units were also used to verify information related to potential case study participants. Several of the PAFPC committee members are leaders within specific Intermediate Units; therefore, communication with individuals having valuable information regarding the study was more accessible.

Finally, the researcher attended the 2007 Family Involvement Conference, which is used to present state-wide awards for effective parent involvement programs. The planners of this conference stated:

This conference is based upon the premise that, active family involvement in the educational process is the key to effective schools and student achievement. Its goal is to bring together, in a common forum, school administrators, teachers, community members, and parents, to interact and address issues that are vital to academic success and well being of our children. (Center for Schools and Communities, 2007)

The conference included attendees from six east coast states including Pennsylvania, New Jersey, New York, Delaware, Connecticut, and Maryland and will focus on sharing ideas about how to make family-school partnerships a reality. This opportunity was used to broaden the search for specific districts or schools through document analysis, networking, and participation.

These additional sources were used to combat the possibility of what Hoy and Miskel (1991) term “groupthink,” which limits one from “assess[ing] alternative courses of action” (p. 322) or, in this case perhaps, additional meritorious districts. After identifying and substantiating districts that appeared to utilize a variety of technologies in parent involvement, the researcher looked at additional sources of related information. A review of each district’s school web page was also used to determine potential indicators suggesting the use of technology to bolster parent involvement. Indicators such as specific parent involvement pages, documented activities, online lesson plans, online grade books, parenting activities, and educational opportunities were explored. Information on specific Parent-Teacher groups (e.g., P.T.A., P.T.O., etc.) was also

investigated in an attempt to further verify both parent involvement and the use of technology. A rubric was then used to score specific activities and practices.

The objective of site selection in this purposeful sampling process was to identify two schools across the state that utilized technology in parent involvement programming. The criteria for selection were based on survey results along with confirmation and recommendations from the organizations mentioned. Triangulation of data was also used to identify potential schools.

Research Strategies

Research methods and strategies should be appropriate to the research questions being addressed (Lauer, 2006; McMillan & Schumacher, 2006; Patton, 2002; Yin, 2003). Qualitative case studies place the researcher in the presence of the individuals being studied. Establishing and conveying clear goals regarding the research process and explaining data collection techniques eliminate confusion that may occur otherwise. The researcher's intent must be established so that participants recognize and understand their roles (Guba & Lincoln, 1981). Many qualitative studies breed controversial situations, creating dilemmas for access and entry; however, this study used a selection process that identified districts based on utilization of various technologies in parent involvement which created a positive atmosphere. The use of purposeful sampling and a variety of networks most likely increased the probability of positive site selection and entrance, offering a key component crucial to a positive atmosphere during the data collection. Johnson (2002) claimed "[n]on-random samples often make sense in qualitative research" (p. 110), allowing the researcher to focus on subjects of interest: in this case, on schools using technology to improve parent involvement.

The purpose of this study was to determine technologies that have the potential to improve parent involvement. Yin (2003) stated "a research design is a *logical plan for getting*

from here to there, where *here* may be defined as the initial set of questions to be answered, and *there* is some set of conclusions (answers) about these questions” (p. 20). Due to the nature of the research, it was important to identify sites that modeled the characteristics of interest. After site selection, a combination of interviews, observations, and document analyses were used to cultivate an information-rich study and to promote data triangulation. Lauer (2006) suggested that triangulation of results allows for convergence of data to support interpretations.

Role of the Researcher

Qualitative research typically requires that the researcher become involved with the participants. Creswell (2003) stated “[t]his introduces a range of strategic, ethical, and personal issues” (p. 184). The role of the researcher in this case study was meant to be that of participant observer, which consists of limited participation, interviewing, artifact collection, and field observation (McMillan & Schumacher, 2006). Site and participant selection was based on other individuals’ survey results and districts’ willingness to participate. Gaining access to the districts determined most likely to model parent involvement through the use of technology was a major focus. The method for site selection was chosen in a manner that reduced the possibility of “backyard” research and that expanded the research to a state-wide study.

As a researcher, one must respect the rights of participants and the sites involved in the research (Corti, Day, & Backhouse, 2000). The university’s Institutional Review Board policy was followed to avoid any human subjects issues. In addition, access to each district was gained through proper entrance procedures.

Data Collection Techniques

Qualitative research relies on the researcher as the primary data collection and data analysis tool (Merriam, 2002). Data collection in this study took place in several phases. During the initial phase, a scaled survey was sent out to a pilot group to identify potential limitations within the survey. After several modifications, the survey was sent to districts throughout the state. Appendix A includes the questions asked in the on-line survey. Additional information was collected through PAFPC committee members, Intermediate Unit staff, and the 2007 Family Involvement Conference. Data accumulated through this phase was used to identify and rank potential districts for the case study. This process identified various technologies and strategies that districts were using in parent involvement. This data in itself may be very useful for administrators attempting to implement parent involvement programs to comply with federal regulations.

After districts were chosen for the study and permission was granted, phase two of the data collection began. Interviewees were determined in collaboration with district contacts. Selections focused on principals, teachers, and parents who were familiar with various programs and technologies. Multi-method data collection strategies were used with participating districts. In-depth interviews, field observations, and document and website analyses was incorporated in an attempt to corroborate data (Merriam, 2002). This multi-method collection strategy increased reliability and validity in the study (Marshall & Rossman, 2006; Patton, 2002; Yin, 2003). During this phase of the study, “data collection and analysis [were] interwoven and occur[ed] in overlapping cycles” (McMillan & Schumacher, 2006, p. 322). This process identified various technologies and methods of implementation.

Qualitative inquiry is said to be “richly descriptive” (Creswell, 2003; Merriam, 2002) and the researchers have stated that in-depth interviews offer an opportunity to capture such quality results. Minichiello et al. (as cited in Merriam, 2002, p. 272) claimed “[i]n-depth interviewing is conversation with a specific purpose—a conversation between researcher and informant focusing on the informant’s perception of self, life, and experience, and expressed in his or her own words.” Because the study is interested in what factors should be used to guide administrators in selecting technologies in parent involvement programming, a standardized, open-ended interview approach was used in an attempt to answer these questions. Interview questions were designed in a “tell me about” format, allowing the interviewee the opportunity to expand upon the subject.

A structured interview protocol (Lauer, 2006) allowed for identification of various types of technologies and their implementation with respect to parent involvement. Appendix B provides the initial interview questions used to generate discussion related to programming, technologies used, and strategies for implementation. While the initial phase of data collection identified various forms of technology being incorporated at districts across the state, the second phase of data collection focused on how districts’ used technology with respect to parent involvement. Three groups of individuals were targeted, including administrators, teachers, and parents. Questions were designed to capture information regarding frequency of use, implementation and cost factors, and any additional items of interest. Questions were also designed based on information provided in the state-wide survey. Epstein’s (2001; 2002) six types of parent involvement and other information from the review of the literature was also used to develop interview questions that determined the type and quality of parent involvement established through the use of various technologies. As interviews evolved, additional probing

questions were asked to gain additional information related to the various technologies, their use, and the participant's general view toward the strategy used. As the study progressed and trends began to emerge, additional questions were also added to target themes of interest.

Another strategy for data collection in this study was document and website analysis. Though non-interactive, this strategy provided valuable qualitative data in the form of personal documents, official documents, and objects (McMillan & Schumacher, 2006). Websites are considered to be a series of intertwined, interactive documents that create communication pathways between schools and homes. Information such as schedules, lesson plans, grades, special program information, and pictures, along with other valuable information, was found on district websites. This information was used to corroborate data collected previously in questionnaires, interviews, and observations.

Data Analysis Strategies

Qualitative data analysis is an inductive process that is ongoing and that requires continual reflection. Using Miles and Huberman's (1994b) concept of "bins" allowed the researcher to categorize information using general labels and to create a more precise framework as the study progresses. This procedure required development an analysis based on the data collected from the participants. This analysis was tailored as data was collected. A systematic approach was used to categorize data and to look for interconnection between these categories so that patterns and themes could be developed. The process of inductive data analysis was used with overlapping phases throughout the continuum of the field work. Interviews with principals, teachers, and parents provided data from varied sources.

Data was be analyzed continuously to contribute to the development of the study. Emerging themes gained throughout the analysis of the data was crucial and allowed the

researcher to be objective throughout the process. Creswell (2003) suggested a six-step process for data analysis and interpretation that was used as a guide throughout this process.

Reliability and Validity Concerns

In qualitative research, validating the accuracy of findings often refers to credibility, authenticity, and trustworthiness. Unlike quantitative research, validity does not carry the same connotation; rather, it is used to determine “whether the findings are accurate from the standpoint of the researcher, the participant, or the readers” (Creswell, 2003, pp. 195-196).

Denzin and Lincoln (2003) identify validity as occurring in qualitative research when descriptions and explanations have credibility and accurately reflect the views of the participants.

For the purpose of this study, key individuals including administrators, teacher, and parents were interviewed in an attempt to gain a complete overview of parent involvement programming. Multiple participants from all three groups and from two separate school districts provided an overview of the technologies being used to implement parent involvement programs. Consistent descriptions and explanations added credibility and accuracy needed to ensure reliability within the study.

This research project was designed to take a large sample, namely the 501 school districts in Pennsylvania, and to explore the presence of technology in parent involvement through a survey. To increase the reliability within data collection, data was collected through an electronic survey, which allowed for increased organization of data. Yin (2003) suggested that researchers “strive to develop a formal, presentable database, so that in principle, other investigators can review the evidence directly and not be limited to written case study reports” (p. 102). Therefore, field notes and recordings were used during the second phase of data collection to

increase reliability. A coding system was developed beginning with survey data and continued to be used throughout the case study portion of the research. The use of multiple sources of evidence in this study allowed for data triangulation. Triangulation, the “cross-validation among data sources and data collection strategies” (McMillan & Schumacher, 2006, p. 374), provides a means for corroborating the same fact or phenomenon. The convergence of data upon a specific fact provided validity within the study. Yin (2003) asserted “those case studies using multiple sources of evidence were rated more highly, in terms of their overall quality, than those that relied on only single sources of information” (p. 99).

Limitations of Research Design

Limitations in the form of site selection have been incorporated in this study to narrow the scope. This process contributes to potential limitations, characteristic of all studies, regardless of the research design (Creswell, 2003). Resources, time, and purpose of research placed practical limitations on both the site selection and on the number of participants involved in the study (Marshall & Rossman, 2006).

Initially, electronic surveys were to be sent out to all 501 Pennsylvania federal programs coordinators through a state-wide listserve. However, the list serve provided limitations due to inaccurate membership. Although the list serve contained 1,533 individuals, only 303 different districts were included. In addition, many of the district representatives no longer served in their previous capacity. Recent position changes created barriers for retrieving information. Specific wording within questions may have also affected responses and limited the study.

Yin (2003) stated, the global nature of holistic case studies may cause the researcher “to avoid examining any specific phenomenon in operational detail” and “the entire nature of the case study may shift, unbeknownst to the researcher, during the course of the study” (p. 45).

Therefore, additional limitations may have occurred due to lack of trustworthy data and limited depth of investigation and verification. However, the combination of multiple data sources and the process of triangulation reduce the likelihood of these limitations.

Chapter 4

FINDINGS

The purpose of this research was to identify promising practices for using technology in parent involvement activities through two phases of investigation. Because parent involvement is such a broad term, this research focused on two specific areas Epstein (2001; 2002) identified within her six components of parent involvement: home-school communications and parents working with their children at home. An electronic survey was used to identify what technologies were being implemented in 129 school districts throughout the state. The results of the survey were then used in conjunction with other networking opportunities to determine which districts were implementing a variety of promising parent involvement practices via technology. This strategy was used to identify and to obtain permission from two school districts willing to participate in a case study. Through a combination of personal interviews, website, and document review, data was collected to understand better how various technologies were being used in parent involvement programs.

Survey Results

Overview of Process

The goal of this research project was to contact as many school districts throughout the state as possible to collect data concerning existing parent involvement practices related to technology. An electronic survey tool was chosen based on a number of features, including the ability to aggregate and disaggregate data. The questions were designed in a manner that would allow one to gain knowledge about each district's modes of communication with parents and about opportunities and resources that were provided to parents to aid their child's learning at home. A pilot survey was sent out to 10 school districts in an attempt to identify potential

shortcomings in the initial survey. Feedback gained through the pilot provided an opportunity to modify the survey prior to deploying the state-wide version. After revisions to the survey and permission granted from the Pennsylvania Association of Federal Programs Coordinators to use its listserv, the survey was sent out in a mass e-mail. The e-mail contained information pertaining to the study, an informed consent form, and a link to the survey. Zoomerang was chosen as the electronic survey tool after several similar programs were tested.

Participation

Although the Pennsylvania Association of Federal Programs Coordinators' listserv was used, a great deal of time was spent modifying the existing contacts to eliminate duplicate contacts within districts. The existing listserv, which contained 1,533 individual addresses, was narrowed down to contacts at 303 separate school districts. In most cases, the federal programs coordinator or Title I coordinator was the contact person. This listserv was chosen based on the members' knowledge of parent involvement programs and activities within their district. After approximately two months of data collection, which included multiple survey deployments, the survey was closed and data review began. The electronic survey resulted in 173 web visits, 111 completed surveys, 18 partial surveys, and 3 screen outs where the individuals responding were not in a position to provide information on parent involvement. One problem that reoccurred was the inaccuracy of survey recipients' district representatives due to retirements over the past two years.

Zoomerang's ability to aggregate and disaggregate data was very helpful. As with most survey tools, the program provided the ability to review data in various forms in an attempt to focus on specific traits. Graphs of the collected data were used to look for trends around the state. Data was then extracted to an Excel spreadsheet where Likert scale values were used to

rank order school districts for further review. Districts that showed higher use of technology based on survey results were then considered for the case study portion of the research.

Results

The information collected in the state-wide survey was used to determine what technologies were being implemented to promote and improve parent involvement. Survey questions focused on areas of home-school communication, opportunities for learning at home, resources, and training opportunities for parents. This information was also used as a guide to identify districts to participate in the case study portion of this research.

Communication

Survey results indicated a number of communication techniques used by districts in an attempt to foster home-school relationships. Results indicated that 52% of the 129 districts that responded “always” posted students’ grades online, while 11% “often” posted grades. Five districts noted that they were in the process of adding this technology. Results also showed that 16% of districts surveyed always posted online lesson plans. It is also worth mentioning that a number of districts utilize online grades at the middle and secondary level but not at the elementary level. Three school districts indicated using a parent portal system that allows parents access to attendance, assignments, grades, discipline information, and state assessment data. Another source of communication that school districts reported was their school website. The surveyed districts reported that 52% “always” provided updated information, with 31% reporting that their websites were “often” updated. Although this question was initially placed on the survey to determine district utilization, eight districts provided additional comments that showed that their districts provide teachers the ability to design, post, and update their own websites for classroom use. This trend requires that the school district have specific software in

place for teachers to use and most likely would require district-wide professional development if the initiative were to be successful.

Telephone and voice messaging systems showed mixed results with 41% of participating districts reporting the use of one-way systems and 29% reporting the use of two-way systems. One-way calling systems were defined as those that allow the district to make mass phone calls to district members. Although these are considered to be one-way calling devices, several districts reported using the systems to present surveys; therefore, the system becomes a two-way communication tool. Two-way phone messaging systems were defined as those that allow parents to respond after receiving a call and to leave a message or to receive additional information. Although this response can be accomplished through traditional telephone systems, many districts have started to utilize Voice-over-Internet Protocol (VoIP) in an effort to reduce communication and infrastructure costs by routing phone calls over existing data networks. These systems also allow districts to take advantage of existing network systems, to expand communication options, and to track and organize telephone calls and voice mails through the computer. One-way voice messaging systems are quickly gaining popularity. During the time that this survey was sent out, 3 of 35 school districts in Intermediate Unit 08 were using similar systems; currently, 28 of 35 districts within that Intermediate Unit use comparable technologies. This increase most likely is not due to an effort to boost communication with parents. Many school districts have adopted such a system as a precautionary device for school emergencies. In addition, districts are able to report student attendance to parents, promote school activities, announce snow delays and cancellations, and facilitate surveys.

