

**School/Home Communication:
Using Technology
To Enhance Parental Involvement**

A Project for the Illinois Century Network and Governor Rod R. Blagojevich

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January, 2004

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Study Highlights/Abstract

School/Home Communication: Using Technology to Enhance Parent Involvement

- **Access to the Internet:** 97 percent of Illinois schools are connected to the Internet, while 53 percent of Illinois households had a computer and 47 percent of Illinois households used the Internet at home in 2001.
- **Availability of Technology:** According to technology representatives, e-mail is available in approximately three quarters of schools; voice mail in every classroom or faculty office in one third of schools; and interactive web pages for parents to access student information in one quarter of schools.
- **Availability of Home/School Applications:** Specific home/school applications are less available to schools than the technology itself, although it varies by type of academic information. In general, e-mail applications are more available than web-based systems.
- **Teacher Use of Web or E-mail for Communicating with Families:** Approximately one quarter of teachers use technology to communicate some type of academic information to parents. The percentages vary by application.
- **Concerns:** Costs, time, and data privacy were concerns across all four groups: parents, teachers, principals, and technology representatives. Parent access was a concern of parents, teachers, and principals.
- **Cost:** Cost estimates for implementing various options are presented in the study. Cost considerations go beyond technology infrastructure and support: Nearly 74 percent of Illinois school districts were in deficit in 2002, and the number is expected to be 80 percent by the end of 2003-2004 school year.
- **Digital divide:** Digital-divide concerns were expressed by parents, teachers, principals, and technology representatives.
- **Recommendations:**
 1. Improved school/home communication would benefit students, their families and schools; however, multiple communication methods and formats are needed to meet the varying capacities and communication needs of Illinois families.
 2. Illinois can promote cost-effective solutions that build upon the variety of existing student information systems, parent communication tools, and grading systems already in place rather than mandating a one-size-fits-all system. The State should seek to provide communication solutions that meet interoperability standards and are compatible with as many current school communication systems and vendor products as is feasible.
 3. Illinois should make use of the existing Illinois Century Network (ICN) infrastructure to provide a menu of support services from which schools may selectively choose based upon their priorities, capacity, and needs. Steps toward implementation include assuring a basic level of access and capacity for all schools; providing services to support the activities for which technology is most useful to increase parental involvement; and helping schools share best practices related to school/home communication.
 4. State-sponsored school/home communication initiatives must recognize the current financial constraints under which Illinois schools are operating. To address cost issues, the state could provide financial support through targeted grants tied to specific goals that seek to increase the frequency of school/home communications from current levels.
 5. School/home initiatives will need to address issues related to personnel time for training and implementing home/school communication systems. Support will be required for schools to train

personnel and parents in order to accomplish reasonable goals to increase the frequency and extent of school/home communication.

6. In collaboration with parents and families, schools should establish policies and practices that establish a framework for school/home communication related to student academic performance and development to ensure consistent expectations. Explicit policy goals would also help schools identify budget priorities.
7. Any new statewide program/initiative must recognize the cultural and economic differences in the schools and homes across the state and the potential for technology to widen the digital divide rather than close it.

Acknowledgements

The Center for the Study of Education Policy sincerely thanks the organizations and individuals who contributed to the School/Home Communication: Using Technology to Enhance Parental Involvement project. In all, over 825 people participated in the project. Without this support, School/Home Communication: Using Technology to Enhance Parental Involvement research and the opportunity to address issues raised by this report would not be possible.

Project Funding

The Illinois Century Network (ICN) provided funding to the Center for Application of Information Technology (CAIT) at Western Illinois University and the Center for the Study of Education Policy at Illinois State University to work on the project outlined by Governor Blagojevich.

Contributors

School/Home Communication: Using Technology to Enhance Parental Involvement project depended on the participation of educators and parents in project activities. A special thanks goes to:

- Illinois Century Network staff for providing funding and hardware and bandwidth assistance;
- Parents who participated in the focus groups;
- Principals, teachers, and technology representatives who completed surveys;
- Technology representatives who participated in the interview;
- The Illinois Principals Association and principals who participated in the listserv interview; and
- WIU's Center for the Application of Instructional Technology for assistance on software issues.

The Center for the Study of Education Policy - Illinois State University

Established in 1995, the Center for the Study of Education Policy provides information and research on education issues to Illinois education policymakers and practitioners. The mission of the Center is to perform research and public service related to current and emerging policy issues affecting PreK-16 education. Important to the mission of the center is the intersection of research and practice as represented by publications, conferences, and service to educational, professional and governmental organizations.

The Center is located in the College of Education at Illinois State University. Policy researchers in the College, the Department of Educational Administration and Foundations and in other units of the University conduct policy research studies, surveys, workshops and seminars dealing with a wide variety of policy issues and problems in education.

The Center for the Study of Education Policy appreciates the opportunity to serve Governor Blagojevich and the Illinois Century Network through the School/Home Communication: Using Technology to Enhance Parental Involvement project. The following Center staff members served as consultants for the project, designed and implemented project activities, compiled and analyzed project information, wrote project reports, and provided support for the project:

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Executive Summary

School/Home Communication: Using Technology to Enhance Parent Involvement

Background

The research is clear that parents' involvement in their child's education improves outcomes in areas such as learning, attendance, behavior, and graduation rates. Although almost any parent involvement brings improvements in student outcomes, parent involvement with their child's learning at home is most helpful in increasing student learning. Increased and meaningful communication between home and school enhances parent involvement. Illinois schools are using various forms of technology to increase school/home communication, including voice mail, e-mail, school and classroom websites, and web access to individual student information such as attendance, grades, and student portfolios; however, this use is not consistent or widespread.

In his February 2003 State-of-the-State address, Governor Rod R. Blagojevich called on all Illinois schools to adopt the National PTA standard for parental involvement to ensure that communication between home and school is frequent and meaningful. The Illinois Century Network (ICN) provided funding to the Center for Application of Information Technology (CAIT) at Western Illinois University to develop applications and the Center for the Study of Education Policy at Illinois State University to survey schools across Illinois to determine the extent of the use of technology for communicating with parents of students in Illinois schools. The major findings are presented below.

Schools' Capacity/Use of Technology for School/Home Communication

Internet capacity across the state varies widely. In considering a school's capacity for using Internet technology applications for home/school communications, a number of factors need to be considered beyond equipment. These include availability of various forms of software applications; the ability to use that technology; and the actual use of that technology. Other major considerations include costs, human resources, training, and time. Finally, the school's capacity for using Internet technology depends on the families' access.

Access to the Internet

An ICN study of Illinois schools indicates 97 percent reported being connected to the Internet, 84 percent of them connected with ICN. Data provided by the U.S. Census Bureau for 2001 indicates that 53 percent of Illinois households had a computer and 47 percent of Illinois households used the Internet at home. In this study, principals reported on average over 96 percent of teachers have access to the Internet in their classrooms. In contrast, only 55 percent of parents have access to the Internet.

Availability of Technology

Table 1 indicates e-mail is available to the majority of schools; voice mail in classrooms or faculty offices in around one third of schools; and web pages for parents to access student information in approximately one quarter of schools. Ranges provide low and high-end estimates of actual availability.