On the initial survey, e-mail had been omitted as a specific response in the communication question. However, over 50% of respondents listed it as a source of

communication with parents under “additional means of communication through the use of technology.” Several also mentioned that teacher e-mail addresses are included on the school website. Many of the one-way calling systems referred to earlier also have the capability of placing a phone call, in addition to sending e-mails and text messages to parent contacts. Quality systems are able to integrate with school districts’ student management systems, allowing a variety of options. If given the opportunity, teachers can generate a group listing for their class that would allow them to place phone calls, to send e-mails, or to perform a combination of the two. In addition to the information provided in the survey, all individuals interviewed in the case study also mentioned e-mail as a form of communication. Therefore, this mode of communication obviously is used extensively.

Three resources listed in the communication survey question that did not receive regular use included homework help lines, web conferencing, and telecommunications. Each of the options received less than 25% usage at the “often” or “always” level. Four other sources of communication that were specified in the additional technologies portion of the question included blogs, wikis, podcasting and video streaming. While these seven sources of communication did not comprise a substantial percentage of the group surveyed, each offers a means of communication that may be useful to school districts.

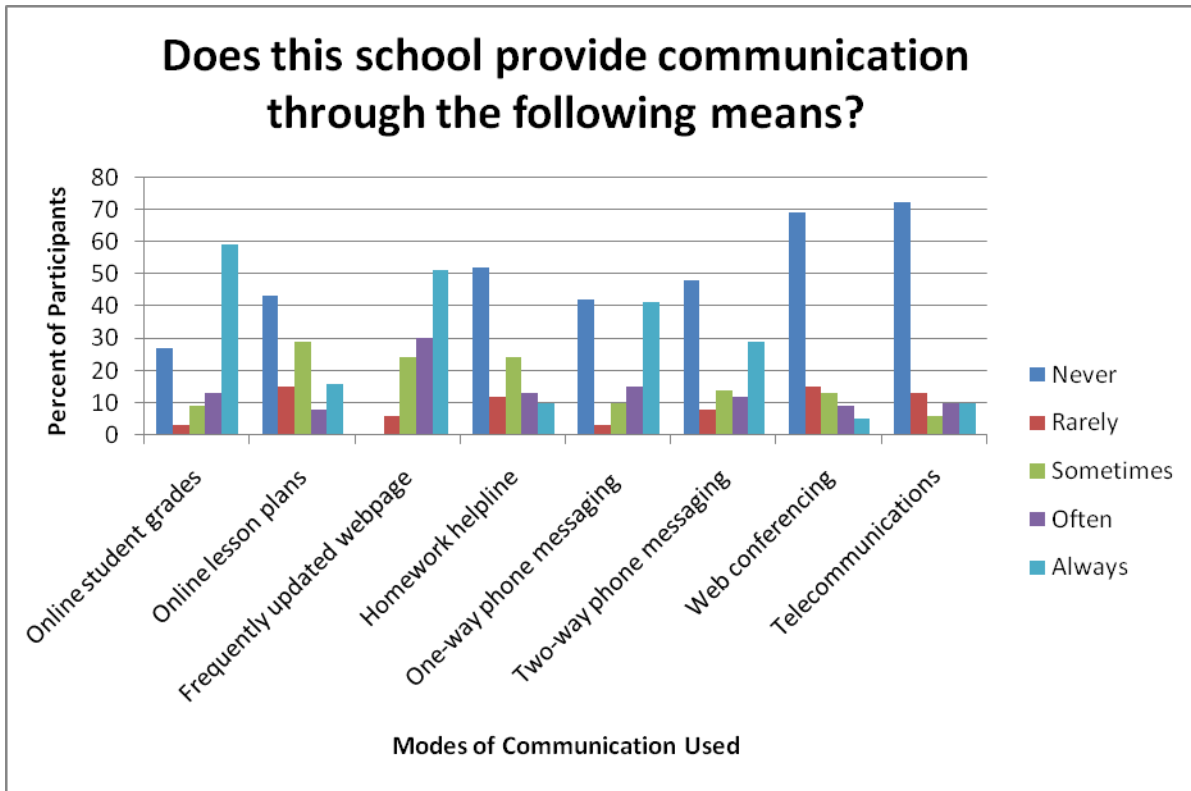


Figure 2. Different means of communication in surveyed districts.

Figure 2 provides an overview of the utilization of various technologies reported by respondents in the survey. While handwritten notes, phone calls, and face-to-face interaction may have been the main sources of communication for schools and parents in the past, technology has obviously opened the door for a number of additional modes of communication. In addition, telephone communication has also been enhanced by integrating technologies such as computers, networks, and software resources. The growth in distribution of cellular telephones has also broadened the opportunity for school districts to communicate more readily with parents.

Opportunities for Learning at Home

In an effort to expand learning beyond the school day, many school districts devote significant time and resources to providing opportunities for students. Figure 3 summarizes survey results pertaining to those opportunities provided and the frequency of their use.

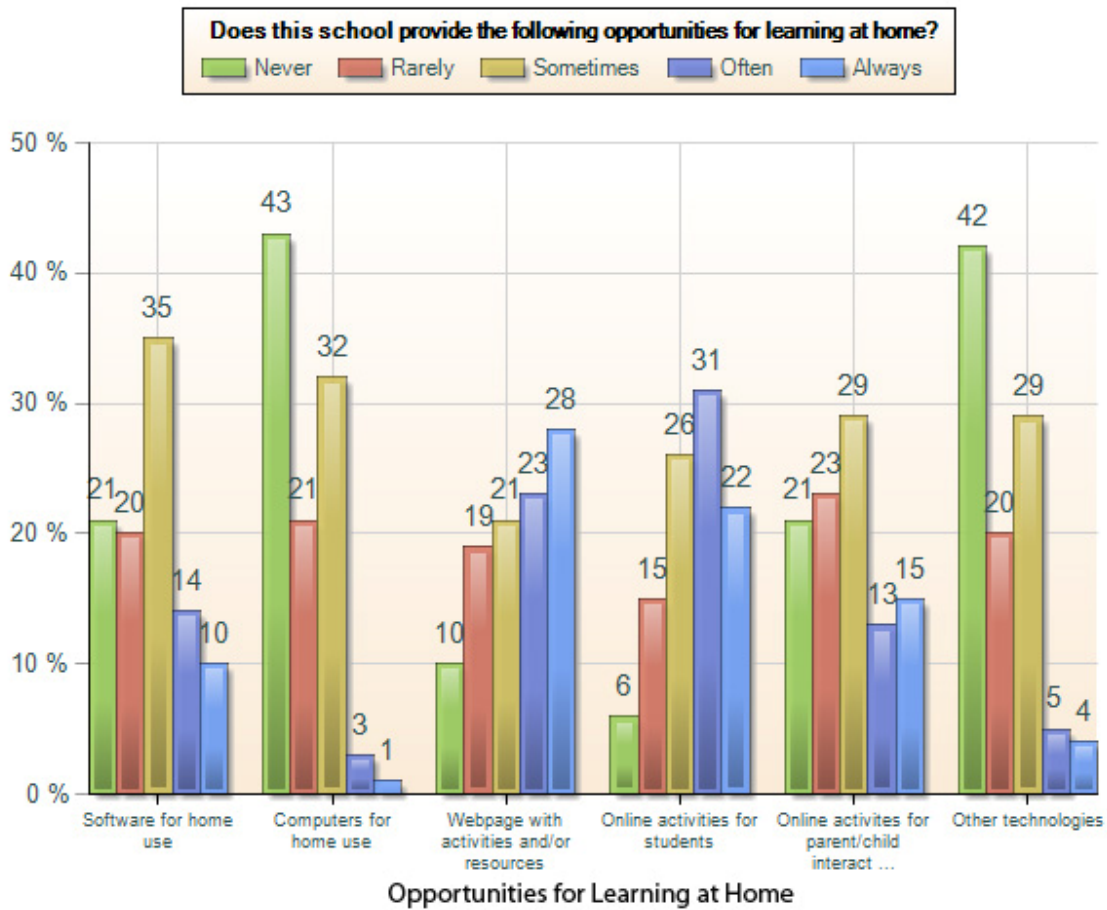


Figure 3. Opportunities provided for learning at home.

Respondents were asked if the school provided the following six resources: software for home use; computer for home use; web page with activities and/or resources; online activities for students; online activities for parent/child interaction; and other technologies. Each resource could be identified as being used “never,” “rarely,” “sometimes,” “often,” or “always,” which

generated additional information related to frequency of use. Based on the results, school districts are utilizing online technology resources over traditional software options. Over 50% of those surveyed reported “always” or “often” using web pages that included activities and other resources along with online activities for students. Of those surveyed, 32% percent also reported “always” or “often” using online activities for parent-child interaction. The growing accessibility to computers and Internet service has most likely allowed for expansion in this area. Only 28% of the districts reported “always” or “often” providing software for home use. One factor that may influence this trend is cost. Many online software options and resources are available at no cost, while other web-based software packages are also available to districts based on school enrollment or on any combination of user licenses, which provide districts an affordable means to make activities available to children and parents. These options also decrease problems because they do not involve the physical distribution of software on discs or the worry of compatibility with users’ computer systems. The trend to move toward online software options was also documented in several districts. Additionally, several individuals mentioned the opportunity for access to online textbooks provided through web page links.

Although one district reported providing computers and Internet access to all students within the district, 96% of the districts responded as “sometimes,” “rarely,” or “never” providing such hardware. Additionally, one district supports a computer resale program that allows students to purchase computers at very reasonable costs after the hardware has reached its service life within the district. Other hardware such as PDAs, iPods, PlayStations, and Leap Pads were also reported as tools provided by some districts for learning at home. One district explained that they were piloting a project using iPods and pre-recorded books in a Title I

reading program. Podcasts were also mentioned by several other schools as resources for learning at home.

A number of cyber learning opportunities were named in the survey, including the Center for Talented Youth (CTY) at John Hopkins University, which was used for gifted students and enrichment, on-line courses through Advanced Academics and Blendedschool.com, virtual learning curriculum, and other district cyber services. Although not well documented in the survey, the increasing availability of hardware, software, and bandwidth will certainly allow districts to explore new options for learning both in and out of school.

Though Internet accessibility is increasing, one individual reported “The district walks a fine line as many students in our poor district do not have home access to the Internet which makes fairness and access a significant issue.” This circumstance may prove to be true; however, the expansion of broadband access is obviously widespread in many areas through phone lines, cable companies, and satellite access.

Opportunities Made Available to Parents

In addition to the information already discussed, the survey also intended to determine how school districts provided information, training, or assistance to parents in the areas of parenting skills; helping with homework; developing study skills; and previous learning opportunities outside of the school. Response options consisted of workshops or classes; audio or video-based workshops or recordings; web-based instruction, newsletters or other printed material; digital media sources; and the option to name another source provided by the school district.

Figure 4 shows that districts tend to use traditional methods of informing, training, and assisting parents with basic parenting skills. Newsletters and other printed material ranked the

highest at 91%, with workshops or classes following at 78%. Digital media such as district websites or e-mail was used by 37% of the districts, with other resources being used 10% or less of the time.

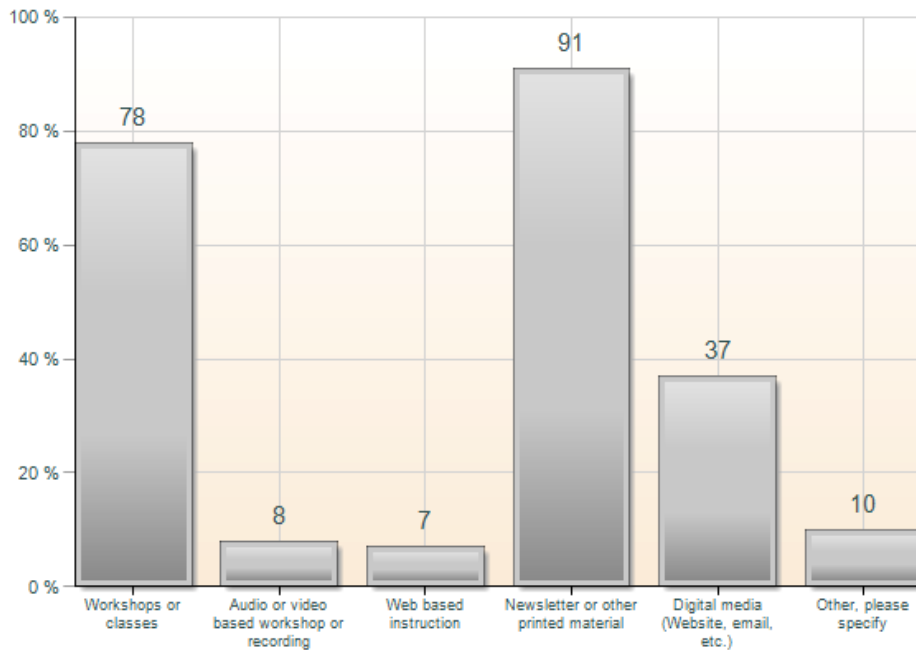


Figure 4. Percentage of schools providing information, training, or assistance to parents on parenting skills.

Figure 5 also shows that districts tend to use traditional means of informing, training, and assisting parents with basic parenting skills. Newsletters and other printed material ranked the highest at 86%, with workshops or classes following at 70%. Digital media such as district websites or e-mail was used by 29% of the districts, with other resources being used less than 10% of the time.

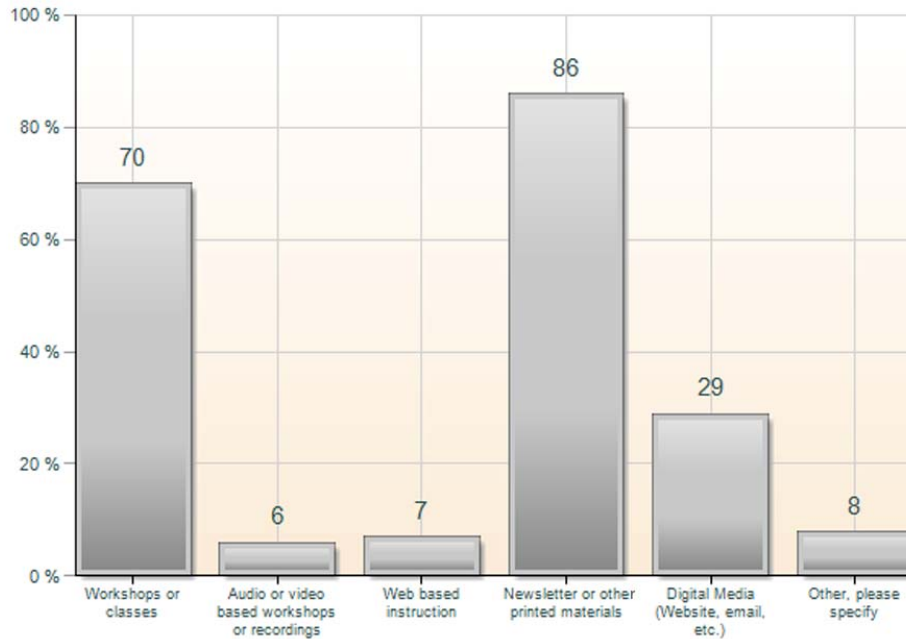


Figure 5. Percentage of schools providing information, training, or assistance to parents on helping with homework.

Furthermore, Figure 6 and Figure 7 show similar trends regarding the utilization of traditional means versus options provided through technology in the areas of developing study skills and ideas for learning activities outside of school. One exception is the use of web-based instruction in 17% of the districts to provide information, train, or assist parents in learning activities outside of school. Districts reported newsletter and other printed material as the leading resource made available to parents, with workshops or classes following closely in all four areas. In comparison to these traditional methods, digital media including websites and e-mail is the next most utilized means of providing such opportunities. While printed resources ranged from 88% to 99% and workshops or classes ranged from 66% to 85%, digital media was only used by 23% to 40% of the districts. Other nontraditional methods such as workshops in an

audio or video format or through web-based instruction were utilized by less than 10% of the districts in most cases. Figures 4 - 7 show trends previously described, which indicate an opportunity for growth in the area of using technology to provide information, to train, or to assist parents in a variety of areas. Clearly districts still favor face-to-face opportunities over traditional means made possible by technology to engage with parents.

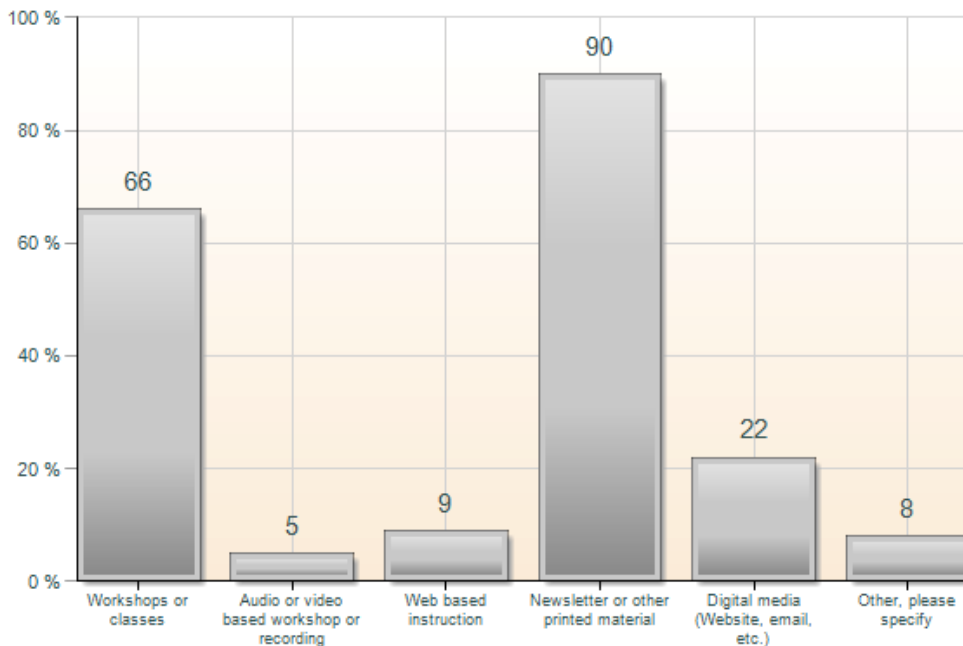


Figure 6. Percentage of schools providing information, training, or assistance to parents on teaching study skills.

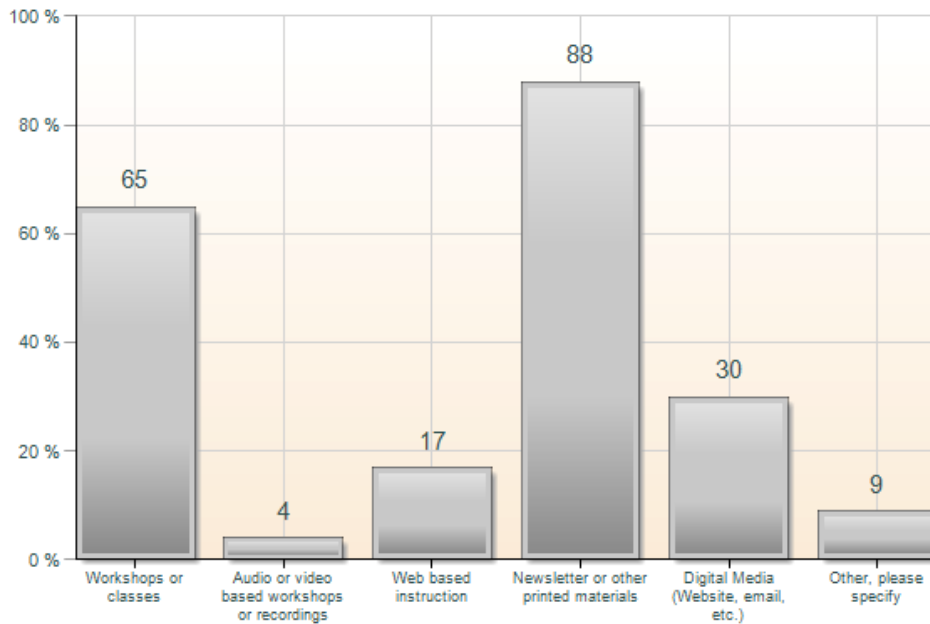


Figure 7. Percentage of schools providing information, training, or assistance to parents on learning activities outside of school.

Given the opportunity to share additional parent involvement activities specifically, districts mentioned the following:

1. Computer training opportunities for parents including internet training, word processing, publishing, and writing resumes;
2. Student learning opportunities through the virtual learning academy;
3. Parent page provided on school website including resources for internet safety, computer specials, student support services, parent forms, student search engines with passwords, and many website links;
4. CDs that explain and model the guided reading process and offer tips for parents to help their children;

5. Videos used by principals during open house to facilitate the evening more effectively; and
6. DVDs for kindergarten parents.

A variety of technologies was mentioned throughout the course of the survey to indicate what was being used throughout the state. This information was then used as a guide to identify districts for the case study portion of this research.

Case Study Analysis

Participant Selection

Additional data was used in combination with the survey to identify potential districts for the case study portion of the research. Information was also collected at the 2007 Family Involvement Conference in Mount Pocono in an attempt to identify districts modeling characteristics that supported the study. Although the conference provided a valuable opportunity to gain knowledge on parent involvement practices and opportunities, very little information was learned in the area of implementation with technology. Members of the Pennsylvania Association of Federal Programs Coordinators' (PAFPC) executive committee also provided information about districts that showed higher levels of integration of technology in parent involvement through the online survey. One district that was mentioned several times was the Wilson School District in West Lawn, Pennsylvania. The district's website was reviewed in an attempt to validate information that had been previously provided concerning the district's integration of technology as a tool for collaboration with parents and the community. Because of several features including streaming video opportunities, Really Simple Syndication (RSS) feeds, online grading, and a website with a wealth of information, the district was contacted in an

attempt to gain permission to interview administrators, teachers, and parents. When confronted with the opportunity to participate in the study, the superintendent of schools was excited about the opportunity and was very helpful in orchestrating the contacts needed to implement a case study of the Wilson School District.

Similarly, State College Area School District was investigated based on its score on the scaled questionnaire and a phone conversation with the district's Title I coordinator. Upon further review through colleagues and identification from other nearby school districts, it was determined that this district also modeled traits of interest. Again, a review of the district's website showed a desire to communicate with parents and community through an electronic forum. The website showed both depth and content that supported survey results and colleague's praise. Permission was requested and granted, allowing further investigation of the district's integration of technology in the pursuit of parent-school communications and parent-child learning.

Wilson School District

The Wilson School District is located in West Lawn, Pennsylvania, on the outskirts of Reading. The district currently serves over 5700 students with 550 faculty members with a growing student population, which has required several new buildings over the past 10 years. The district is currently comprised of one senior high school, two junior high schools, and eight elementary schools, although the district will be shifting to a middle school concept in 2010 after the completion of a new building. The student population includes 6.8% black, 7.2% Hispanic, 3.5% Asian, and 82.2% white students. Within the district, 14.0% of their students receive special education services and 3% are English-language learners (ELL). The district also includes 13.5% of the student population within the economically disadvantaged subgroup in

comparison to the state average of 31.4%. Community demographics show 91.4% of adults within the Wilson School District to have at least a high school diploma in comparison to the state average of 87.3% and 37.1% to have at least a bachelor's degree in comparison to the state average of 25.8%. Residents' household income distribution shows 21% earn less than \$30,000 per year, 35.4% earn between \$30,000 and \$100,000, and 21.7% earn over \$100,000 (School Matters, 2006b).

Through the initial state-wide survey, Wilson identified a number of technologies as being used within the district. In addition to the survey, nearby school districts and the local intermediate unit were contacted to verify the utilization suggested in the survey. The district's website was also used to confirm that technologies identified in the survey were in fact being used. After this process, the district's superintendent was contacted, and permission was granted to interview district personnel and parents. In the district, six administrators, seven teachers, and four parents were interviewed. Topics of questions ranged from general parent involvement to specific communication techniques, parent training opportunities and additional resources involving technology.

Identified Technologies

Although a number of technologies were identified during the initial survey with the Wilson school district, additional technologies were mentioned during individual interviews and through document review. These included but were not limited to the district website, the district media center, e-mail, video streaming, closed circuit TV, voice over IP, and the Connect-Ed calling system. A major goal during the case study portion of this research was to determine how specific technologies were being used within districts to improve communication between the school and the home and how they were being used to foster learning at home. A number of

technologies were identified throughout the interviews with parents, teachers, and administrators. The following sections provide an overview of each technology and how it was viewed through the lenses of those interviewed.

District Website

The district website www.wilsons.org was initially used to verify a number of technologies that the district reported during the initial state-wide survey. Web features such as online grades, photographs, videos, RSS feeds, educational links, embedded web pages, eNewsletters, blogs, and a number of other features were also found. These options indicated that the district was using its website as a communication tool and also as a tool for parents to work with children on educational activities outside the school day. The district home page provides an attractive format with easy navigation to each school, the district calendar, administration, extracurriculars, school board, resources, headlines, announcements, and site shortcuts. Coincidentally, the two districts participating in the case study utilized a company called Schoolwires to host their sites. This company claims to specialize in education agencies.

Each individual interviewed either commented or agreed that the school website was a strong communication tool between the district and student homes. One administrator described the school website as “the front door of the district.” The same administrator had also been tasked to improve the school website at one point in time. As he described the goals of the project, he clearly established communication as a central theme. Other administrators also confirmed their ability to communicate with parents and students through their own personal school web pages and those created by teachers. School web pages, principal web pages, and individual teacher web pages allow both principals and teachers flexibility in creating their own connecting point with those interested. Although each individual has his/her own web page, the

extent to which the page is developed is determined by the individual. The district provides initial training that arms administrators and teachers with the knowledge to set up and maintain basic web pages and with the software to accomplish this task.

Parents agreed that the district website offered a wealth of information. All parents interviewed had utilized the site to gain information about the district, their child's school, and their child's classes. Different parents used the site to differing degrees; however, all agreed that the district did a good job providing up-to-date information that was useful and beneficial as a communications tool. Parents most commonly mentioned using the website to gain specific information from sources such as calendars of events, lunch calendars, classroom information access to activities for student learning, school and teacher newsletters, and teacher communications. All parents interviewed owned a computer with Internet access, and none reported knowing someone who did not have similar technologies. However, all principals reported a small percentage of families that did not have access in their homes. Although the majority of the parents interviewed had elementary students, those who had middle and high school students used the site to gain access to student grades.

The district's website was reviewed extensively after the initial interviews had concluded. All three groups agreed that the school website and individual web pages offered both a means of communication and a tool for learning during and outside the school day. The district website was used to identify converging evidence in an attempt to determine reliability. The following discussion focuses on the district's website based on information provided in interviews and an extensive review of individual web pages.

School Web Pages

Wilson's district website provides access to each school through a drop-down menu system. After accessing individual school web pages, users find similar school link bars including administration, library, staff, calendar, and announcements. Although not all schools have identical options in the link bars, consistency is apparent as one moves from school to school. In addition to the link bar spanning the top of each page, the page provides three sections including site shortcuts, general information, and headlines and features. This format allows the viewer to navigate the page with ease.

Principals identified their personal web page as a location to post monthly newsletters, to provide general information, and to highlight topics of potential interest. All principals clearly felt an expectation to provide information to the public through their web page; however, they met this expectation at varied levels. Upon review of all district principals' web pages, this variation was confirmed based on the amount of information provided from page to page. The consensus from those interviewed was that the web page provides a "wonderful" opportunity for outreach, although "it also involves regular maintenance which takes time." The same theme was also apparent in the web pages of faculty. Teacher feedback indicated that they had flexibility in the amount of information provided on the web page. Those interviewed also indicated that they used the pages to various degrees. Review of well over 100 different teacher pages indicated that some teachers only posted general information such as contact information and class schedules that may remain the same for the entire year, while others' pages included a variety of information including both communication components and educational opportunities that to changed regularly over time.

Four features integrated into the school web pages developed into central themes during the interview process. These included individual teacher and principal web pages; links to useful education sites; student grades; and streamed video and video archives. Each of these features will be discussed in detail to describe its value as viewed from the different lenses of the participants.

Teacher and Principal Web Pages

All teachers in the district host personal web pages embedded within the web page of their school. School web pages are accessed through the district website with a drop-down menu option. Navigation proved to be very simple, with consistent structure moving from one school to another. The majority of teacher web pages include personal profiles that provide background information about the teacher. This information was mentioned by two parents and reported as “an opportunity to build relationships.” However, one parent also stated that he felt “teachers should be required to include more than background information and student schedules.” While some teachers limited their web pages to this information, many others included a host of information reported by principals, teachers, and parents.

Most parents reported that they felt their school and the district did a good job of providing information and activities, a reaction very similar to what principals and teachers expressed throughout the interviews. Teachers admitted to having varied levels of proficiency with developing web pages with some being “very comfortable” and others feeling their skills were very “basic.” The district reportedly provided training for teachers in this area; however, “time [was] the biggest obstacle to creating and maintaining a quality web page.” Principals agreed that time was an obstacle, which was apparent after reviewing different principals’ personal and school web pages. One principal chose to use the school web page as a learning

opportunity with a “Word of the week.” The same principal was able to use the website to post recorded video that had been previously streamed.

Web pages considered being above average by parents and teachers included information and activities that would continuously pull the viewer back to the page. Features such as class schedules can gain the viewer’s attention once or twice; however, daily assignments with interactive suggestions for parents may entice them back repeatedly. Although a number of blogs showed little interaction, they all seem to share the common trait of broad question. Blogs that included questions related to a class assignment or to a specific activity seemed to produce greater participation in the form of more extensive responses. Typically, blogs were not required activities due to the limited participation. Websites of this nature have the tedious constraint of constant maintenance. Individuals who posted new information regularly seemed to have a greater following, with one second grade teacher even having third-grade students responding to her blog questions. On the other hand, web pages considered to be below average included links to empty pages or pages that had not been updated during the current school year, as was mentioned by one parent.

Another feature found on both teacher and principal web pages included RSS feeds. This feature allows individuals to subscribe to specific content of interest. Subscribing to the RSS feed provides individuals with updated information as it becomes available. RSS tags are often posted with information that is updated regularly. Subscribers are notified when information is updated, which allows them to keep current.

Some teachers utilized their web pages to post student work. This strategy encouraged parents to access web pages to see what their child had done. One example was a first grade PowerPoint presentation on spider research. The presentation was posted on the teacher's web

page and featured pictures drawn by students with facts about specific types of spiders. Each student's work was organized to create the culminating project. Another example showcased students' research reports through podcasts with audio recordings of the students presenting their reports. A number of teachers also posted pictures of student projects. Several parents described and felt that these types of pages were more valuable and interesting than the class syllabus or note-taking instructions were.

Several teachers' web pages appeared to open the door for two-way communication through the use of blogs. Several teachers used blogs to allow parent and student feedback and communication on specific topics. In most cases, teachers presented a specific topic such as a reading assignment and posted questions to generate discussion. While no teachers interviewed utilized this feature, one mentioned that a colleague used it regularly to engage parents and students in classroom activities. This tool allows a web page, which is commonly thought of as a one-way communication tool, to be transformed into a two-way communication tool. At the same time, it also provides an opportunity to develop interactive exercises for parents, students, and teachers. Although this activity may sound very promising, one teacher reported that "it can become very time consuming and requires a great deal of effort depending upon the response."

Several features commonly found on principals' web pages included newsletters; school handbooks; mission and vision statements; daily announcements; calendars; answers to frequently asked questions; state assessment data; access to forms and documents; course selection options; and a variety of other informational links. One principal also included an audio welcome back to school message. Although this feature is similar to what some may do with the Connect-Ed system, individuals need to connect physically to the web page and then

access the link to the message. Such variables may be reduced by giving individuals the option to subscribe via an RSS feed.