Table 1

Available Technology: Internet Access Reported by Principals; Available Technology Reported by Principals (n = 191), Technology Representatives (n = 219), and Teachers (n=373)

Internet Access	% Reported by Principals
Teacher access to Internet in school	96
Parent access to Internet	55
Available Technology	% Reported by Principals, Tech Reps, & Teachers
Fax machines to send or receive parent information.	74-84
E-mail system for parent correspondence	63-73

Voice-mail system for parents to DIRECTLY contact each teacher	42-50
Telephones & voice-mail in every classroom or faculty office	27-35
Interactive web pages for parent access to forms or student information	26-34
Video, CDs, or other stored media to communicate with parents	13-25
Community access television channel to communicate with parents	12-23
Two-way video equipment/connection to communicate with parents	02

Availability of Home/School Applications

Technology representatives, principals, and teachers were asked to determine web and e-mail capacity by selected types of information. The percentages indicate much less capacity for disseminating information in comparison to access. For academic information such as daily homework, teacher feedback on progress, and grades, applications are least accessible on the web. Static information such as schedules and meetings are generally more accessible on the web as are general learning resources such as links to district contacts, newsletters, and policies and handbooks. Thus, schools had more capability to send information that remains fairly constant via web or e-mail, while they were less able to send more individualized or frequently changing information.

Teacher Use of Technology for Communicating with Families

Teachers were asked if they actually used either web pages or e-mail for communicating with families. In response to that question, up to one third of teachers reported using web pages or e-mail to communicate depending on the types of information listed. Because the academic information is the most critical type of information to communicate to families for increasing parent involvement, a closer look at teacher's use of the web or e-mail for those specific types of academic information is helpful.

Table 2

Comparison by Type of Academic Information of Teacher Perceived Benefits, Reported Availability by Web and E-mail Format, and Teacher Reported Use of Web or E-mail for Communicating with Families

Tech Reps n = 219 Principals n =191 Teachers n = 373	% teachers reporting option as 1 of 5 most useful.	% all groups reporting available on web	% all groups reporting available by e-mail	% teachers reporting use of web or e-mail
Class homework & assignments	63	41-43	37-47	26
Student class expectations, agendas, or goals	50	34-44	28-48	28
Frequent feedback on daily or weekly academic progress	48	17-24	34-51	25
Student behavior other than on report card	41	09-17	24-46	19
Report card grades	24	15-18	15-30	09
Student attendance other than on report card	17	16-48	25-31	08
Standardized test scores and interpretation	15	15-23	14-25	06
Individual student schedule	09	20-32	28-44	15

As can be seen from Table 2, the four types of academic information teachers perceive as most beneficial for supporting communication with families include class homework and assignments; student class expectations, agendas, or goals; frequent feedback on daily or weekly academic progress; and student behavior other than on report card. However, only about half of the number of teachers who perceive technology useful actually use technology for that option. The top uses of voice mail were discipline, homework, and general information.

There is consistency among school personnel, parents, and literature about the applications that are the most beneficial to students' academic success. This consistency is encouraging, in that a common understanding helps in setting priorities and goals as schools must balance choosing among providing basic services, meeting federal mandates, balancing budgets, and selecting limited activities and services.

Additional Considerations for Determining School Capacity for the Use of Technology for School/Home Communication

Additional factors determine a school's capacity for using Internet technology applications to enhance parental involvement: costs, human resources, training, and time. When asked about concerns related to implementing the use of technology for school/home communication, time, cost and data privacy were mentioned by all four groups: parents, teachers, technology representatives, and principals. Table 3 shows other concerns included parent access, network security, training of school personnel, and parent use. These will be briefly addressed.

Table 3
The Top Concerns with Implementing an Internet-Based School to Home Communication System

Possible Major Concerns	Technology Reps	Principals	Teachers	Parents
Time	X	X	X	X
Cost	X	X	X	X
Data Privacy	X	X	X	X
Parent Access		X	X	X
Network security	X	X		
Training of school personnel	X			
Parent Use				X

Cost

Of major concern to all groups questioned are the costs associated with implementing or expanding the use of technology for school/home communication. These include the initial costs for hardware and Internet connection, which most schools have, but also the cost of implementing, maintaining, and upgrading student information system, electronic grade book, and parent communication tools to allow parents to access that information over the Internet. Schools may need server and workstation upgrades or purchases, as well as upgrades to the existing systems. The full study provides detailed cost estimates.

For comparison, in North Carolina, with 1 million students attending 2,223 schools, the initial state investment in a statewide implementation was \$54 million. Districts had additional expenses in terms of training and necessary hardware/connectivity upgrades. After three years, only half of the districts had the SIS installed, and slightly more than 10 percent had the electronic grade book. The parent communication tool was scheduled for later implementation.

In this study approximately half of teachers had access to voice mail. Initial installation costs to provide limited voice mail to those teachers are estimated in the full report. This excludes ongoing maintenance and service fees as well as costs for security and privacy of data, and training.

Nearly 74 percent of Illinois school districts were in deficit in 2002, and over 25 percent have been in deficit for more than three years. The number expected to be in deficit by the end of the 2003-2004 school year is 80 percent. There were 100 school districts (of 893) on Illinois' 2002 Financial Watch List, with 183 additional districts in the next most severe category, the Financial Early Warning List. In addition, there is a wide disparity in funding per pupil between the highest and lowest poverty districts: In 2002, Illinois was ranked 49th of all 50 states in the funding gap; in 2003 it was last. Although some schools can afford to implement technology for school/home communication, other schools are making deep cuts.

Human Resources

Schools will need knowledgeable personnel to set up, maintain, and upgrade the communication systems. They also need to assure security and data privacy. Security and privacy are of vital importance to both the school and parents. Ongoing surveillance is needed to keep the systems safe from spam and virus. Finally, technology personnel will need to provide ongoing training for school personnel and for parents to use the systems.

Time

Time was the major concern mentioned by technology representatives, principals, teachers, and parents. As is indicated in the North Carolina example, time is needed to implement any communication system; in their case after three years the system was less than half completed. Also to be considered is the time necessary for school personnel to implement, maintain, and use the system. In addition is the time needed for training, data entry, creating and maintaining classroom web pages, recording voice mail messages, and for e-mailing families. With No Child Left Behind Act (NCLB) requirements, school personnel have multiple demands on their time.

Parent Capacity to Use Technology for School/Home Communication

Of particular concern to parents, principals, and teachers is the parents' access to and ability to use technology for communication. Principals estimate that 55 percent of parents have access to the Internet. Even with Internet access in the home, many parents have not had the training to use it and to know how to access the school's information. Some family's culture and prior level of involvement with the school would make them unlikely to communicate with the school through the Internet. In addition, some parents speak languages other than English. Finally, concern exists that increased communication with families who have Internet access without considerations for those who do not may widen the achievement gap. Any state program/initiative must recognize the cultural and economic differences in the homes across the state and the potential for technology to widen the digital divide rather than close it.

In addition, parents of younger children are more likely to want more personal means of communication, whereas parents of older children are generally more interested in monitoring their homework and academic progress for which the Internet might be of more benefit. Finally, the nature of the message will determine the type of communication that is needed. Parents want a more personal communication method, such as a face-to-face meeting, when discussing a serious issue with the teacher; whereas, they appreciate the ability to use the Internet for information such as homework.

In summary, schools need to provide a continuum of methods of communicating with families, from low-tech high-touch to high-tech low-touch, because of the digital-divide issues of schools and families as well as differences in parental needs depending on the age of the student and the nature of the message.

Parent and School Needs Regarding School/Home Communication

The parent focus groups provided insight to a number of issues related to improving school/home communication through the use of technology. In summary, participants expressed the following:

- A need to have multiple means of communication between home and school;
- A need for a minimum level of communication that is consistent between teachers;
- A need for more frequent communication about academic performance and homework assignments;
- Support for an Internet-based system for certain aspects of communication;
- Support for e-mail as an effective communication tool for some parents;
- Support for voice mail as an effective communication tool for certain issues but not all;
- Concern about the use of technology to reach households without access;
- Concern about the effects of parents' socioeconomic, cultural, and language differences;
- Concern about the different communication levels among elementary, middle, and high school parents;
- Concern that security measures have decreased the level of comfort parents feel coming to or being at schools thereby reducing the opportunity for face-to-face communication; and
- Recognition that the availability of technology in a home is not predictive of the amount of communication between homes and schools; the amount and quality of communication is dependent on the parent, teacher, and school's willingness to work together.

Teacher surveys provided insight into teachers' needs for the use of school/home communication and how that would impact them. The teachers expressed the following:

- A need to have adequate time necessary for training, for creating web pages, for keeping information

such as homework assignments current, and for providing individual information for parents on a regular basis;

- Concern that with the demands already placed on them, they did not have the time needed to adequately maintain a web page and regularly e-mail parents;
- Concern that many families did not have computers or access to the Internet, and that not all of those who did knew how to use them, could read English, or would use them to communicate with the school;
- Concern that those families without Internet access would not receive the same information that those with access would receive; or, that duplicate efforts would need to be maintained to provide that information in another format;
- A need to keep student information private, and a concern that the system would not be safe from hackers; and
- Recognition that implementing technology for school/home communication would have high costs to the district for the necessary hardware and software, training, and personnel needed to set up the system and maintain it—money most of their districts did not have.

Principals expressed the following ideas related to the use of technology for school/home communication:

- Schools currently use a wide variety of methods to communicate with families, both Internet-based and non-electronic.
- Because many families lack phones or Internet access, schools need to continue to use a variety of methods;
- Parents need information about what the child is doing in the classroom, homework assignments, the child's academic and social progress, and how the parent can help the child with schoolwork.
- Those principals using Internet-based methods like them; most of those without would like to be able to use them, but they cite a variety of barriers.
- The primary barriers are initial and ongoing cost, lack of parent access, privacy issues, and time. They also mentioned languages were a common concern.

Through the discussion of the experiences of the technology representatives with the use of the Internet for school/home communications, the following issues were brought up:

- Cost issues: The software itself is relatively inexpensive. It is the support, access to the Internet, and maintenance of the system that is difficult.
- Teacher training issues: Teachers have a lot to do already. It is important to make the system simple to use and to make it policy/part of the evaluation system to use it.
- School board issues: The level or lack of understanding of technological issues by some school boards makes it difficult to implement practices;
- Digital divide issues: There was a concern that the use of technology for school/home communication will make the divide between haves and have-nots worse, from both a physical computer access and knowledge standpoint.
- Language issues: There was an issue of how to deal with the many languages spoken in the homes in some of the schools.
- Vendor issues: "Is the state going to become a vendor?" It was suggested that the State should build on what exists by working with vendors, because they have worked out the kinks and have networks of users.

Recommendations

Based upon the findings from the literature, state data, cost study, surveys, interviews, and focus groups, seven recommendations are given:

1. Improved school/home communication would benefit students, their families and schools; however, multiple communication methods and formats are needed to meet the varying capacities and communication needs of Illinois families.
2. Illinois can promote cost-effective solutions that build upon the variety of existing student information systems, parent communication tools, and grading systems already in place rather than

- mandating a one-size-fits-all system. The State should seek to provide communication solutions that meet interoperability standards and are compatible with as many current school communication systems and vendor products as is feasible.
3. Illinois should make use of the existing ICN infrastructure to provide a menu of support services from which schools may selectively choose based upon their priorities, capacity, and needs. Steps toward implementation include assuring a basic level of access and capacity for all schools; providing services to support the activities for which technology is most useful to increase parental involvement; and helping schools share best practices related to school/home communication.
 4. State-sponsored school/home communication initiatives must recognize the current financial constraints under which Illinois schools are operating. To address cost issues, the state could provide financial support through targeted grants tied to specific goals that seek to increase the frequency of school/home communications from current levels.
 5. School/home initiatives will need to address issues related to personnel time for training and implementing home/school communication systems. Support will be required for schools to train personnel and parents in order to accomplish reasonable goals to increase the frequency and extent of school/home communication.
 6. In collaboration with parents and families, schools should establish policies and practices that establish a framework for school/home communication related to student academic performance and development to ensure consistent expectations. Explicit policy goals would also help schools identify budget priorities.
 7. Any new statewide program/initiative must recognize the cultural and economic differences in the schools and homes across the state and the potential for technology to widen the digital divide rather than close it.

Study Overview

Introduction

Project Scope and Purpose

Background

The research is clear that parents' involvement in their child's education improves outcomes in areas such as learning, attendance, behavior, and graduation rates. Although almost any parental involvement brings improvements in student outcomes, parent involvement with their child's learning at home is most helpful in increasing student learning. Increased and meaningful communication between home and school enhances parental involvement. Especially effective are messages that encourage parents to become involved with their child's learning and messages that help parents support their child's learning at home, such as information about classroom assignments, homework, student progress, attendance, and ways to help their child at home.

Indeed, such communication is an expectation for Illinois teachers. *Illinois Professional Teaching Standards* includes #9 Collaborative Relationships: "The teacher understands the role of the community in education and develops and maintains collaborative relationships with colleagues, parent/guardians, and the community to support student learning and well being" (Illinois Governor's Council on Educator Quality, 2001 p. 46).

The use of technology has the potential to increase the frequency and effectiveness of communication between home and school to enable increased parent involvement, resulting in improved student learning. Schools are using various forms of technology to increase school/home communication, including voice mail, e-mail, school and classroom websites, and web access to individual student information such as attendance, grades, and student portfolios; however, this use is not consistent or widespread.

The state of Illinois has a strong technology infrastructure. Illinois moved from near the bottom of the 1998 Digital State Survey, a year-long, four-part study conducted by the Center for Digital Government and The Progress & Freedom Foundation, which measured and evaluated state governments' use of information technology to deliver services to citizens, to fourth place out of the 50 states in the 2000 Digital State Survey, at which time Illinois qualified as the year's most improved state (State of Illinois Press Release, 2000). In 2001 and 2002, Illinois ranked first in the nation in the category of education by the Center for Digital Government and the Progress & Freedom Foundation. Five states tied for the first place ranking in Education: Arizona, Illinois, Indiana, South Dakota, and Utah, with Illinois being the most populated state among those ranked at the top. (State of Illinois Press Release, 2002).

As part of Illinois' strong technology base it delivers many high-tech educational resources and services to its 4,212 public schools in 892 school districts (per discussion with ISBE Research Division, 9/20/03:

- Assistive Technology Resource Manual;
- E-Learning Portal;
- Illinois Century Network;
- School Technology Revolving Loan Program;
- Technology Literacy Challenge Fund;
- E-Rate;
- Cyber Safety Awareness;
- Illinois Virtual High School;
- Illinois Virtual Campus;
- Collaboratory; and
- North Central Regional Educational Laboratory (State of Illinois, 2003).