Overall, many of the school, principal, and teacher web pages appeared to be very informative. Although they differed in the magnitude of information provided, school websites offer not only a means of one-way communication but also avenues for two-way communication.

Educational Links

Throughout the review of teacher web pages, many links to educational websites were discovered. Another parent reported using these sites exclusively for educational activities within the home. One parent also reported “If the classroom teacher does not have activities on their website, I go to other teachers’ websites to find activities and software links.” Other parents reported using software links from teacher web pages in combination with software they owned. Several teachers reported receiving positive feedback from parents based on educational links they provided on their web page. Principals also indicated an awareness of teachers who used this strategy to provide opportunities for their students. Although links to educational games were the most commonly reported, individuals also cited links to resource information such as web quests and blogs that parents and students could explore.

At the senior high level, educational links were more commonly described as locations where students could obtain information. For instance, one interviewee reported that “students often use websites to collect data needed for their senior projects.” This location was also reported as an area where senior high parents were frequently engaged with their children. Other than checking students’ grades online and attending extracurricular activities, parents actively encouraged their children to complete research via such educational links. In addition, the

district provides subscription based software such as Study Island through which students can practice mastering state standards via web-based software.

Student Grades

Although the majority of the individuals interviewed were involved at the elementary level, several of those interviewed mentioned student online grades as a feature that many parents utilized. One parent who had both an elementary and secondary child within the district reported online grades as the number one reason why she visited the district website.

Parents gain access to the online grade portal through the district's homepage, although it is a separate piece of software requiring a username and password. The district is currently expanding use of the online grade system, which was an area of interest to parents of elementary students. Several reported the desire to be able to access student grades during the course of a grading period. However, principals and teachers had mixed emotions about this option. One principal stated that "parents need to be aware that elementary students' grades should not be taken in the same manner as those at higher grade levels." The same individual thought it might be interesting and more valuable to use podcasts of students reading independently to report student progress over time to parents: "This would allow parents to identify progress and create dialogue for parent teacher discussion."

Individuals also identified student online grades as a prompt for two-way communication between home and school. Although individuals did feel as though the grades created additional dialogue between home and school, several did state that it did create additional dialogue between the parent and student. One parent indicated that online grades allow her to keep up to date with her child's progress and if that progress begins to diminish, she is inclined to e-mail the child's teacher(s).

Streamed Video and Recorded Video

Another feature mentioned by parents, teacher, and principals was multimedia resources presented on the district website. Streaming video along with recorded video and photographs was mentioned most commonly. This trend is apparent as soon as one reaches the district website. The main banner on the home page hosts a variety of school photographs through flash media technology. The banner is very attractive and sets a positive tone for viewers. Those interviewed most commonly complimented the streaming of graduation ceremonies each year. Several individuals mentioned that principals had used video to motivate students or to create incentives for students. These included unique activities such as kissing a pig, sitting on a roof all afternoon reading books, and dancing around in a bumblebee outfit.

When asked if this option presented additional opportunities that may be expanded upon, individuals answered in a variety of ways. One principal thought that streaming video might be a way that the school could connect with those parents who did not have time to attend events such as PTO meetings. Although the individual was not sure about the effort necessary to present this type of presentation, it seemed to offer a means of expanding communication in a manner not thought of before. Several parents commented on different videos that they had watched and felt them to be good communication tools for the district. One individual mentioned that “recorded videos allow me to watch any time that is convenient to me.” This media form was equated to using a “DVR” or “TiVo” in the home. One teacher mentioned that a colleague used video to record class presentations and thought it might be interesting to post the presentations online for parents to view, but was not sure if the district allowed video files to be posted on teacher web pages. Finally, another teacher felt “recording parent training sessions on topics such as Everyday Math could be beneficial to parents.”

Although a number of individuals interviewed mentioned video streaming and recorded video, most were not familiar with how to post videos. However, several principals mentioned opportunities made available through the district's media center. One stated that "the media center provides resources for principals and teachers." One principal reported working with the media center to develop videos that could be used during staff training and with parents during back-to-school night. Several teachers mentioned that this use of technology offered not only the opportunity to communicate with parents, but also the means to present information to students in a new way.

E-mail

Throughout the case study portion of this research, e-mail was reported by many as the number one mode of two-way communication between schools and the home. This trend was apparent with parents, teachers, and principals interviewed throughout the study. Many felt that increased user access to e-mail has contributed to its rising popularity. Several mentioned that e-mail can now be viewed and sent from handheld devices, expanding its availability. The following summaries of the three groups interviewed provide a comprehensive overview of how each group views the value of e-mail as a communication tool.

Principals

When asked which mode of two-way communication principals most commonly used, the majority mentioned telephone calls or e-mail in no particular order. Upon further discussion, those interviewed agreed that while telephone calls were very common, e-mail was continuously gaining popularity. Principals agreed that e-mail offers a quick and easy way for parents to communicate with schools. One principal felt that parents still tend to make a telephone call if they need immediate assistance from the school office or principal. However, in trying to reach a

teacher, parents typically choose e-mail over leaving a voice mail. When asked why they felt so inclined, principals maintained that teachers tended to reply to an e-mail more quickly than to a voicemail.

Principals were in agreement on how they responded to e-mails they received. E-mails that presented no room for interpretation and that required only simple responses were followed up with a return e-mail. However, if the e-mail contained any tone of dissatisfaction, controversy, or any type of question, principals tended to follow up with a telephone call. One principal explained that “it is very easy to misread an e-mail on both ends; therefore, I prefer to make a phone call.” This opinion seemed to be a common theme not only with principals, but also with teachers. Several individuals recalled that they had responded to parents’ e-mails and had been misinterpreted or thought to have had an “attitude.” One individual stated “it is impossible to determine tone of voice in an e-mail, and the way individuals write can often be misinterpreted as negative when it really is not.” The same individual explained that she had “overreacted” to a parent e-mail at one time and started a series of e-mails that could have been avoided with a simple return phone call. Yet another principal stated “You cannot bring it back once you've hit the send button, so you better think through your response.”

Principals also reported using e-mail to distribute mass mailings including newsletters, notices, or general information. One principal stated that his school was doing a better job of collecting e-mail addresses and that parents were more inclined to keep this information along with cell phone numbers up-to-date “in an effort to be better connected.” One school’s Parent-Teacher Organization used a listserv to get information out to members. The principal intern used this listserv for a variety of purposes. The school district felt that future efforts to create a listserv for parents and teachers would be very beneficial. Another area that was mentioned

while discussing e-mail was the school's Connect-Ed calling service that provided the option to send messages to designated e-mail addresses.

Teachers

Teachers' responses concerning e-mail were very similar to those of school principals, with one stating, "E-mail has made it easier to get in touch with parents." As mentioned previously, e-mail was deemed a valuable tool for providing general information or for responding to parents' general questions. However, was not considered to be the best method of responding to questions whose answers had room for interpretation.

Several teachers reported that they collected e-mail addresses at the beginning of the year during back-to-school night. Doing so allowed them to make their own listserv that could be used throughout the course of the year to communicate with parents quickly. Another teacher provided parents with a magnet that included her name and e-mail address for future reference. When asked if all parents were able to provide e-mail addresses, most agreed that a few parents were reluctant to give their e-mail addresses or did not have an e-mail address. Teachers then reported reverting back to previous modes of communication such as "flyers in the book bag." One teacher encouraged parents to provide e-mail addresses due to advantages such as less paper waste, increased reliability of receiving the document, and increased teacher productivity. The same teacher acknowledged that she was usually able to obtain all parents' e-mail addresses.

Teachers reported using e-mail in a variety of ways, including class newsletters, directions for special assignments, notices of upcoming events, suggestions for working with children at home, links to web pages of interest, general correspondence, or simple identification of a convenient time to call parents. Although most teachers expressed a preference for using e-mail, two teachers mentioned that sending information home with students had its place. These

individuals felt it was necessary to put something into parents' hands rather than to rely on their checking e-mail and having to print out documents. As one teacher stated, "although many parent use e-mail on a regular basis, many would rather have activities and other information printed out and sent to them, relieving them of the responsibility of printing necessary documents."

Overall, teachers seemed to agree that e-mail provides an additional means of communication with parents. One teacher stated "I believe it is important to communicate with parents in the manner that they are most comfortable with." Another reported that "e-mail is the easiest way to send out a quick answer to a parent's question." However, most agreed that negative comments coming from a teacher are better communicated through a telephone call.

With the widespread popularity of e-mail, some users mentioned that this mode of communication would probably increase in the future. However, several others believe that technologies such as text messaging may override e-mail.

Parents

Parents' views on e-mail were similar to those of principals and teachers. All parents interviewed reported using e-mail at one time or another to correspond with the teacher or with the school. Most agreed that e-mail has its place and is very useful when the parent needs to ask a question or gain clarification. However, the majority of those interviewed felt a need to call the school if they believed the situation was serious. One parent stated that she preferred face-to-face or telephone conversations over e-mail "because it [was] too easy to misinterpret e-mail."

All parents interviewed had access to e-mail and felt comfortable sending and receiving e-mails. Several noted that while they realized that some individuals may not have e-mail, the circumstance was certainly not the norm. When asked if they would feel comfortable

corresponding in another format such as text messaging, most agreed that e-mail seemed more appropriate.

In conclusion, e-mail was readily utilized by all three parties interviewed. E-mail seemed to be gaining popularity as a means of two-way communication; however, most seem to agree that it had its place and was better left to conversations that did not require interpretation of feelings. E-mail allows individuals to respond at their own convenience, therefore, requiring individuals to take the initiative. Furthermore, the Wilson School District made it a priority to respond in a timely fashion to e-mails to foster positive communications between the school and home.

Connect-Ed Calling System

As mentioned earlier in this chapter, many school districts are finding the need to subscribe to emergency calling systems, which allow telephone calls to be sent out to all parents in the district. These calling systems can generally make hundreds to thousands of calls very quickly by utilizing the district's student management system. Wilson School District has been using the system for two years and is beginning to find new ways to integrate the system as a communication tool. Although not all individuals interviewed initially identified the Connect-Ed system as a communication tool, everyone was familiar with the system and its uses when asked specifically.

Principals

Principals most commonly identified the Connect-Ed system as a communications tool over teachers and parents. This attitude may have been due to their familiarity with the system. Although Connect-Ed is often used at the district level, building principals also have the

capability of using it at the school level. Because the system has only been utilized for the past two years, administrators were apparently just beginning to become familiar with its capabilities.

Most of the principals agreed that the Connect-Ed system was more of a one-way calling system, although several felt that it could lead to two-way dialogue. One principal described how she used the system as a learning opportunity. The principal recorded herself reading stories and in turn sent the recordings out to struggling readers throughout the summer months. She did so on a regular basis and at a regular time, allowing students to anticipate the recorded call. The principal reported positive feedback from both parents and students and expressed a desire to look for other ways to utilize the calling system. Another principal explained “Connect-Ed has increased attendance due to phone calls that go out when individuals are absent.” The same individual maintained that Connect-Ed has generated dialogue that creates two-way communication. He stated “Phone messages often prompt phone calls, e-mail, or face-to-face discussion.” In addition to common communication made through Connect-Ed, one administrator stressed the importance of the tool for emergency communication in stating, “Connect-Ed has allowed us to communicate with parents in a faster, more efficient manner when dealing with bus accidents, water outages, snow delays, and other circumstances where we believe it is important that parents hear the story directly from a school official.” Another two-way communication feature not mentioned, though available through Connect-Ed, is the option to send out a survey that allows individuals to respond to recorded questions through the keypad of their telephone.

Teachers

Teachers reported being familiar with the Connect-Ed system, although those interviewed had never recorded their own messages. They explained that this technology was reserved for

district administrators and school levels supervisors and was not available to the classroom teacher without special request. One teacher expressed an interest in using the system. She mentioned using the system to disseminate to parents and students in a varied format. She also expressed interest in doing a read aloud with struggling readers. Although the teachers who discussed the system were unfamiliar with all of its features, several expressed an interest in exploring its options and its educational value.

Parents

Although only half of the parents interviewed initially identified the district calling system as a technology being used to communicate with parents, all were familiar with the technology and identified it as a valuable tool. One parent commented on the system's ability to call her cell phone, while one principal mentioned the Connect-Ed system's ability to communicate quickly and easily. Parents also indicated their expectation of various forms of communication through this system based on previous experience, which had also been reported by one principal as a negative aspect of the system: "If you use the system to announce a specific activity, and then do not use it in similar efforts, parents get upset." This opinion was also supported by on several parents' comments alluding to how the system had been used in the past; therefore, they expected future communication in similar situations.

In conclusion, it was found that the Wilson School District utilizes the Connect-Ed calling system for a variety of opportunities from emergency response to educational activities. Districts purchasing such systems for emergency response have found extended value in their purchase. As was seen in this district, it takes time to roll out all options and features and requires the determination of which employees will be allowed to utilize the technology.

Additional Technologies

In addition to the technologies previously covered, this research also includes several technologies mentioned throughout the course of the interviews. These include voice over internet protocol (voice over IP or VoIP), homework Hotline, videoconferencing, closed-circuit TV, and the district media center. Although these technologies were not reviewed to the extent of the previous technologies, they were identified in the course of the interviews and offer additional opportunities for communication and learning at home.

While at Wilson, one principal and a secretary mentioned the voice over IP system that the district had implemented. Both discussed features such as voicemail and call and message tracking, along with other time saving features. Voice over IP is transmitted over the district's network, which allows reduced communication and infrastructure costs. Speech is carried as a digital audio over the internet, allowing increased flexibility and productivity. The secretary interviewed discussed how the system allowed incoming callers to identify specific individuals through an automated menu system, reducing the number of calls fielded by secretaries. If teachers are targeted by incoming calls during the school day, callers are directed to their voicemail, allowing teachers direct access to their voice messages from their rooms and reducing the number of hand-written messages from secretaries. When asked, one teacher replied, "I prefer the new system because I can access my messages from my room." Another teacher also stated, "Voicemail is more comprehensive than written notes." The principal also discussed the capability of tracking incoming and outgoing telephone calls, listening to previous phone conversations, and the ability to e-mail voicemail. Although this technology was not explored in detail, it appeared to create opportunities for advanced communication.

Another resource mentioned by principals and teachers was the Homework Hotline. This web-based feature allows students to access a tutor from a computer after school hours. The service is available to junior and senior high students needing additional help with school assignments. Students unable to attend after-school tutoring provided by the school district are able to access this resource from home.

Several individuals discussed the district's closed-circuit TV broadcasts and media production center. Programming such as athletic events, school board meetings, and graduation were reported most frequently. When asked if the district utilized this technology for teacher or parent training, individuals could not identify specific examples of such programming. It appeared a technology with much potential for both communication and learning opportunities that was being used presently for only specific activities. As mentioned previously, the Wilson School District hosts a media production center which is used by principals and others to create multimedia presentations. Although the media production center has a website, the site was under construction when it was reviewed. The calendar of events for the month included the school board meeting, a variety of football playoff games, a girls' basketball game, a talent show, and several band and chorus events. Previous feeds and blog archives were investigated; however, nothing was accessible. The page appeared to have been set up, but no content had been logged.

Overall, the Wilson School District showed a variety of technologies being used throughout the district at all grade levels. Student age and grade level appeared to be factors that were taken into consideration when determining the appropriate technology for each group. Resources stemming from the school website were provided through school-based websites. Elementary students generally focused on information provided through teacher web pages with

various educational links including games, supplemental activities, and resource material, while junior and senior high students were provided with links to independent research material, practice software, and online tutors. The district website was also used in a variety of ways to communicate with parents, students, and the community in general, which echoed the thought of “the front door to the school.” Embedded in the district website were school, principal, and teacher web pages which targeted specific groups, providing them with a wealth of information. In addition to all of the features made available through the district website, e-mail, the Connect-Ed calling system, video streaming, and closed-circuit TVs also provide additional paths for connecting the home and school.

However, while some individuals felt technology offered many opportunities that would not otherwise be available, a number of individuals expressed concerns regarding expanding communication and learning opportunities through technology. One principal stated, “Although multimedia expands the opportunity for communication, I am concerned about the potential decrease in face-to-face communications.” This situation was also mentioned as a disadvantage due to the increase in e-mail communication. Another individual also mentioned that “some forms of technology present a non-interactive forum, creating an inability to ask questions.” The fact that non- educational video and computer games often present challenges within the home environment was also a concern of several teachers and parents. Concerns were raised about the potential of such activities actually to reduce communication and collaboration, therefore, reducing parent involvement.

Although districts must weigh all factors when looking at the incorporation of technology, individuals including children have obviously become more dependent on all forms of media. Moving forward, educators must look at present technologies and those expected to be

forthcoming to determine how schools can lead efforts to maintain communication with those whom they serve. Several teachers and administrators expressed the importance of “public relations,” “selling the district,” and “looking for opportunities to promote the school” and how these related to the vision of the district. One administrator identified “building communities within the schools” as a “plank” within the district. The Wilson School District appears to have made a genuine effort to build such communities and to communicate in various modes to promote involvement that would not be attained without the use of technology.

State College Area School District

The State College Area School District, located in central Pennsylvania, surrounds the Pennsylvania State University. The district serves approximately 7325 students with 669 teachers and administrators. The district is comprised of two senior high schools, two middle schools, and 10 elementary schools. The student population includes 2.7% black, 1.8% Hispanic, 5.5% Asian, and 89.6% white. Within the district, 11.4% of their students receive special education services and 3% are English-language learners (ELL). The district also includes 13.8% of the student population within the economically disadvantaged subgroup in comparison to the state average of 31.4%. Community demographics show 94.8% of adults within the State College Area School District have at least a high school diploma in comparison to the state average of 87.3%, and 55.9% have at least a bachelor’s degree in comparison to the state average of 25.8%. Residents’ income distribution shows 39.3% earn less than \$30,000 per year, 44.9% earn between \$30,000 and \$100,000, and 15.8% earn over \$100,000 (School Matters, 2006a).

Through the initial state-wide survey, a number of technologies were identified by the district, including e-mail; telephone calling system; closed-circuit television; school website; and community outreach programs. The district's website was used to verify that technologies identified in the survey were being used. In addition, several telephone calls were placed to the district's intermediate unit, a district high school principal, and a nearby school district administrator to confirm the shared information. After this process, the assistant superintendent was contacted to gain permission to interview district personnel and parents. The assistant superintendent also helped to set up interviews with willing principals. Four principals were initially interviewed, adding to the information shared in the survey by two federal programs coordinators. These principals aided in setting up additional interviews with two teachers and two parents. The information gained in these interviews was used in combination with information obtained from the district's website and documentation acquired while in the district.

After interviews within the State College Area School District, the research determined that both districts in this study utilized similar technologies with minimal exceptions. In addition, similar themes emerged through discussions with administrators, teachers, and parents. The following summarization will follow the same format and categories used previously.

Identified Technologies

The initial survey of the State College Area School District identified strong parent involvement programming with a number of technologies incorporated. Although the initial survey showed utilization of a variety of technologies, it did not reveal the specific technologies were being implemented or to what degree. Upon further review of the district's website and a discussion with a high school principal within the district, several additional technologies were

identified including podcasts, e-mail listservs, Really Simple Syndication (RSS) feeds, online grading, teacher websites, closed circuit television, and blogs.

District Website

The district website www.scasd.org was initially used to verify a number of technologies that the district reported during the first state-wide survey. Web features such as parent and student portals, photographs, videos, RSS feeds, educational links, embedded web pages, eNewsletters, blogs, and a number of other features were found. As with the Wilson School District, these features indicated that the State College Area School District was using their website as a communication resource and also as a tool for parents to work with children on educational activities. The district home page provides an attractive format with easy navigation to each school, academics, activities, community, human resources, services, staff, the district calendar, announcements, headlines and features, and site shortcuts. As mentioned previously, both districts participating in the case study utilized a company called Schoolwires to host their sites. Therefore, both homepages shared similar attributes because this company hosts websites for 144 of the 501 school districts in Pennsylvania. The software provided by the company for designing websites not only offers advanced features common to web designers but also basic features in an easy-to-use format for novice users such as many teachers and administrators. This “ease of use” theme emerged several times in comments by teachers and administrators and will be discussed further regarding the criteria for guiding administrators.

The district home page also offers access to the parent and student portals which grant individuals the opportunity to log onto secure sites unavailable to non-district members. In addition to student grades and attendance, parents have access to MyNutriKids.com, which provides parents a convenient and secure online service to help manage their child's school lunch

account. The website allows individuals to deposit money into their child's school meal account; view the child's account balance; evaluate a 30-day history of the child's purchases and payments; and request automatic e-mail notification when the child's account balance is low.

Of the features previously mentioned, the community link on the district's homepage had several aspects worth mentioning. This link in the district's main navigation bar provides access to the District Alumni Association, a number of Citizen Advisory Committees, PTO/PTA Presidents Council, and community education opportunities, which were discussed with one principal and a parent. The parent had taken advantage of one of the opportunities focused on expanding computer knowledge. The district website is clearly used as a digital bulletin board not only for students, parents, teachers, administrators, and staff, but also for the community as a whole. The website's being used as an effective communication tool was very apparent in discussions with all individuals interviewed.

School Web Pages

The State College Area School District uses school web pages as the hosting area for both principals' and teachers' web pages, general announcements, headlines, and features. Because both school districts in this study utilized the same hosting company and software for their web pages, many general features are shared by both districts. One topic emphasized by both districts was that sites be "easy to navigate." Several times in discussing State College Area's website, individuals expressed this attribute, maintaining that the district effectively fostered this trait.

Teacher and Principal Web Pages

Teacher and principal web pages are used to convey more specific information pertaining to individual schools and teacher classrooms. As with the Wilson Area School District,

individuals in the State College Area School District utilized general features made available to them through Schoolwires. Profile information, pictures, schedules, curricular information, and educational links were commonly found. Some teachers also used their websites as an outreach opportunity for parent involvement in the classroom. These activities generally focused on volunteering in the classroom or taking part in field trips. Additional items that occasionally appeared on web pages included blogs, podcasts, web quests, RSS feeds, and video. One Title I teacher used podcasting to highlight student work. These podcasts involved students writing poems about a topic of their choice then recording the presentation of the poem. The student's picture along with the written poem and audio recording was included on the website. One parent interviewed commented that "the district website provides all kinds of information" as she mentioned the calendar of events, directory, and lunch menu as points of interest.

One common point shared by principals and teachers within the district was the expectation to "keep information" provided on the district website "current." Although district employees felt obligated to provide current information, they also felt that doing so was not a number one priority. However, several parents identified the website as their primary resource for information. One teacher expressed that "maintaining an effective and attractive, up-to-date website can be very time consuming," while another stated, "I know parents would look at my web page more regularly if I provided current, meaningful information." Several individuals reported that "time more than knowledge" was the largest barrier to maintaining a website.

The State College Area School District maintains five instructional technology specialists that provide training on topics of interest to the faculty. Creating and maintaining a website are included in these training sessions. One individual also pointed out that the district website also

provides an overview of important topics for creating and maintaining a website through Schoolwires.

Each school also featured a link for their PTO or parent organization. Web pages generally included an events calendar, fundraising opportunities, meeting minutes, newsletters, and other general information. Some sites offered additional features such as the opportunity to submit yearbook photos or resources and project ideas for the school science fair.

Overall, teacher and school web pages provide a wealth of information for individuals interested in taking the time to explore the pages. Though the pages are maintained at varied levels, the district has provided a tool for parents and the community to connect to their schools and teacher classrooms. Information may range from general profiles to detailed student portfolios depending upon constraints such as time, knowledge, and philosophy.

Educational Links

As with previously reviewed teacher web pages, the State College Area School District teachers provided numerous educational links for students to utilize. One feature that was commonly added was a summary of the website including features, difficulty levels, and suggestions on how it could be used. These teachers offered the links to encourage parents to become involved in their child's learning at home. One teacher reported that “just providing the links to websites is not enough. Parents need to feel comfortable with the website and understand it.” One interviewee also reported that parents need to be reminded to check the website for newly added educational links. In this situation, RSS feeds were mentioned as beneficial. Parents who subscribe to the feed are updated as the web pages are updated.

Student Grades

Student grades were not discussed as frequently in interviews at the State College Area School District probably because of the grade levels of the interviewees' children. The majority of the parents interviewed in the State College Area School District had children at the elementary level. One parent who had both elementary and senior high children stated, "I use the school website for different reasons based on the child." Common activities included depositing lunch money and looking at the school calendar. When focusing on the elementary child, the parent used the teacher web page to find out about classroom policies and the material being covered. Future visits were made frequently to look at updated material including student photos, assignments, or newsletters. When focusing on the high school student, the parent was generally only interested in checking the student's grades. Senior high parents often used the district website to access information related to extra-curricular activities and athletics as well.

Streamed Video and Recorded Video

The State College Area School District uses streaming video through C-NET or PEG, Centre County's government and educational access network. The district provides a link through their web page to recorded school board meetings, District Wide Facilities Master Plan meetings, and other activities such as choral concerts. Access to videos was mentioned by parents, teachers, and principals. One parent specifically praised the district's push for involvement and awareness pertaining to the District Wide Facilities Master Plan. This focus was apparent after reviewing the district website which contained a special page devoted to the Master Plan Process, a demographic study, a summary of previous presentations, videos of meetings, and a host of other information regarding the plan. One principal also stated that she

no longer attends monthly school board meetings unless asked because she can view the meeting on a television from home. Meetings are also archived and retrievable from the district website.

E-mail

The use of e-mail was very similar in both districts that participated in the study. Individuals in the State College Area School District reported heavy utilization at the parent, teacher, and administrator levels. Individuals also reported that e-mail was good for specific types of correspondence, while phone calls and face-to-face interaction still have their place. The feeling that “one needs to be careful [about] what is stated in an e-mail” was again reinforced by both teachers and administrators. Individuals likewise agree that written items can sometimes be taken out of context, and “tone of voice” may be misinterpreted in any e-mail. One individual described a situation where repetitive e-mail correspondence with a parent resulted in a misunderstanding that could have easily been curtailed by making a phone call. However, all individuals interviewed agreed that e-mail was their preferred form of communication for general correspondence. One parent stated “I feel more comfortable corresponding by e-mail because I like using the computer.” The individual also mentioned that sometimes it is easier to make contact with individuals via e-mail and that doing so allows them to respond when they have time. The parent also commented that face-to-face interactions are sometimes not desired due to the negative nature of the conversation. However, in this situation, most individuals within the school district felt that face-to-face interaction may be better. Though the findings related to utilization were similar in both districts in the study, the perception of when e-mail should be used was somewhat different.

Connect-Ed Calling System

The State College Area School District has been using the Connect-Ed calling system over the past three years for a variety of public communication efforts. The service was initially implemented for emergency calling; however, the capabilities of the system have allowed the district to expand this utilization to other outreach areas. Even though a number of different purposes were identified through interviews, they all paralleled those used by the Wilson School District.

Additional Technologies

In addition to the technologies previously covered, additional technologies were also mentioned throughout the course of the interviews. These include voice over internet protocol (voice over IP or VoIP), closed-circuit TV, and Scoodle, the district course management software. Although these technologies were not reviewed to the extent of the previous technologies, they were identified in the course of the interviews and offer additional opportunities for communication and learning at home.

As with the Wilson School District, the State College Area School District utilizes an advanced telephone system. Telephones are located in each teacher's classroom, allowing faculty to place calls to parents and others when time is available. The system includes voicemail options that allow teachers flexibility in communicating with others. Although the majority of those interviewed preferred e-mail, they reported that the phone system offered a convenient means of collaborating with parents. Teachers use options to set up calling preferences that work with their schedules. Although individuals within the district did not elaborate on the telephone system, the system appeared similar to the one implemented in the Wilson School District.

The State College Area School District uses course management software similar to that offered by many colleges. The software allows teachers to post assignments, notes, and handouts. Students can access Scoodle from a computer with Internet connectivity through a secure password-protected link on the district's website. The software allows individuals to develop digital learning communities that may range from full, online courses to a combination of blended learning. Threaded discussions allow individuals to collaborate in an online forum and enable students and teachers to interact with one another. Features include forums, Wikis, databases, and websites that promote collaborative communities of learning around subject matter. This initiative was developed in combination with the state Classrooms for the Future grant. Although the technology does not specifically relate to parent-teacher communication, it does have the potential to encourage such collaboration. And while learning and collaborating in the home are distinct features of this software, individuals did not mention parent involvement in this process.

In conclusion, the State College Area School District clearly utilizes a number of technologies that facilitate communication between the home. The district website, e-mail listservs, Really Simple Syndication (RSS) feeds, online grading, teacher websites, closed circuit television, and blogs are provided opportunities for communication and learning beyond the school day. As with Wilson School District, implementation levels varied from school to school and teacher to teacher; however, that the district and principals encouraged teachers to promote parent involvement and provided a number of methods through the use of technology.

Conclusion

This study provides an overview of various technologies being used throughout the state to promote parent involvement through home-school communication and opportunities for

learning at home. The state-wide survey provided information on how districts were promoting parent involvement in each of these areas. The survey also provided information that compared traditional modes to those being implemented through technology. This information was used to identify two districts for further investigation into a more in-depth look into how various technologies were being used within the districts. Throughout the course of the visits to both districts participating in the study, all individuals interviewed agreed that parent involvement was very important in a child's education and contributed to the academic success of the child. Administrators and teachers indicated a continuous need to improve home-school communication and to facilitate opportunities for parent involvement. This objective was also observed in the strategic plans of both districts and on school websites. Statements promoting strong home and school partnerships were identified, which suggested the desire for active parent involvement and shared responsibilities.

Both districts participating in the study utilized similar technologies for communicating with parents and for extending learning opportunities into the home. These technologies were representative of those identified in the initial state-wide survey sent out to federal programs coordinators. However, district used provided additional in-depth information that would have been difficult to collect through an online survey tool. Overall, both district websites seemed to represent a major connecting point between the school and the home. District websites are being used to host a variety of information that may not have been available to individuals in the past. Information such as student grades, examples of student work, and pictures of student activities keep parents up-to-date on their child's education and academic progress. Written documentation along with audio and video recordings also keeps individuals informed and involved in the business of the school and of their child. Although several concerns were raised

regarding e-mail, it is used widely as a communication tool allowing parents and teachers the flexibility of responding in a convenient manner. Furthermore, advanced telephone systems that integrate with computers and computer software allow districts many options not previously available. Multimedia such as video streams, podcasts, and blogs also provide those interested with information pertaining to the school and their children. Overall, this research project has identified a variety of technologies that are currently available for implementation.

Understanding how these technologies are being implemented and related feedback from stakeholders such as parents, teachers, and principals may aid an administrator in determining the value application of the technology within their district.

Chapter 5

IMPLICATIONS AND CONCLUSIONS

Bauch (1998) contends “Parent involvement is considered to be one of the most powerful means for improving schools and for increasing the satisfaction of parents and the community” (p. 225). When developing parent involvement programs, school districts must investigate barriers such as time, cost, schedules, and resources. Technology provides an avenue for linking schools, families, and students by reducing or eliminating such barriers. The following represents a summary of the present findings in this research project along with interpretations and implications.

This research set out to identify various technologies being implemented by school districts to promote parent involvement in the areas of communication and learning at home.

Through the use of a state-wide survey, a variety of promising technologies used to foster paths of communication and activities to encourage parental involvement in a child's education were identified. Survey questions focused on areas of home-school communication, opportunities for learning at home, resources, and training opportunities for parents. Additional information related to the methods of technology implementation was gathered through two case studies in districts that showed desired characteristics. Furger (2006) suggested five ways to boost parental involvement which included the following: providing e-mail for teachers and administrators; developing and supporting class and school web pages; distributing electronic newsletters; providing online access to students; and distributing laptops for student and family use. The following sections integrate interpretations and implications to be considered related to communication and learning at home.