The Illinois Century Network, created when Public Act 91-21 (20ILCS 3921) was signed in May 1999, is the telecommunications backbone providing high speed access to data, video, and audio communication

in schools and libraries, at colleges and universities, to public libraries and museums, for local government and state agencies (ICN Policy Committee, 2003).

In his February 2003 State-of-the-State address, Governor Rod R. Blagojevich stated:

Our message to parents is unequivocal: -- We support you.

This week, I will sign into effect a proclamation calling on all Illinois schools to adopt the national PTA's standard for parental involvement. This proclamation will call upon all of our schools to adopt measures to ensure that communication between home and school is frequent and meaningful.

In order to help our schools meet the national PTA standards, --- I'm also announcing the creation of a new web-based system --- that will enable parents to access information about their children's classroom activities, --- homework --- performance --- and attendance over secure websites.

And finally, we will explore other common sense solutions, such as providing every teacher --- a voicemail box ---so parents can leave messages and have their calls returned.

The Illinois Century Network (ICN) provided funding to the Center for Application of Information Technology (CAIT) at Western Illinois University and the Center for the Study of Education Policy at Illinois State University to work on the project outlined by Governor Blagojevich. Western Illinois University's CAIT was charged with developing the software that can be used statewide for this project.

The Center for the Study of Education Policy at Illinois State University was charged with surveying schools across Illinois to determine the extent of the use of technology for grade and attendance reporting to parents of students in Illinois schools. The Center also proposed to conduct focus groups with parents of Illinois students in a variety of locations to determine what aspects and applications of information technology would be most helpful to them in being involved in their children's schools. The Center combined the results of the survey of schools and parent focus groups with interviews of school administrators and school technology officers to provide an assessment of where the state currently stands; what parents would like to see incorporated into the initiative; and the perspectives of school principals, teachers, and technology specialists in planning for implementation of a program.

Questions to Guide the Research Project

The ISU portion of the project focused on addressing four broad research questions through the use of surveys, focus groups, and interviews. Those questions include:

1. What is the current capacity for using Internet technology applications to enhance parental involvement?
2. What types of technology are schools currently using to promote communications between parents and schools?
3. For what specific applications is technology being used?
4. What do schools and parents want and need to enhance communication about the student's activities and performance through Internet technology?

Timeline

The survey work and focus groups took place during the fall 2003 academic semester. A report was to be provided to the Governor's staff and the ICN in January 2004.

Research Activities

School/Home Communication: Using Technology to Enhance Parental Involvement used a mixed

research approach in which quantitative and qualitative methods were used to build a picture of the technological capacity and use of and the potential for improving communication between schools and parents in the State of Illinois. Research provided information to determine where the state currently stands regarding the use of technology for school/home communication, what parents would like to see incorporated into the initiative, and the perspectives of school principals, teachers, and technology representatives in planning for implementing a program. Research activities include:

- Review of public data from government agencies and other reports and pertinent literature in the field;
- A survey of 1035 randomly selected Illinois public school principals yielding 191 responses (response rate = 18 percent);
- A survey of 3105 teachers randomly selected by the principals to whom the surveys of principals were mailed yielding 373 responses (response rate = 12 percent);
- A survey of the 831 technology representatives on the ICN mailing list yielding 219 responses (response rate = 26 percent);
- Focus groups with parents recruited from two elementary schools, two middle schools, and two high schools;
- Informal interviews with technology specialists; and
- Written interviews with 16 principals.

Information resulting from the research activities was used to develop this Report. Information about research methods, surveys, focus group summaries, and interview summaries is included in Chapters 4-6 of the report.

In all, over 825 individuals participated in the School/Home Communication: Using Technology to Enhance Parental Involvement project completing surveys or participating in focus groups or interviews. This report represents the views of a variety of stakeholders engaged in communication between the home and school.

Report Structure

Following the Executive Summary is the Study Overview in Chapter 1. The studies for the four research questions are addressed in Chapters 2-4, with Current Capacity and Use of Technology in Illinois Schools in Chapter 2, Needs of Parents for Communication in Chapter 3, and Needs of School Personnel in Chapter 4. Conclusions and Recommendations are in Chapter 5 with The Review of the Literature on Parent Involvement in Chapter 6, followed by References and the Appendix.

Schools' Capacity/Use of Technology for School/Home Communication

Internet capacity across the state varies widely. In considering a school's capacity for using Internet technology applications for home/school communications, a number of factors need to be considered in addition to the availability of equipment. These include availability of various forms of software applications; the ability to use that technology; and the actual use of that technology. In addition, other major considerations include funding needed to implement the use of the technology; human resources to set up and maintain the system and provide training, and time to set up and maintain the system, provide training, and actually communicate with families. Finally, the school's capacity for using Internet technology for home/school communications is dependent upon the families' capacity to access and use Internet technology for communicating with the school. Research findings for each of these factors are presented below.

Access to the Internet

An ICN study of 2,776 Illinois schools indicates 97 percent reported being connected to the Internet, 84 percent of them connected with ICN (Illinois Board of Higher Education, 2003). Data provided by the U.S. Census Bureau for 2001 indicates that 53 percent of Illinois households had a computer and 47 percent of Illinois households used the Internet at home (Newburger, 2001). The survey of the principals

supports this data: Principals reported on average over 96 percent of teachers have access to the Internet in their classrooms. In contrast, only 55 percent of parents have access to the Internet.

Availability of Technology

Availability of technology varies according to the type of technology. Table 4 indicates e-mail is available in 73 percent to 83 percent of schools, depending on whether it was reported by teachers, technology representatives, or principals; voice mail in every classroom or faculty office is available in 27 percent to 35 percent of schools; and Interactive web pages for parents to access student information is available in 26 percent to 34 percent of schools. The range given represents high and low estimates of availability.

Availability of Home/School Applications

Technology representatives, principals, and teachers were asked to determine web and e-mail capacity by selected types of information: academic, scheduling, and learning resources. As mentioned earlier, principals estimated that, on average, over 96 percent of their teachers had access to the Internet, yet the percentages indicate much less capacity for disseminating information. For information that changes frequently such as daily homework, teacher feedback on progress, and grades, between 10 percent to 51 percent of schools **have the ability** to send this interactive type of **academic information** via e-mail or the web, depending on the type of information (compared with 52 percent to 82 percent in paper format). For example, for “frequent feedback on daily or weekly academic progress,” 24 percent of teachers reported it was possible to send parents information in web format and 50 percent of teachers said it was possible to send it in e-mail format; whereas 17 percent of principals reported it was possible to send it in web format, and 36 percent in e-mail format.