Communication

The research revealed that different districts utilize various resources for communication. These resources are also used in different ways based on grade level. For instance, when looking at online grade packages, some school districts may have utilized all three modules from K – 12; other districts may have used all three modules in grades 8 – 12; while still others may have only used the lesson plan module in grades K – 12. Although it was not possible to identify specific utilization percentages through the survey, districts are beginning to expand such initiatives. Factors such as increased access to computers with internet connectivity may explain why some school districts are only beginning to move toward these modes of communication while other districts have been using these technologies for over 10 years. The expansion of broadband services into rural areas has also increased options for productive connectivity.

Communication builds trusting, collaborative relationships among parents, teachers, and schools (Mapp, 2002) and also fosters parent involvement (Constantino, 2003; Epstein, 2005). Data from this research project suggested that internet resources such as online grades and lesson plans were being used regularly in over 63% of the 129 districts participating in the survey. Digital media such as websites, e-mails, and digital newsletters were also used to communicate with parents and the community. Online software resources such as grades, lesson plans, and attendance (considered three modules) were used with varied frequency from district to district.

A survey published by the National School Boards Foundation (2000) revealed that “64% of parents would like to be able to use the Internet to communicate with their children's teachers” and that “56% of parents would like to be able to view their children's schoolwork on line.” This interest creates an opportunity for schools to reach out and communicate with parents; however, it also creates a challenge regarding meeting parents’ expectations.

Furthermore, feedback from parents in the interviews indicated that their expectations were growing in this area. One parent explained that she was able to view her middle school child’s grades; however, the elementary school did not share grades online. She stated that she would like to have the same convenience for monitoring her younger child’s grades. This opinion was also indicated by one teacher whose children attended school in another district. She expressed a desire to view student grades online; however, the district did not provide this communication at any grade level. She shared that a number of parents in the district were pushing for this opportunity by using the fact that nearby districts were already offering this service to parents. This type of pressure may take place in districts using varied degrees of implementation until all three modules are used at all grade levels K – 12. Furthermore, districts

not utilizing such communications tools likely will feel pressure to begin implementation to satisfy the needs of parents.

Telephone technology was also an area identified within the survey as having high utilization. Predictably, surprise that this device is a significant means to communicate with families because of the number of years that telephones have been used as a communication tool and because of the recent saturation of mobile phones. In 2004, Prensky (2005) estimated that 1.5 billion mobile phones were in use worldwide. Currently, Wikipedia (2009) estimates that 3.3 billion people subscribed to mobile phones at the end of 2007. Prensky (2005) also predicted that future developments related to mobile phones will bring their capabilities closer to those of a computer.

Rodgers and Wright found that mobile phones provided “a new, readily available mode of telephone communication for both parents and teachers” (2007 p. 39). Widespread use of cellular phones has contributed to connectivity between the home and school, with 42.6% of parents and 66.7% of teachers using mobile phones to communicate with one another. This trend may be due to the portability of these devices, which allows individuals the ability to communicate in more locations and situations than ever before. The ability to make calls, e-mail, text, and view multimedia while in transit or during times not previously used to communicate has created the opportunity for expanded communication. Extended opportunities will continue to become available as technology advances. Handheld technology now allows individuals to access the Internet while on the move and does not limit communication efforts to those only generated within the home or office. Additional modes of communication such as texting, chatting, and making video phone calls have become common and can be delivered through many handheld devices.

The combination of the Internet, software, and telephone technology seems to be an area with much potential. Voice-over IP and streaming video over the Internet offer new opportunities for communication, additional flexibility, and potential financial savings that may allow educators opportunities to build better communication among the home, school, and community. Utilizing the capabilities of such technologies can also promote communication among students, parents, teachers, and community members in an effort to learn from one another and to solve real world problems and develop relationships (Williams, 2000).

One situation that was discussed with an administrator involved a parent who was stationed in Iraq. The parent wanted to use Skype to communicate with the school for a parent-teacher conference. Although the district had to make modifications to accommodate the conference, this case provides a good example of technology expanding options with communication. This type of conferencing not only spans great distances at no additional cost to the district, but it also allows the teacher to show the parent examples of student work and perhaps video clips of classroom activities. In addition, the child and other parent may be involved in this type of conference, which improves the quality of the experience. This type of communication does not need to be limited to situations involving such constraints. Videoconferencing provides a more personal experience than a telephone call and allows individuals the opportunity to observe facial expressions. Furthermore, parents are often unable to attend school functions due to time constraints and barriers involving travel. Some may find this mode of communication more valuable than a simple phone call. After discussion about this opportunity with the administrator, an interview question was added pertaining to the possibility of using this type of conferencing. After the last administrator was interviewed, the remaining teachers and parents were asked if they thought this type of communication would improve

communication between the home and school. All five individuals interviewed thought it would be very beneficial in situations when it was otherwise impossible for parents to attend a conference. However, one teacher stated “I would not want to see this type of communication replacing face-to-face conferences” and feared that technology might in some ways increase the amount of communication between the home and school while decreasing the quality of communication. Although negative this may be true, in every interview, the comment “people are busier than ever” emerged, suggesting that other forms of communication may be necessary to accommodate individual needs, which in turn would increase or maintain the number of parents involved in such activities. Another suggestion surfaced from one parent whose schedule was not the same as her husband’s, so this type of conference may allow them both to participate. Yet another consideration was that not all parents or schools have the hardware and software in place to facilitate such a meeting.

Although this form of communication may seem to be impossible to some, availability of various hardware and software along with proper training are most likely the largest barriers facing administrators, teachers, and parents. Hardware/software packages such as laptops with built-in video cameras and pre-loaded programs such as Skype or Oovoo are now common and available at affordable prices. Merrick stated, “[To] a growing group of teachers, administrators, and technologists, [interactive videoconferencing] IVC is rapidly becoming a tool as pervasive and accessible as the Internet itself” (2005, p. 1). The more difficult challenge most likely involves training and preparing individuals to implement this form of communication. This effort requires school districts to develop training opportunities for all involved groups and may also require providing parents with the technology to facilitate the activity.

Another communication tool made available through the Internet is the district website. This topic was referenced and discussed most often by individuals participating in the research. As mentioned previously, one administrator described the school website as “the front door of the district.” This belief may be based on the fact that the website provides an access point for many of the tools discussed throughout the research. Parent and student portals may provide pathways to a variety of information including student grades; attendance; lesson plans; discipline information; examples of student work; e-mail accounts; and cafeteria accounts. Information such as district, school, and teacher newsletters are often made available and archived through the district website. Policies, strategic plans, school board information, announcements, and a host of other district information can be found on the district website and can allow individuals the opportunity to investigate the district without ever entering a building. Video streams, educational links, Homework Hotline, and other resources can also be accessed through this central web of communication.

As one can see, a district’s website does present opportunities to communicate with parents, community members, and others interested in the district. The district website also provides resources and learning opportunities for parents and students. The potential for additional communication options and educational extensions in this area is limited by creativity, software development, knowledge of web design, financial constraints surrounding hosting a website, computer and Internet access, and time. Of these factors, time was mentioned quite often by teachers and administrators as a barrier for having more effective and informative web pages. This limitation seemed to be a concern of both administrators and teachers. Balancing the time needed for effective planning for quality instruction along with other responsibilities presents a challenge to many teachers. Principals also face a balancing act in addressing

additional responsibilities such as those created by developing and maintaining a dynamic, up-to-date school website. Parents and students often face their own challenge when attempting to access information on the Internet. Though many families have a computer with a broadband connection, many others are faced with limited dial-up services. This type of accessibility limits individuals' web surfing abilities related to multimedia activities. In addition, some families do not have access to an Internet-ready computer.

Obviously, our society has become much more dependent upon media in recent years. This increased reliance will most likely continue to grow as time passes; therefore, when today's youth send their children to school, additional expectations will become prevalent. The expectation of immediate feedback and interaction may cultivate new challenges for educators. Although the personal effect of face-to-face interaction may be lost, technology offers a means of overcoming many of the challenges created by today's busy lifestyles.

Given the advancements in technology, school districts must envision a time when parents will utilize handheld devices to view their child's classroom presentations through vodcasts; to receive timely information through RSS feeds, text messages, or voice messages; or to video conference with teachers or administrators to discuss student progress and achievement. However, such possibilities may be limited to those with access to the technology. Administrators need to prepare to communicate with these types of parents and also to consider how they may extend the same opportunities to others without the same means. Parent involvement requirements in No Child Left Behind do not discriminate between socioeconomic classes of individuals. Reaching those without vehicles and telephones will continue to be a challenge as doing so has been in the past. However, technologies such as cellular phones open a window of opportunity for sending a phone home with a child to provide the means for a phone

conference, assuming a wireless signal is available. New technologies may also create the opportunity for video conferencing as mentioned previously.

Although districts will face many of the same difficulties when reaching parents of students living in poverty, the power of technology has the potential to break down barriers if used correctly. An additional example may suggest potential for our growing English-as-a-second language (ESL) population. Connect-Ed and other phone calling software packages often provide means to communicate in multiple languages. Voice translators and other technology that allows communication in situations otherwise impossible may extend opportunities for districts interested in exploring options and investing funding for expanded communication efforts.

Technology is continuously moving forward and producing what is considered to be a flattening of the world (Friedman, 2006). Communication through cellular phones, satellites, and internet has created new avenues that allow individuals around the world to communicate in an easy and cost effective manner. School districts must analyze the possibilities to determine which options will allow them to accomplish their goals. Epstein (2001; 2002) asserted that communication is a key component of parent involvement. Districts attempting to bolster parent involvement have a number of areas to evaluate; however, when examining the area of communication, school districts cannot deny the opportunities that technology has to offer.

Learning at Home

Most parents are genuinely interested in their child's growth, development, and success. Training opportunities offer parents the knowledge and understanding of how to accomplish such tasks as developing student study strategies, helping with homework, developing and participating in learning activities, and adopting other parenting skills. Though some parents

may already possess such skills, others rely on educators to develop and support these attributes. The findings suggest that 65% to 91% of the schools surveyed are using traditional activities such as workshops and printed media to correspond and work with parents. However, an opportunity exists for growth in the area of using technology to provide information, training, and assistance to parents. Less than 10% of the 129 responding districts reported using audio or video-based workshops or web-based instruction to foster such activities. One exception was in the area of providing training for parents related to learning activities outside the school day where 17% of respondents reported using web-based instruction. Districts reported using digital media in the form of websites and e-mail; the rate ranged from 22% to 37%, depending on the type of activity. As many districts struggle to pull parents into the school for such opportunities or to provide them information, technology may offer parents options that will encourage them to interact at a time and in a place convenient for them. These opportunities may increase the number of parents who are prepared to work with children and may promote better involvement.

Moles found that, “Many studies have documented that when schools make a concerted effort to enlist parents’ help in fostering children’s learning, student achievement rises” (1999, p. 7). As partners in education, parents and educators need to work together in the best interest of the student. Technology offers tools for accomplishing this goal. A survey conducted by the National School Boards Foundation found, “The most common reason parents cite for buying home computers is children's education. Education is also the single-most common motivation parents cite for their children to use the Internet from home” (2000, p. 2). Therefore, administrators must facilitate activities that aid parents in this effort.

As was suggested by many of those interviewed, time is a factor with which we all struggle. Busy schedules create barriers for all of those involved in a child's education.

Determining methods that allow individuals to combat time constraints could prove very beneficial for educators. Although some parents may feel comfortable and may have the flexibility to attend activities presented in the district, others may rely on video options to access the same information, with or without the direct ability to interact. Access may come in the form of live interactive video conferences; streamed video through the district's website; or recorded video posted and archived through the district's website. Such options give the participants the option to be involved in a synchronous or asynchronous format. Although districts often record workshops or school activities, these recordings are often not accessed by parents because of a lack of knowledge of their existence or because of constraints related to acquiring the recordings physically. Utilizing the district's website as both a hosting and archiving facility for such activities eliminates many of these obstacles. However, as was noted by several individuals, access to technology will continue to be a barrier for many parents, often those of low income who could benefit most from such support.

In addition to training opportunities made available to parents, resources such as software, online web links, and other hardware with educational value present an alternative to traditional paper and pencil activities for learning in the home. Over a three-year period, Gwaltney (Penuel et al., 2002) found that teachers and parents endorsed activities which involved laptops and computer software provided through a grant in the Wichita Lightspan *Achieve Now* program because of their positive impact on family involvement in school-related work.

Providing parents with the technologies to promote learning at home can come in many forms. Specifically, providing parents and students with software for learning at home was not as frequently reported as providing web pages with activities and resources or online activities

for students and parents; though only 25% of districts reported that they “always” or “often” provided software for home use, 52% similarly reported providing online student activities. This variation may be due to a number of factors including cost, distribution barriers, and ability to track utilization. Online software may or may not present an opportunity for financial savings; however, distribution and collection efforts to save time and frustration for employees. In addition, many online software packages offer teachers and administrators the ability to track and archive student work and progress, making it a better education tool in comparison to a piece of stand-alone software. Although such resources may require parent training, the majority of companies offer embedded tutorials and searchable help features, which reduce instruction demands placed upon the district and allow for parent independence. Parents may feel comfortable utilizing these features without participating in school-sponsored training, therefore, creating reduced reliance upon district faculty and staff.

Although 52% of districts reported that they “always” or “often” provided online student activities, only 28% similarly reported providing online activities for parent-child interaction. Though this discrepancy may indicate an opportunity for improvement, it is difficult to gauge how those answering the survey interpreted the question. Parents may also participate in online activities that the district designated as being provided for students alone. This possibility would then raise the percentage to 52%. Additionally, the individual answering the survey may not have been aware of various initiatives sponsored by classroom teachers that promoted parents and students working together on technology-based activities. An example of this type of initiative might include a WebQuest assigned by a teacher who was attempting to engage parent-child interaction.

The human race has used technology to move forward to accomplish many feats previously thought impossible. Many parents, teachers, and administrators may feel that the only way for children to learn is by sitting in a classroom listening to a teacher. However, the same type of learning can be produced through distance learning experiences at much more reasonable costs now. Research suggests that “interactive videoconferencing bears substantial potential for fostering a richer, more comprehensive K-12 curriculum, bringing to any classroom extraordinarily rich resources simply not otherwise available” (Merrick, 2005, p. 1). In addition, advanced software that uses reasoning and questioning techniques parallel to those of a live teacher is now available along with of synchronous and asynchronous learning options. Non-traditional schooling options are also becoming more popular, with over 20,000 students participating in 11 cyber charter schools in Pennsylvania during 2007. With these developments, educators need to assess these trends to be aware of options available to students and how they will affect education as we know it. Opportunities for children to learn at home have and always will be available to parents. Educators will most likely continue to provide parents with techniques for developing study skills, helping with homework, developing and participating in learning activities, and adopting other parenting skills. However, in an effort to reach more parents and to aid in proper implementation, educators need to be familiar with all resources available to them. While arguable, technology has been said to enhance the educational experience of students in the classroom by improving engagement, efficiency, attitudes, and behaviors. Improving learning in the home can likely be accomplished through similar efforts, which would provide districts with another way to increase parent involvement.

Technology is a means, not an end, to communicating with parents and to providing opportunities for learning at home. Although mixed results have been reported (Bauch, 1998;

Cameron & Lee, 1997; Penuel et al., 2002; U.S. Department of Education, 2007a), educators need to explore opportunities that technology provides to determine how they best suit their students, faculty, staff, parents, and community. Technology creates possibilities that may not be available otherwise, allowing schools to reach out to parents and students in new, creative ways which perhaps overcome barriers commonly cited that limit parent involvement, including conflicting school and work schedules, transportation, and childcare. As new technologies are developed, those responsible for implementing parent involvement programs and strategies must analyze the possibilities presented. Similarly, current technologies should also be evaluated to determine value and effectiveness in accomplishing the goals of the district. Although technology is not suggested as a replacement to face-to-face interaction between parents and teachers or activities involving parents and their children, it may enhance and, in some cases, offer new options to what has existed in the past.