Table 4

Available Technology: Internet Access Reported by Principals; Available Technology Reported by Principals, Technology Representatives, and Teachers

Tech Reps n = 219, Principals n =191, Teachers n = 373	
Internet Access	% Reported by Principals
Teacher access to Internet in school	96
Parent access to Internet	55
Available Technology	% Reported by Principals, Tech Reps, & Teachers
Fax machines to send or receive parent information.	74-84
E-mail system for parent correspondence	63-73
Voice-mail system for parents to DIRECTLY contact each teacher	42-50
Telephones & voice-mail in every classroom or faculty office	27-35
Interactive web pages for parent access to forms or student information	26-34
Video, CDs, or other stored media to communicate with parents	13-25
Community access television channel to communicate with parents	12-23
Two-way video equipment/connection to communicate with parents	2

Static information such as **schedules and meetings** are generally more accessible on the web, between 9 percent to 71 percent (compared with 67 percent to 86 percent in paper format), as are **general learning resources** such as links to district contacts, newsletters, and policies and handbooks, between 12 percent to 66 percent (compared with 48 percent to 82 percent in paper format). Details of these findings for 13 applications may be found in Appendix A-2. Thus, schools had more capability to send information that remains fairly constant via web or e-mail, while they were less able to send more individualized or frequently changing information. Capability, however, does not indicate that this information is actually being disseminated via web or e-mail; use would be expected to be lower than capability due to cost, time, training, security, knowledge, and privacy issues.

The actual SIS, gradebook, and parent tools technology representatives reported using to implement these applications vary by district and may be found in the Technology Representative Survey in Appendix A-1.

Teacher Use of Technology for Communicating with Families

Teachers were asked if they actually used either web pages or e-mail for communicating with families. In response to that question, between 9 percent to 28 percent of teachers reported using web pages or e-mail to communicate academic information, depending on the type of information; between 17 percent to 19 percent to communicate schedules and meetings, and 28 percent to 32 percent to communicate general learning resources. These findings are fairly consistent with another study that found a small percentage of teachers, 20 percent, said they used the Internet to communicate with parents. (NetDay, 2001).

Because the academic information is the most critical type of information to communicate to families for increasing parent involvement, a closer look at teacher's use of the web or e-mail for those specific types of academic information is helpful. Table 5 shows a comparison of the percentage of teachers who selected the specific option as being one of the top five of 13 items that technology would be most useful for supporting communication; the percentage of principals who reported report that option was available on paper; the percentage of principals, technology representatives, and teachers who perceived this option was available on web and by e-mail; and the percentage of teachers who reported use of web or e-mail for that option.

As can be seen from Table 5, the four types of academic information teachers perceive as the items that technology would be most useful for supporting communication include class homework and assignments; student class expectations, agendas, or goals; frequent feedback on daily or weekly academic progress; and student behavior other than on report card. These are the types of information the greatest percentage of teachers actually provide for families through the web or e-mail. However, only about half of the number of teachers who perceive technology useful for communication of those items actually use technology for that option. The three types of academic information the fewest teachers provided for families by e-mail or the web are standardized test scores, attendance, and report card grades.

Table 5

Comparison by Type of Academic Information of Teacher Perceived Benefits; Reported Availability by Paper, Web, and E-mail Format; and Teacher Reported Use of Web or E-mail for Communicating with Families

Tech Reps n = 219 Principals n =191 Teachers n = 373	% of teachers perceived this option as 1 of top 5 of 13 items that technology would be most useful for supporting communication.	% of principals report this option available on paper	% of principals, technology representatives, & teachers perceive this option available on web	% of principals, technology representatives & teachers perceive this option available by e-mail	% of teachers report use of web or e-mail for this option
Academic Information					
Class homework & assignments	63	77	41-43	37-47	26
Student class expectations, agendas, or goals	50	81	34-44	28-48	28
Frequent feedback on daily or weekly academic progress	48	69	17-24	34-51	25

Student behavior other than on report card	41	75	9-17	24-46	19
Report card grades	24	82	15-18	15-30	9
Student attendance other than on report card	17	52	16-48	25-31	8
Standardized test scores and interpretation	15	80	15-23	14-25	6
Individual student schedule	9	67	20-32	28-44	15

Table 5 shows the four types of academic information teachers perceive as the items that technology would be most useful for supporting school/home communication include class homework and assignments; student class expectations, agendas, or goals; frequent feedback on daily or weekly academic progress; and student behavior other than on report card. These are the types of information the greatest percentage of teachers actually provide for families through the web or e-mail. However, only about half of the number of teachers who perceive technology useful for communication of those items actually use technology for that option. The three types of academic information the fewest teachers provided for families by e-mail or the web are standardized test scores, attendance, and report card grades.

In addition to the academic information discussed above, one type of learning resource information was also viewed by teachers as being one that technology would be useful for supporting communication: suggestions for parents to help children with school work (52 percent). There were 29 percent of teachers who reported communicating that information to parents via e-mail or the web.

Teachers with voice mail were asked how they used it. The top three reasons teachers reported parents contacted them by voice mail were to discuss discipline issues (39 percent of 373), homework (36 percent), and general information (32 percent).

There is consistency among all school personnel, parents, and literature about the particular applications that are the most helpful to parents and beneficial to students' academic success. This consistency is encouraging, in that a common understanding helps in setting priorities and goals as schools must balance choosing among providing basic services, meeting federal mandates, balancing budgets, and selecting limited activities and services.

In summary, almost all teachers have access to the Internet. According to technology representatives, e-mail is available in approximately three quarters of schools; voice mail in every individual classroom or faculty office in one third of schools; and interactive web pages for parents to access student information in one quarter of schools. However, having the technology is not sufficient for school/home communication. Not more than one half of teachers have the ability to provide academic information for parents by e-mail or the web for some applications; for other applications the ability is even less. And only about one quarter of teachers actually use technology to communicate any specific type of academic information to parents.

Additional Considerations for Determining School Capacity for the Use of Technology for School/Home Communication

Additional factors determine a school's capacity for using Internet technology applications to enhance parental involvement: funds necessary to implement the use of the technology, human resources necessary to set up and maintain the system and to assure privacy and security, training for school personnel to be able to use the technology for communicating with families, and the necessary time to provide training and to set up, maintain, and actually use the system to communicate with families.

When asked about concerns related to implementing the use of technology for school/home communication, time, cost and data privacy were mentioned by all four groups: parents, teachers,

technology representatives, and principals. Table 6 shows other concerns included parent access, network security, training of school personnel, and parent use.

Table 6

The top concerns with implementing an Internet-based School to/Home Communication System

Possible Major Concerns	Technology Reps	Principals	Teachers	Parents
Time	2	1	1	X
Cost	1	2	3	X
Data Privacy	3	4	4	X
Parent Access		3	2	X
Network security	5	5		
Training of school personnel	4			
Parent Use				X
Training of parents				
Content development				

One principal expressed many of these concerns:

“We currently have new classroom management software that allows instant access to a student's attendance, grades, discipline, etc. But we do not have the financial or technological capability to extend this safely (behind a firewall) to parents. We would need a BIG influx of dollars, equipment and techie personnel to make this accessible on line to parents. It is a great idea, but who can make this happen for us? We are already deficit spending to the tune of over \$1.5 million dollars. And what about the parents who do NOT have computers and high-speed internet access at home (perhaps 45 percent of our student population)?”

Without adequate resources in these areas, a school's capacity for using Internet technology applications to enhance parental involvement is diminished, even with the appropriate hardware and software. These will be addressed below.

Cost

Of major concern to all groups questioned are the costs associated with implementing or expanding the use of technology for school/home communication. Cost was the top concern for 35 percent of the technology representatives, 32 percent of the principals, and 19 percent of the teachers. Parents also mentioned cost as a concern: “Does this cost money? If so the district won't have it.” These include the initial costs for hardware and Internet connection, which most schools have, but also the cost of implementing, maintaining, and upgrading Student Information System, electronic grade book, and parent communication tools to allow parents to access that information over the Internet.

According to a cost study, license costs vary from approximately \$11 to \$32 per student, depending on the vendor and school size, as shown in Table 7.

Table 7

Rounded Per Student License Charge

COMPANY	SIS	GRADE BOOK	PARENT TOOL	STATE INITIATIVES
AAL	\$12.00	\$3.00	\$2-3.00	NC Dept of PI
C-Innovations	\$10-12.00	\$2-3.00	\$2-3.00	

Chancery	\$16-26	\$2.00	\$1.00	
Cross Pointe				
DMG Maximus	\$9.00	\$2.00	\$2.00	
Eagle	\$10.00			
Infinite Campus	\$7.00	\$2.00	\$2.00	SD Dept of Ed
Pearson Education	\$8-24.00	\$3.00	\$3.00	SC Dept of Ed
Pentamation	\$13-25.00	(Included at \$25.00)		
Power School	\$7-10.00	\$1-2.00		
Skyward	\$14-28.00	\$1-2.00	\$1-2.00	Washington State, WSIPC
Software Technology, Inc	\$13-20.00	(Per teacher)	(Monthly per building)	Ky Dept of Ed
Specialized Data Systems	\$4-8.00	(Included)		

(According to ISBE (2003) figures there were 2,044,539 Illinois students attending 3,919 regular public schools in 2002-2003.)

In addition to the initial software license charge, there are other costs. Technology representatives suggested the software itself is relatively inexpensive; it is the support, access to the Internet, and maintenance of the system that is difficult. Additional costs include:

1. Vendors charge a one-time fee for installation and initial training. These are generally per-day charges ranging from \$500.00 to \$1,500.00 per day. In some cases these are 'all-inclusive', in others there are separate charges for travel, meals, and lodging.
2. Beginning in Year 2, and all subsequent years, there are annual support charges. These range from 15 percent to 25 percent of the original license fees.
3. Many districts will have to consider server and workstation upgrades or purchases.
4. Some software (especially electronic grade books and parent communication tools) require designated servers pre-loaded with 3rd party software that must be provided by the customer or purchased from the primary vendor.
5. The user interface with all these products may require upgrades to the schools/districts' existing LAN, WAN, and Internet capabilities and access.

In summary, based upon the districts' existing technology infrastructure, the initial software license charge could represent as little as one-third of the total budget necessary for implementation.

For comparison, in North Carolina, with 1 million students attending 2,223 schools, the initial state investment in a statewide implementation was \$54 million. Districts had additional expenses in terms of training and necessary hardware/connectivity upgrades. After three years, only half of the districts had the SIS installed, and slightly more than 10 percent had the electronic grade book. The parent communication tool was scheduled for later implementation.

Costs for voice mail were also projected. In this study, approximately 50 percent of teachers had no access to some form of voice mail. Installation costs to provide limited voice mail to those teachers using IP telephony products (also referred to as Voice over IP or VoIP), from companies such as Cisco Systems or Nortel, are estimated at \$5.5 million to \$7.5 million. The variance in cost is attributed to the degree of centralization of the offering, the feature sets included, and prevalent pricing at the time. This excludes ongoing maintenance and service. Regular service fees would be an additional cost. In addition to costs for the technology are costs for systems administrators to maintain the system, assure security and privacy

of data, and help train school personnel.

There are also the costs for training that need to be considered. One teacher commented: “It would cost a lot of money to train all of the staff on how to do each of the areas needed.” Table 8 gives costs for e-mail and web-based training that were obtained in consultation with individuals in the training business as well as community colleges and universities that engage in routine training related to K-12 implementations.

Table 8

Training Costs

Type of Training	Hours	Cost
On Site: E-mail/web-based self-paced training, all online tutorial and support materials	16-24	\$80-100 per person
On Site: CD-Rom with supporting print materials and online tutorial and support materials	16-24	\$150-180 per person
On Site: Leader-led training utilizing E-mail and web-based materials via live web or voice conferences	16-24	\$300-350 per person
Off Site: Conference style, leader-led training with printed materials and CD-Rom support	16 (2 days)	\$500-600 per person (including up to \$100 per diem for food, travel, and lodging)
Off Site: Conference style, leader-led training with printed materials, CD-Rom support, live Internet activities	16 (2 days)	\$600-700 per person (including up to \$100 per diem for food, travel, and lodging; assumes a 24 seat computer lab equipped with Internet facilities)

As one example of training, to help teachers learn to use the new technology they were implementing, one district created the East Prairie Technology College, a three-year staff-development program that provides teachers with 180 hours of intensive technology training, covering everything from basic computer skills to more advanced multimedia production skills (Willi, 2003).

However desirable full implementation of technology for school/home communication may be, the reality of schools’ current finances needs to be considered when determining their capacity. Nearly 74 percent of Illinois school districts were in deficit in 2002, and over 25 percent have been in deficit for more than three years (ISBE, 2003). The number expected to be in deficit by the end of the 2003-2004 school year is 80 percent (School Businesses and Support Services, 2003). About one-third of the districts are facing significant financial problems. There were 100 school districts (of 893) on Illinois’ 2002 Financial Watch List, with 183 additional districts in the next most severe category, the Financial Early Warning List (School Businesses and Support Services, 2003). Principals expressed their concerns: “We do not have enough money for basic supplies at this time;” “Great idea, but no funds, a twice-failed referendum leaves us with a zero budget.” And a teacher stated: “The financial state of our schools is limiting all of our resources. To implement this kind of system while releasing teachers of their jobs is questionable.”

In addition, there is a wide disparity in funding per pupil between the highest and lowest poverty districts: In 2002, Illinois was ranked 49th of all 50 states in the funding gap; in 2003 it was last (ISBE, 2003). Although some schools can afford to implement technology for school/home communication, other schools are making deep cuts. Nearly every district has begun to reduce numbers of teachers, increase class sizes, and reduce program activities (ISBE, 2003). Costs are of major concern to all groups, and for many schools inadequate funds will seriously decrease their capacity for using technology for school/home communication.

Human Resources

Schools will need to have knowledgeable personnel to set up, maintain, and upgrade the system in a way that allows the school to use the student data that they are collecting in such a way that it can be readily transmitted or accessed by families. A principal expressed frustration with the installation of a system for communicating with parents via the Internet:

“We have purchased GradeBook and EdLine which I believe are top quality products. However, our older version of the student management software we have been using isn't compatible, (even though the software salesperson said it was) and therefore we are in the process of completing a conversion to a new student information management software program. Hopefully this will fix the "bugs" and we can accomplish the mission we started two years ago.”

Schools also need to be able to maintain the system, troubleshooting when there are problems and making the necessary repairs and upgrades. Parents expressed some of their frustrations with school websites that were not adequately maintained: “The Internet site is missing things and is also out-of-date.” “Our school Internet site has been down for several months.”

Knowledgeable personnel also need to assure security and data privacy. Security and privacy are of vital importance to both the school and parents. Data privacy was the top concern of 22 percent of the technology representatives, 19 percent of the principals, and 17 percent of the teachers. A teacher expressed concern with lack of privacy: “I would not feel comfortable sending email that includes confidential information, as some people share email access.” Parents also mentioned data privacy as a concern: “I am very leery of certain issues. The confidentiality does really bother me. This is why I don't use these things. Both personal and academic issues should be kept private.” Unless the school can ensure privacy, parents and teachers will be unwilling to use the Internet for communicating.