Recommendations for Administrators

A variety of factors such as federal mandates made through NCLB and research supporting parent involvement has caused administrators to revisit parent involvement programming within schools. As administrators explore options for promoting parent involvement, it is important that all resources be considered. Many districts struggle to maintain effective parent involvement within their school (Constantino, 2003; U.S. Department of Education, 2006). The findings from this research project have identified various technologies used to promote communication between home and school and the technologies implemented to provide parents with tools for working with their child. Additional case study research has provided insight into how various technologies can be used. Evidence supports the fact that positive parent-school relationships begin through frequent and positive communication

(Patrikakou et al., 2005; Reilly, 2008; U.S. Department of Education, 2007a). Technology has the ability to overcome barriers such as distance, schedules, and time when attempting to communicate with parents. Technology also affords parents and students various opportunities to learn within the home environment.

Criteria for aiding administrators may be useful when choosing various technologies to foster strong communication and opportunities for engaging parents in the education of their child. This information is based upon interpretation of the findings presented in this paper and a review of literature pertaining to various technologies.

Although administrators should consider many variables when purchasing or endorsing a specific technology, for the purpose of this study, the focus will be the ability to perform desired outcomes, price, reliability, ease of implementation, and overall value.

Ability to Perform Desired Outcomes

In an effort to promote parent involvement, administrators need to evaluate current programming and establish goals that will lead their districts to the desired outcomes. In establishing these goals, measurable outcomes should also be determined along with appropriate action plans. This evaluation and planning should be done in conjunction with key stakeholders such as parents, teachers, other administrators, and community members (Epstein, 2002; Patrikakou et al., 2005).

It is apparent that parent involvement is very important to the educational success of a child (Henderson & Mapp, 2002). However, there are also barriers facing educators and parents that limit effective partnerships. Administrators need to recognize various barriers including time, culture, and parent uncertainty when developing goals and effective action plans. Constantino (2003) stated “Technology provides a systematic solution to many of the barriers

that plague the efforts of educators to promote strong family engagement in their schools” (p. 42).

Knowing what technologies are available is important when attempting to develop a program that pulls from all available resources. It is also critical to understand how these technologies can best be integrated in an effort to produce more effective results. This study attempted to identify various technologies being used within parent involvement programs and to discuss how districts were effectively implementing those technologies. Administrators need to review available research along with other available resources to determine what is available and how it is being used. From this review, administrators can then evaluate what technologies can aid in achieving the goals established in their parent involvement programs and how those technologies can be specifically integrated into the action plans in an attempt to perform the desired outcome. Familiarity, with existing and future technologies and their uses will allow administrators to determine the proper technology for achieving the desired outcome.

Understanding how technology can be used to overcome specific barriers is also important. Parents, teachers, and principals in this study all cited time as a leading barrier limiting parent involvement. Research also identifies time as a restricting factor in parent involvement (Bauch, 1997a; Cameron & Lee, 1997; Graham-Clay, 2005). Although many schools believe that reduced attendance at school functions is a result of apathy among parents, consideration should also be given to current family structures such as single-parent families and families in which both parents work. These situations create varied levels of time constraints that can often limit parents’ ability to attend school functions. Technology provides a means for overcoming such barriers. Tools related to communication such as district websites, e-mail, voicemail, and calling systems all provide parents with options that allow flexibility as opposed

to restricted time constraints. As technology such as smart phones continue to spread, many parents will have the ability to perform actions such as checking student grades and progress; contacting the school through e-mail or voicemail; or viewing student presentations and extracurricular activities at a time that is convenient for them and without needing to enter the school building.

Although the scenario previously stated may not be possible for all families within a district, technology also offers effective options to families that are socioeconomically disadvantaged including individuals of non-English-speaking families. Family culture is also a barrier to parent involvement. Although many of these families may not have Internet accessible computers, most have access to telephones or cell phones. Various phone technologies mentioned within this study allow districts to provide information about students and school activities that parents can receive or retrieve from the security within their homes. Those with Internet access would have additional options that could provide an avenue for building relationships between the home and school.

Parent uncertainty is another barrier restricting parent involvement. Past school relationships and experiences often cause parents to have a negative attitude toward educators. Uncertainty and distrust often cause individuals to be less engaged in events hosted in the school. Technology can be a vehicle for engaging these parents in their child's education, providing a means for parents to monitor their child's progress and activities without being present. Engaging parents in this way may be a step toward building more positive relationships.

Price and Reliability

As with any investments made within a school district, administrators need to be conscientious about price and quality. In a time of budget cuts and scrutinized spending

administrators should again consider the established goals and required action plans within the parent involvement program. Knowledge related to specific products is also important when determining the best technology for the desired outcome. In the case of most technologies, there will often be a variety of vendors marketing the same type of product. An in-depth understanding of the features and capability provided by the product along with the product's reliability and cost will aid in the decision-making process.

The following is an example to be considered in the area of phone calling systems. The Connect-Ed system mentioned in both districts participating in the case study is one in a dozen of similar systems currently on the market. When looking at this type of technology one needs to consider a number of important factors including price and reliability. Connect-Ed costs approximately \$3.00 per student enrolled in the district. Other similar companies charge between \$1.50 and \$4.00 per student. Some companies charge an additional fee for initial setup while others do not. Some companies also give discounts at a tiered level based on student enrollment. Other variables to consider relate to the product's reliability. Since many districts purchase this type of service to be used in emergency situations, it is extremely important that the product be both reliable and easy to use. Looking at a company's performance record along with personal feedback from current users would substantiate the reliability of the product. Different systems also use a variety of methods for channeling outgoing calls including telephone lines, Internet lines, or a combination of both which can increase the reliability of the product. There are also functionality features that include options for two-way communication through survey questions. Options for integration with an existing student management system should also be explored. These variables along with others specific to the district need to be considered when making an investment of this type.

Ease of Implementation

When considering the implementation of technology within any system one must consider the resulting impact on policies, procedures, and those involved in the implementation. There is a current push to integrate technology within the classrooms around the United States (Lewis & Zuga, 2005; Schacter, 1999), therefore administrators are familiar with barriers related to the implementation of technology. However, when looking at technology that involves additional stakeholders such as parents, one needs to be cognizant to their needs. Again, understanding the technology being considered and its features is an important part of the success related to implementation. As with implementation within the classroom, there is a certain amount of professional development required when implementing any new practice. Preparing individuals prior to deployment is critical to the success of most programs. Consideration should also be given to policies related to the implementation. For example, when sending an Internet-capable laptop home with students, both parents and students should understand expectations and requirements related to such an initiative. Proper deployment not only involves getting the computer to the student's home, but also educating parents, students, and teachers regarding the goals of the initiative in the action plans established to achieve those goals.

Administrators again need to consider functionality within various technologies as they relate to ease of implementation. Referring back to the Connect-Ed system, different calling systems possess a variety of features that allow for ease of use. One area to consider when setting up this type of system, is how easily one can upload, group, manipulate student, faculty, and staff data. The ability to perform these and other operations in a time effective and non-tedious fashion will allow individuals to focus on areas related to the true value of the technology as

opposed to meaningless operational tasks. Similarly, if the functionality of the program gives flexibility to those using it and actions can be performed without substantial difficulty the chances of the technology being implemented on a regular basis will be more likely.

Activities such as sending and responding to e-mails would be an example that many can relate to. Different e-mail programs provide a variety of functions. If school districts provide students, parents, and teachers with a common e-mail program that lacks ease of use or functionality, many may choose to use alternative programs due to comfort and confidence. This being the case, administrators should take careful consideration prior to investing in a product that many may not even use. This point was discussed during this study when talking with teachers and principals. Both districts shared information related to the development of school web pages and teacher web pages. As mentioned previously, both districts' websites were hosted by Schoolwires. This company provides a website development solution that allows novice users to create dynamic interactive websites with minimal training. The company also provides flexible training and web-based tutorials in an effort to support school districts.

Throughout the course of the study, teachers and principals in both districts discussed the need for technologies that were "easy to use" as being a key component to successful implementation. After stating that teachers were not required to create elaborate websites, although they were encouraged to do so, one principal stated, "Having a tool that is easy to understand to use definitely promotes use." Another principal explained, "The easier the technology is to use, the higher the level of utilization" suggesting a key factor for administrators to consider when choosing various technologies.

Teachers had several additional areas of concern when being involved with the implementation of new technologies. One teacher described the need for professional

development prior to deploying new technologies or strategies, stressing the “need for support beyond the initial start up.” He felt his district did a good job in this area by utilizing instructional technology specialists that gave hands-on help in and out of the classroom. These individuals will also be used to train users prior to deployment. Another teacher discussed the need for flexibility as new technologies were being rolled out. The teacher stated, “Due to the varied levels of comfort related technology, teachers need to be given time to experiment without feeling pressure from administrators.” It was also mentioned, that while technology affords many opportunities not previously possible, “it also has its own glitches requiring retreat to previous methodologies.”

Parents, teachers, and principals also expressed concern related to availability of specific technologies within certain households, specifically, homes without Internet-accessible computers. Members from all three groups pointed out, socioeconomic factors may exclude certain individuals when it came to technology. As mentioned previously technology can often be used to overcome certain barriers; however, there will be other circumstances that may alienate certain groups. When considering various technologies, administrators need to have knowledge of a wide range of circumstances and to determine the district’s needs related to established goals. While some technologies may be used to reach a specific class of individuals dependent upon mobile technology due to time constraints; others technologies may be used to focus on individuals that possess language barriers; cultural differences; or negative feelings toward the school. Whichever the case, technology can be used in a variety of ways to improve communication and provide opportunities for learning at home. In doing so, school districts have the opportunity to both build and nurture home-school relationships.

As one can see, there is a variety of criteria that administrators need to take into consideration when implementing technology. When the implementation also directly involves students and parents, additional factors need to be taken into consideration. Finally, a vision for improving parent involvement through the use of technology requires an understanding of what technologies are available to meet district goals along with familiarity in functionality, pricing, product reliability, and ease of implementation. When considering new technologies administrators should weigh each factor in the overall equation.

Limitations and Disappointments

With recent advancements in technology, it would seem as though new products or techniques might contribute to the ongoing struggle schools have to involve parents. Although many technologies and strategies for promoting parent involvement were identified throughout this research, nothing unbeknown to the researcher seemed to surface. Information gained through the original state-wide survey corresponded to technologies and strategies found in the initial review of the literature. District interviews verified the use of specific technologies and provided feedback from principals, teachers, and parents; however, these strategies appeared to be similar to practices and technologies used in other districts that focused on strong communication and efforts for learning at home. While the general purpose of this research may have been accomplished through the identification of various technologies and techniques used to promote parent involvement there was also a feeling of disappointment in that no additional technologies or practices were discovered.

Implications for Future Research

Although a number of studies have focused on the effects of technology on education, few have focused on the component of parent involvement specifically. Various studies have analyzed technology as a communication tool, while others looked at the role of technology in classroom learning. However, only limited research is available on how technology can impact parent involvement in the form of communication or learning at home. While only two of the six parent-involvement components classified by Epstein (2001; 2002) appear here, they represent the focus of this research project. Reviewing literature in these areas provided mixed findings with minimal support. In addition, new technologies are continuously being introduced, suggesting a need for continual review. Therefore, additional research is needed to guide educators as they look for effective forms of technology that will improve parent involvement components such as communication and learning at home.

Another concern shared by a teacher was that “Parents [may] think that activities made available to students through technology are like video games” to the extent that students “can be left alone and [parents can] just assume they are learning.” When asked to elaborate, the teacher explained that many children are given the freedom to play video games continuously, adding, “This may be why some parents and teachers do not promote using computers or video games for educational activities.” This assumption does raise questions and implies that future research is needed to determine the value of technology as a learning tool within the home.

When addressing the first research question concerning the technologies being implemented in schools to promote parent involvement, a limited number of the districts in the state were contacted. Although a greater number of responses from the 501 districts in Pennsylvania were anticipated, the listserv used only included 303 of the 501 districts. Using a

database that included all districts in the state would have produced a more complete picture of utilization. In addition, breaking questions down more thoroughly may have yielded clearer information of exactly what technology was being used and how it was being applied. The format of the questions could provide better clarity to improve the review of the results. For example, discerning between the frequencies of updating different types of web pages could have been useful. The survey question did not distinguish among district, school, or teacher pages, leaving room for interpretation.

Throughout the case study investigation, the focus was on various technologies being implemented and how they affect an administrator's decision when he/she chooses specific technologies. Information was gathered through 18 individual interviews in combination with document and website reviews, which provided a variety of sources; however, the majority of the individuals interviewed were associated with elementary schools and students, which further limited the scope of the research. Although parent involvement is thought to decrease as students move into middle and high school, the interviewed parents of students in these grade levels indicated high interest in their upper-level child's performance and progress. Although the parents did not mention it, one teacher pointed out that parents do not lose interest in their children as they mature; however, students pressure parents to give them their space and freedom. Thompson (2008) found that parent-teacher e-mail produced mixed results; however, it allowed for increased pathways of communication at the middle school level. Future collection of data involving communication technologies such as e-mail, online grades, and lesson plans may determine whether such tools allow and encourage parents of middle and high school students to be more involved in their child's education as they utilize "behind the scenes" tactics.

Because each district has its own individual needs based on a variety of factors specific to that district, making recommendations for any one district can pose a number of problems. This research intended to provide administrators with criteria for considering various technologies. In doing so, a number of elements are required. Administrators need to be aware of what is available to them. They also need to know how the technology can be used with existing initiatives and future endeavors. Restrictions such as cost, ease or difficulty of use, compatibility, and stakeholder buy-in become other import factors to consider.

Implications for Practice

The development of new technologies and familiarity with existing technologies will provide new opportunities for educators to communicate with parents. In addition, these same tools may provide additional opportunities for learning outside the brick and mortar of the schoolhouse. Educators will need to evaluate these opportunities and determine the possibilities available for improving parent involvement.

Recent studies (Reilly, 2008; Rogers & Wright, 2007; Thompson, 2008) have shown that e-mail provides a means of quick and easy communication with parents. Rogers and Wright (2007) also pointed out that although educators are good at mass communications such as newsletters and handbooks, “in order to change attitudes, educators must become effective at interpersonal communication with a targeted audience” (p. 4). Although, e-mail hinders face-to-face interaction, it offers the ability to better target audiences. As was mentioned earlier, teachers and principals discussed misinterpretations that had occurred related to e-mail conversations. Decker and Decker (2003) also found this drawback to be the case, suggesting oral, face-to-face communication to be the most effective. Acknowledging these strengths and weaknesses, educators need to determine methods of best practice. Recognizing the appropriate

time to use technology is important and should be considered. Educators should also recognize opportunities for increased utilization of technology. This study identified the utilization of technology within 129 school districts, noting that many districts were only touching the surface of implementation related to communication and learning at home.

Similarly, websites, blogs, RSS feeds, Wikis, text messages, podcasts, and vodcasts provide new digital means of communication. Because these are new technologies, their value to classroom instruction, learning at home, and communication between the school and home are unknown and need to be explored. Practices both in and out of the classroom will need to be developed based on implementation and findings.

Administrators need to be familiar with available technologies and their potentials. In attempting to develop relationships between the school and home, educators must determine technology's value. Successful implementation will most likely depend on proper planning and preparation. Like students, parents, faculty, and administrators will need to be properly educated to reap the full potential of such technologies. Training individuals to determine when to implement specific technologies such as e-mail and when to choose alternative forms of communication would be an example of such training. After implementation, evaluation will also be necessary to determine the level of success compared to expectations.

Implications for Policy

Although technology affords new strategies for satisfying requirements established by NCLB (U.S. Department of Education, 2002) by breaking down home-school communication barriers and by bridging gaps while learning at home, it also creates policy concerns that must be considered. Problems such as student privacy, copyright and piracy, and cyber-bullying motivate administrators to reevaluate existing policies.

As school districts attempt to communicate with parents and the community through media avenues such as the district websites, digital newsletters, and video streaming, administrators will need to be cognizant of student and parent rights. One area of concern relates to student photographs and videos made available to the public. Policies involving release forms and the right to refuse to be included in such efforts will need to be examined. Student exposure to Internet predators must also be considered when identifying individuals in media feeds.