In addition, network security was the top concern of 10 percent of the technology representatives and 15 percent of the principals. A technology representative stated: “One of the primary objections to having student data online is the integrity of the network and outside access. Due to present financial difficulties, we do not have a firewall and would need to have this with sensitive data being sent.” One principal commented: “Even secure systems owned by the government seem to have hacker problems. How can we be sure of security?” Ongoing surveillance is also needed to keep the system safe from spam and virus. Finally, technology personnel will also need to provide ongoing training for school personnel and for parents to use the system.

Time

As is indicated in the North Carolina example, time is needed to implement the use of technology for use in parent communication; in this case after three years they were far less than half completed with installation of the necessary tools. Also to be considered is the time necessary for school personnel, including the technology representatives and principals, to implement and maintain the system. This occurs at a time of increased time commitment for spam and virus control. In addition is the time needed for training (16 to 24 hours for basic e-mail and web-based training), data entry, creating and maintaining classroom web pages, recording voice mail messages, and sending e-mail to families. Finally, the use of time in schools is not infinite. With NCLB requirements and with 50 schools on the 2002 Academic Watch List (ISBE Press Release, 2003), school personnel have multiple demands on their time.

Time was the top concern of 21 percent of the technology representatives, 44 percent of the principals, and 26 percent of the teachers, and both principals and technology representatives mentioned time as a concern in their interviews. Parents also mentioned time as a concern for them, especially for working parents. A teacher commented on a concern with “the time it would take for the teacher and technology personnel to constantly keep each teachers website updated in a timely manner.” This concern with time was consistent with findings from NetDay (2001) that found time was the most common barrier listed by teachers as to why they are not utilizing the Internet and technology more frequently. They concluded that

if teachers had more time to spend online, they might be better able to use the technology for other duties, including communication with students and parents.

Although time is of concern to all groups, it appears that once a system is up and running smoothly, for teachers who communicated frequently with parents by phone calls, notes and letters, communication through the Internet actually may save them time. One example is Huseth (2001), a middle-school teacher, who found her older methods of communication with parents, first phone calls and later progress reports every other week, to be more time-consuming and ineffective, so she created a classroom Web page. She added an e-mail parent contact distribution list, and each Monday an e-mail letter is sent to parents that contains homework assignments for that week from all curricular areas associated with their house at school. She found that she decreased time spent on the phone and mailing letters by using the Web site.

Another example is Spurr (1999), a high-school teacher, who also reported much success with his use of e-mail and a Web site for his classes. By using a computerized grading program that allows him to enter an e-mail address for each student, he e-mails the student's grade summary from within the program, either for individual students or for the entire class. He sends the grade summaries at the end of each week. He also provides on the Web site an outline at the beginning of each unit, updated with due dates, expected test dates, and other information of interest to parents. It takes less than five minutes each day to keep the unit description page current. At least for some teachers, once the initial learning to use the system is completed, communicating with parents via the Internet may actually be less time consuming than their old methods of communication.

Parent Capacity to Use Technology for School/Home Communication

For some families, communicating some types of information by using technology is effective; for other families it would not be appropriate. There are several family factors that would affect the appropriateness of using technology for school/home communication, including the family's access to technology, the family's technology capabilities and comfort level, the family's prior involvement with the school, and the family's home language. Each of these will be briefly addressed.

Parent Access to Technology

Of particular concern to parents, principals (25 percent), and teachers (29 percent) when considering using technology for school/home communication is the parents' access to that form of communication. Principals estimate that 55 percent of parents have access to the Internet. One parent spoke for many: "We don't have a computer now but by the time they get to middle school, we hope to have one." A teacher commented: "Many parents do not have internet access - They may feel that those who do have an unfair advantage over them and their children." In addition, 3 percent of Illinois households with children under 18 had no telephones in 2000 (U.S. Census Bureau, 2000). With the number of children living in poverty increasing, that figure is likely to increase. Some families with a computer in the home cannot afford monthly access to the Internet. For these families, the use of voice mail or Internet-based communication would not enhance communication with the school. And to ask those parents, many of whom have no means of transportation and no means of child care, to travel across town to the public library to use the computers there to look up their child's homework assignments, as is suggested in some of the literature (Bessell, Lee, & Schumm, 2003), is not always a viable option. Much of the literature relating to the use of the Internet for communicating with parents made a point to say alternative methods of communication for families without access to the Internet were provided, such as paper copies of the newsletters posted on the web site, letters, or phone calls (Rice, 2001; Spurr, 1999; Sumner, 2000; Contreras, Undated). For those families with Internet access, communicating with the school via e-mail and school and classroom web site is an effective way to find out what is going on in their child's life at school at a time that is convenient for the parent. However, access to the Internet in the home is only one consideration of the capacity of families to communicate with the school using technology.

Parent Technology Capability and Comfort

The possession of a computer with Internet access is no guarantee a family can use that technology to

communicate with the school. Even with Internet access in the home, many parents have not had the training to use it and to know how to access the school's information. In many cases the computer is for the children; the parents do not know how to use it, as expressed by one parent: "I need my child's supervision to get on the computer." Unless the family is capable and comfortable with navigating the Internet or using e-mail, that technology will not help with school/home communication. Some parents are not comfortable leaving messages on voice mail or e-mail. As mentioned previously, some parents are concerned about privacy of information.

To make sure parents have the knowledge necessary to access the classroom web site, it might be necessary to provide training for parents not used to using that method of communication (Ramirez, 2001). Nelms (2002) conducted action research related to the effects of her classroom Web site on parent communication. Some of the factors that affected this study included parent's access to the Internet, current skills with computer technology, and comfort with current methods of home-school communication. Nelms suggested a free, school-sponsored workshop for parents on accessing the Internet and the school Web site may have improved participation in the study. Some districts do offer parent training. For example, in one district's initiative with a goal to place a new Apple iMac computer into the home of every fifth grade student, along with an Internet provider and a E-mail account, participating parents had to complete ten hours of computer training (free of charge) to include educational uses of the Internet, word processing skills, and E-mail protocol prior to receiving their computer (Josephs, 2001).

Culture/Prior Involvement with School

Another factor that would affect the effectiveness of using technology for school/home communication is a family's culture and prior involvement with the school: Some family's culture and prior level of involvement with the school would make them unlikely to communicate with the school through the Internet. Families, particularly in some cultures, who have not previously been involved with their child's school, are hesitant to become involved with their child's learning, as they believe the teachers are the professionals and it is not appropriate for parents to interfere. One parent expressed this: "We have a diverse school and many cultures believe in leaving the communication to the school." Hispanic parents, for example, are likely to view the school system as a bureaucracy not to be questioned, and because of this they tend to be reserved, non-confrontational, and non-involved in their children's schools. Because of this attitude toward school, typical parent involvement efforts are often unsuccessful with Hispanic parents, who need to be allowed to become involved with the school community at their own pace. The hardest part of building a partnership with low-income Hispanic parents is getting them to the first meeting. Impersonal efforts, including letters, flyers, announcements at church services or on local radio or TV, are largely ineffective, even when they are in Spanish. According to Inger (1999), the only successful approach is personal: face-to-face conversations with parents in their primary language in their homes.