The development of district websites will also need to be monitored to ensure that all individuals posting information to the district-hosted website fall within the established guidelines. Topics such as copyright violations and piracy will need to be covered when training individuals to design teacher websites. District employees should also be familiar with the dangers associated with Internet predators, security, copyright infringements, and other concerns related to the cyber world.

Districts providing parents and students with hardware capable of Internet access such as laptops or handheld devices should also be concerned when educating these individuals. Although providing parent training for the proper use and care of hardware is important, other areas of concern include identifying dangers associated with cyberspace such as relationships developed through social networks, Internet pornography, and cyber bullying. As with cyber charter schools, school districts providing resources such as these will need to determine their responsibility related to monitoring student actions and policies related to such activities. Still another concern relates to policy regarding lost or damaged equipment.

In conclusion, it is hard to argue that communication between schools and families is not essential for building relationships that foster parent involvement and that extend the child's learning experience within the home. Technology facilitates quick and frequent communication

with parents as well as acts as a tool for learning. As existing and emerging technologies continue to be adopted by our society, educators must assess their value and determine opportunities for developing home-school relationships through technology. Although traditional forms of communication and learning still afford positive parent involvement, parents and educators alike need to take full advantage of existing technology when considering the overall education and well-being of students. As access and familiarity increase for all parties, technology utilization will likely allow for increased parent involvement.

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Technology in Parent Involvement

Questions marked with an asterisk (*) are mandatory.

-
- 1 *Knowledge of parent involvement programming
- I am aware of various initiatives within the district/school
 - I am not in a position to provide information on parent involvement



Technology in Parent Involvement

Questions marked with an asterisk (*) are mandatory.

-
- 2 Optional Contact Information:

Name:

Company:

Address 1:

Address 2:

City/Town:

State/Province:

Zip/Postal Code:

Country:

Email Address:

-
- 3 *Title(s)



Technology in Parent Involvement

Questions marked with an asterisk (*) are mandatory.



Please answer all questions based on your school or the school in your district that you believe to have the most exemplary parent involvement program.



4 *Does this school provide communication through the following means?

1 Never	2 Rarely	3 Sometimes	4 Often	5 Always
<hr/>				
Online student grades				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<hr/>				
Online lesson plans				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<hr/>				
Frequently updated webpage				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<hr/>				
Homework helpline				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<hr/>				
One-way phone messaging system (Home to school)				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<hr/>				
Two-way phone messaging system				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<hr/>				

Technology in Parent Involvement

Questions marked with an asterisk (*) are mandatory.

- 6 *Does this school provide the following opportunities for learning at home?

1 Never	2 Rarely	3 Sometimes	4 Often	5 Always
Software for home use				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computers for home use				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Webpage with activities and/or resources				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online activities for students				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online activities for parent/child interaction				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other technologies				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- 7 Additional means of providing opportunities for learning at home through the use of technology?



Technology in Parent Involvement

8 Does this school provide information, training, or assistance to parents on parenting skills? If yes, please choose all types of offerings that apply.

- Workshops or classes
- Audio or video based workshop or recording
- Web based instruction
- Newsletter or other printed material
- Digital media (ebsite, email, etc.)
- Other, please specify

9 Does this school provide information, training, or assistance to parents on helping with homework? If yes, please indicate how it is offered.

- Workshops or classes
- Audio or video based workshops or recordings
- Web based instruction
- Newsletter or othe printed materials
- Digital Media (Website, email, etc.)
- Other, please specify



Technology in Parent Involvement

10 Does this school provide information, training, or assistance to parents on developing study skills? If yes, please choose all types of offerings that apply.

- Workshops or classes
- Audio or video based workshop or recording
- Web based instruction
- Newsletter or other printed material
- Digital media (ebsite, email, etc.)
- Other, please specify

11 Does this school provide information, training, or assistance to parents on ideas for learning activities outside of school? If yes, please indicate how it is offered.

- Workshops or classes
- Audio or video based workshops or recordings
- Web based instruction
- Newsletter or othe printed materials
- Digital Media (Website, email, etc.)
- Other, please specify

Technology in Parent Involvement

- 12 Please list any unique parent involvement activities that your district implements through the use of technology.

- 13 If you know of a district that provides exemplary parent involvement opportunities through the use of technology and would be willing to share that information, please type the district name below.



APPENDIX B: Interview Protocol

District Level (Federal Programs Coordinator) & Building Level (Principal)

Interview Protocol

Preamble:

I'm talking with you today to get your input on parent involvement programs within your district. I'd like to tape our discussion and I will summarize what you've said and integrate it into my final report. I will also use some of these data as part of my dissertation research.

[Have the interviewee read the consent form, answer any questions, have interviewee sign form and give them copy of form. Turn on the tape recorder and test it]

1. Tell me a little about yourself and how you came to this position.

[Probe for time in current position]

2. What experiences have you had with parent involvement policies and programming?
3. How do you view the role of the district/school in relation to parent involvement?
4. How do you view your role in relationship to parent involvement?
5. What is your perception of the importance of parent involvement in a child's education?
6. Have the parent involvement goals of the district/school changed or evolved recently?

[Probe for knowledge/understanding of NCLB requirements]

7. What impact do you feel parent involvement programs are having in your district/school?

8. How do you envision moving the work with parent involvement forward?
9. What types of training is provided to parents?
[Probe for change over the last 10 years? What has prompted the changes?]
10. What types of resources have been provided to parents?
[Probe for change over the last 10 years? What has prompted the changes?]
11. What modes of two-way communication have been utilized by the district to improve parent involvement?
[Probe for various modes of technology]
12. How has the level of parent involvement (committees, classroom volunteer, etc) changed over the last decade?
[Probe for what has prompted the changes?]
13. What have been the strengths of parent involvement in this program over the last decade?
14. What have been the barriers to parent involvement over the last decade?
[Probe for how these barriers have they been addressed?]
15. What parent involvement strategies have been most successful? To what do you attribute the success of these strategies?
16. Do you see technology as a vehicle for improving parent involvement?
17. How has your district used technology to enhance parent involvement?
[Probe for communication and learning at home]

18. What advantages have you seen through these approaches?
19. What are some issues that can arise when using technology?
20. What could make collaborations between schools and families more successful?
21. Do you have any questions or is there anything else you would like to discuss?

Teacher Interview

1. Tell me a little about yourself and how you came to this position.

[Probe for time in current position]

2. What experiences have you had with parent involvement policies and programming?
3. How do you view your role in relationship to parent involvement?
4. What is your perception of the importance of parent involvement in a child's education?
5. Have the parent involvement goals of the district/school changed or evolved recently?

[Probe for knowledge/understanding of NCLB requirements]

6. What impact do you feel parent involvement programs are having in your district/school?

[Probe: Does parent involvement have positive effects on student achievement? If so, what type of involvement works best?]

7. What types of training is provided to parents?

[Probe for change over the last 10 years? What has prompted the changes?]

8. What types of resources have been provided to parents?

[Probe for change over the last 10 years? What has prompted the changes?]

9. What modes of two-way communication have been utilized by the district to improve parent involvement?

[Probe for various modes of technology]

10. What do you find to be the most productive modes of communication with parents as a classroom teacher?

11. What modes of communication do parents most commonly use?

12. How has the level of parent involvement (committees, classroom volunteer, etc) changed over the last decade?

[Probe for what has prompted the changes?]

13. What have been the strengths of parent involvement in this program over the last decade?

14. What have been the barriers to parent involvement over the last decade?

[Probe for how these barriers have they been addressed?]

15. What parent involvement strategies have been most successful? To what do you attribute the success of these strategies?

16. Do you see technology as a vehicle for improving parent involvement?

17. How has your district used technology to enhance parent involvement?

[Probe for communication and learning at home]

18. What advantages have you seen through these approaches?

19. What are some issues that can arise when using technology?

20. What could make collaborations between schools and families more successful?

21. Do you have any questions or is there anything else you would like to discuss?

Parent interview

1. How many times did you visit the school in the past week? This year?

2. How much time total did you spend at the school this week?

_____ hours _____ minutes

3. How much time total did you spend discussing school with your child this week?

_____ hours _____ minutes

4. Check any reasons for your visits to the school in the last week.

_ School event, *e.g.* concert.

_ PTA meeting.

_ Office visit.

Teacher visit.

Volunteering.

Other _____

5. How many hours this last week did you actively support your child's school?
(Include time spent volunteering at the school, time spent participating in school activities, and time spent at home preparing items for bake sales, school fairs, etc.)

_____ hours _____ minutes

6. How many times did you contact the school in the last week.

In person

Using the phone

By letter

By email

7. How would you rate the quality of home-school communication this last week?

very bad average very good

8. If you needed to discuss your child's progress with the school, rank the following communication methods in order of preference.

Draw a line between

1 and your most liked method,

2 and your second choice,

3 and your third choice,

4 and the fourth choice, and

5 and the least liked.

Draw no line to a particular communication method if you don't know what it is.

1 chat room

2 telephone

3 e-mail

4 face to face

5 letter

9. How aware were you of how your child was doing in school this last week?

1 2 3 4 5 6 7

Not Some Well Enough Informed

10. How aware were you of what your child was doing in school this last week?

1 2 3 4 5 6 7

Not Some Well Enough Informed

11. What is your perception of the importance of parent involvement in a child's education?

12. Have the parent involvement goals of the district/school changed or evolved recently?

[Probe for knowledge/understanding of NCLB requirements]

13. What types of training is provided to parents?

[Probe for change over the last 10 years? What has prompted the changes?]

14. What types of resources have been provided to parents?

[Probe for change over the last 10 years? What has prompted the changes?]

15. What modes of two-way communication have been utilized by the district to improve parent involvement?

[Probe for various modes of technology]

16. What do you find to be the most productive modes of communication with the classroom teacher?

17. What modes of communication do you most commonly use?

18. What have been the strengths of parent involvement in this program over the last decade?

19. What parent involvement strategies have been most successful? To what do you attribute the success of these strategies?

20. Do you see technology as a vehicle for improving parent involvement?

21. How has your district used technology to enhance parent involvement?

[Probe for communication and learning at home]

22. What could make collaborations between schools and families more successful?

23. Do you have any questions or is there anything else you would like to discuss?

24. In what ways could the school or teachers assist you with more communication about your child?

25. How could the format of our open house be changed to better meet your needs as a parent?

APPENDIX C: Informed Consent for Online Survey

IRB#27531

Statement of Implied Informed Consent for Social Science Research

The Pennsylvania State University

Title of Project: Promising Practices for Using Technology in Parent Involvement
Activities in Schools

Principal Investigator: Tracey A. Karlie
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Federal Programs Coordinator Meyersdale Area School District
309 Industrial Park Road
Meyersdale, PA 15552
Phone: 814-634-8311
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Advisor: Dr. John Tippiconnic
Pennsylvania State University
302A Rackley Building
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Purpose of the Study: This study will investigate current practices involving the implementation of technology in parent involvement programs.

Procedures: Participants will complete an online survey. The survey will be sent to individuals thought to have knowledge of parent involvement programs in their school district. The link to the online survey will be sent out through a general email and hosted at a secure site at Zoomerang.com. It will take approximately 10 minutes to complete the survey.

Potential Benefits of Participating in this Study: As a result of this study, participants may become more aware of practices involving technology in parent involvement. This in turn may help them make more efficient use of valuable funds while striving to meet federal mandates involving parent involvement. Districts with model practices may also be asked to participate in a case study to investigate strategies and successes. If chosen, the district superintendent would be contacted for project approval.

Statement of Confidentiality: All information will be collected on a secure server through Zoomerang. Access to survey data will be limited to the principal investigator and his advisor and any personal data will be destroyed after districts have been determined to participate in the case study portion of the research. Your confidentiality will be kept to the degree permitted by the technology used. No guarantees can be made regarding the interception of data sent via the Internet by any third parties.

In the event that the results of this study are presented or published, all information will be reported in such a way that individual persons, schools, school districts, and communities cannot be identified unless otherwise agreed upon by said entities.

Duration of Study: Each participant will complete one survey. Completion time is estimated at one 10 minute session. Districts agreeing to participate in a case study of parent involvement practices involving technology will be subject to additional time ranging in duration from one to two months.

This section describes your rights and responsibilities as a research participant:

You may ask questions about the research procedures, and these questions will be answered. Questions should be directed to Tracey Karlie, Principal Investigator (trkarlie@masd.net; 814-634-8311). Participants may also contact Penn State's Office for Research Protections at 814-865-1775.

Your participation is voluntary. You are free to stop participating in this study at any time. You do not have to answer questions you do not wish to answer. You do not need to give any reasons or explanations for doing so. You understand that if you withdraw from this study before it ends that there will be no penalty.

This section indicates that you are giving informed consent to participate in this study:

You agree to participate in a study of Promising Practices for Using Technology in Parent Involvement Activities in Schools. This study is being conducted by Mr. Tracey A. Karlie. Participation in this study involves completion of an online survey. You must be 18 years of age or older to consent to participate in this research study. Completion and submission of the survey is considered implied consent to participate in this study. Print and keep a copy of this consent form for your records.

APPENDIX D: Informed Consent for District Interviews

Statement of Informed Consent for Social Science Research

The Pennsylvania State University

Title of Project: Promising Practices for Using Technology in Parent Involvement
Activities in Schools

Principal Investigator: Mr. Tracey A. Karlie
Federal Programs Coordinator Meyersdale Area School District
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Purpose of the Study: This study will investigate current practices involving the implementation of technology in parent involvement programs.

Procedures: Participants will participate in a case study that investigates detailed practices with parent involvement and technology. Interviews will be conducted with administrators, parents, and faculty that will not exceed one hour. The Principal Investigator, Mr. Tracey Karlie will conduct all interviews. After securing district consent, the Principal Investigator will use purposeful sampling of candidates to collect additional data through in-depth interviews, field observations, and document and website analyses.

Potential Benefits of Participating in this Study: As a result of this study, participants may become more aware of practices involving technology in parent involvement. This in turn may help them make more efficient use of valuable funds while striving to meet federal mandates involving parent involvement.

Statement of Confidentiality: All information will be collected by the principal investigator and stored in a secure location. No personal identifiers will be obtained. Access to survey data will be limited to the principal investigator and Dr. John Tippeconnic, project advisor. Although no

specific names will be associated with the data, school districts will be asked to permit the principal investigator to disclose the district name if the data is presented to the public.

Duration of Study: District participation in the case study of parent involvement practices involving technology will range in duration from one to two months. Individual participants will answer a series of questions related to parent involvement programs and how technology is used to implement these programs. Completion time is estimated at one 60 minute session.

This section describes your rights and responsibilities as a research participant:

You may ask questions about the research procedures, and these questions will be answered. Questions should be directed to Tracey Karlie, Principal Investigator (trkarlie@masd.net; 814-634-8311). Participants may also contact Penn State's Office for Research Protections at 814-865-1775.

Your participation is voluntary. You are free to stop participating in this study at any time. You do not have to answer questions you do not wish to answer. You do not need to give any reasons or explanations for doing so. You understand that if you withdraw from this study before it ends that there will be no penalty.

This section indicates that you are giving informed consent to participate in this study:

You agree to participate in a study of Promising Practices for Using Technology in Parent Involvement Activities. This study is being conducted by Mr. Tracey A. Karlie. Participation in this study involves a 60 minute interview.

You must be 18 years of age or older to consent to participate in this research study.

Completion and submission of the survey is considered implied consent to participate in this study.

Name

Signature

Please keep a copy of this consent form for your records.

VITA

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Education

Penn State University, University Park, PA
D. Ed. Education Leadership (2009)

Dissertation: *Promising Practices for Using Technology in Parent Involvement Activities in Schools*

Frostburg State University, Frostburg, MD
M. S. Curriculum and Instruction (2002)

Penn State University, University Park, PA
M. S. Curriculum and Instruction (1992)

University of Pittsburgh at Johnstown, Johnstown, PA
BS in Secondary Education-Mathematics (1988)

Professional Experience

2008-present Superintendent of Schools
Meyersdale Area School District, Meyersdale, PA

2005-2008 Curriculum Coordinator
Meyersdale Area School District, Meyersdale, PA

1988-2005 Secondary Mathematics Teacher
Meyersdale Area School District, Meyersdale, PA