Other families believe they cannot do much to help their child's learning. It takes a lot of reaching out to these families and face-to-face interaction with them to help them understand that they can contribute to their child's learning. Dwyer and Hecht (2001) found that one key to gaining a parent's involvement would be to reinforce to parents their own importance to the student and to the school. They found the literature to be consistent in saying the first step in any parent involvement program includes the school reaching out to the parent. When a school is able to find ways that increase the likelihood of parents and teachers talking, those parents and teachers communicate.

Until this understanding is reached, these families will not initiate contact with the school, and communication through the use of technology, even if it is available in the home, will not be effective to enhance parental involvement in the child's learning. Parents of disadvantaged and minority children can and do make a positive contribution to their children's achievement in school if they receive adequate training and encouragement in the types of parent involvement that can make a difference (Cotton & Wiklund, 1989). Training is needed not only in the use of technology, but first in ways to support their child's education. Without that, even if they know how to access the information, it will not be used to help the child's learning.

Finally, there is a concern that the use of technology for school/home communication may actually increase the digital divide: Those families with technology will be able to take advantage of it to better communicate with the schools, while those without the technology may not have that advantage. Attewell and Battle (1999) found a positive effect of home computers upon academic achievement in reading and math for eighth graders, and they observed that this effect was larger for high-SES students, smaller for girls than boys, and smaller for minorities. The average computer effect was equivalent to about one quarter of the gap in reading and math performance between blacks and whites, but was larger than the male-female differential in math performance. They speculated that more affluent and higher educated parents were better able to help with home computing and were more likely to be aware of the importance of engaging in learning with their children, a pattern observed for parental involvement in schoolwork more generally, where higher SES parents exhibit higher levels of involvement.

Therefore, simply providing parents with the technology, without first reaching out to them, showing them how they can help their child learn, teaching them how to use the technology and how to access the information available through it, will likely not enhance parent involvement. For those parents who have been involved in their child's schooling and are accustomed to helping their child with learning at home, the information they can find through the Internet in the classroom web site will help them be even more focused in their efforts to help their child.

Language

Finally, the home language of the family is a factor that contributes to the effectiveness of the use of technology for communication, a concern expressed by technology representatives and principals: "As far as technology goes... I don't believe it will work "web based" because our parents do not have access outside the building... also if we did this we would have to have access to a Spanish interpreter to word process for individual students parents." Some schools have many families who do not speak English. In fact, 10 percent of the parents involved in the focus groups identified a language other than English was spoken in their home. For those families, communication with the school can be difficult. Recommendations were made in the literature to translate the written information and provide translators for verbal interaction with those parents who need it to understand what is being communicated to them (Bare 1996, Jonson 1999, Ramirez 2001, and Moore 2002). And one of the National PTA Quality Indicators for Communication is: "Translate communications to assist non-English-speaking parents." For families with a language other than English, unless the web site is translated into their native language, it will not be an effective means of communication.

It is apparent that the use of technology for school/home communication is not going to be an effective way to enhance parental involvement for all families. Until those issues of access, parent ability and comfort with technology, culture and prior involvement with the school, and language are addressed by the school, many parents will not have access to or, even with access, will not use that method of communication. In addition to considerations of the school and parent with regard to their capacity for using technology for communication, there are two further considerations related to the appropriateness of using technology for communicating with families: the age of the student and the nature of the message.

Age of the Student

Parents of children of different ages are looking for different kinds of information. The older the student, the more likely the use of technology for communication is appropriate. Parents of younger children are more likely to want a more personal means of communication about the academic, social, and emotional growth of their child, whereas parents of older children are generally more interested in monitoring their homework and academic progress for which the Internet might be of more benefit. Cameron and Lee (1997) found that at the upper age levels, parents expressed greater satisfaction with voice mail than with comparison messaging for keeping informed and exchanging support between home and school; the reverse was the case at the kindergarten level. Voice mail produced more satisfaction for the parents of older children, and the usual methods were more effective for parents of younger students. Cameron and Lee concluded:

Voice mail had a greater effect on communications between teachers and parents of older students, whereas usual communications continued to be viewed more appreciatively by parents and teachers of younger children. The character of communications between teachers and parents at the different levels calls for commensurably different and appropriate media. The effects of parents of younger children using the facility for an emotional connection with their children and parents of older children attempting to monitor their increasingly independent children were replicated in these two studies (p. 189).

Principals suggested voice mail might be more appropriate for elementary school parents, whereas web-based and e-mail might be more appropriate for high school parents. As their children grow older, parents' involvement is more likely to take the forms of monitoring homework, helping students with post secondary plans, parent-school agreements on rewards for achievement and behavioral improvements, as well as regular home-school communication about students' progress and parent attendance at school-sponsored activities (Cotton & Wikelund, 1989). This requires messages from the school different from those required for younger children, messages that would likely be enhanced by the use of technology.

Nature of Message to be Communicated

Finally, the nature of the message to be communicated between the family and the school affects the type of communication that is needed. This was addressed to some extent when considering the age of the child, as different types of information are more appropriate for differing ages, but the complexity of the message is also involved.

Some issues are more appropriately communicated in person than by e-mail. Parents want a more personal communication method, such as face-to-face, when discussing a serious issue with the teacher; whereas they appreciate the use of the Internet for accessing information such as homework assignments. Parents of children with serious problems in school would prefer to discuss them with the teacher in person or by phone rather than try to resolve the issue by e-mail or leave messages by voice mail.

When parents in the focus groups were asked which information-sharing and communication applications could best be served by technology, for most discipline issues or other immediate problems, they indicated that personal *phone calls* worked best. For arranging meetings and attendance reporting, *voice-mail* was or could be useful. Participants also cited voice mail as a means to contact school counselors regarding class schedules, school events, and course selection. The school *Internet* web site was cited as a means for finding out about homework assignments. Parents felt that *e-mail* was a way to leave more elaborate messages about difficulty with a course, problems with homework, or multi-faced questions.

It appears that issues that would require some sort of collaborative problem solving between the teacher and the family are more appropriately communicated by more personal means. The National PTA described this type of communication: "Too often school or program communication is one-way without the chance to exchange ideas and share perceptions. Effective home-school communication is the two-way sharing of information vital to student success. Even parent-teacher conferences can be one-way if the goal is merely reporting student progress. Partnering requires give-and-take conversation, goal setting for the future, and regular follow-up interactions" (National PTA a., 1998) Other types of messages, such as simple transmissions of information, such as how many days the child has been absent or the homework assignment, can be readily communicated through the use of technology.

In summary, there are many factors that determine a school's capacity to use technology for school/home communication. Some of those relate to the school's Internet access, availability of various forms of technology, ability to use that technology for various communication applications, and the teacher's actual use of technology for communicating with parents. Other factors relate to the families' Internet access, capability and comfort level using technology, prior involvement with the school, and language. Finally, the age of the student and the nature of the message are additional factors. Because it is apparent no one method of communication is appropriate for all situations, schools need to provide a continuum of

methods of communicating with families, from low-tech/high-touch to high-tech/low-touch.

Parent and School Needs Regarding School/Home Communication

In addition to determining the school's capacity/use of technology for school/home communication, this study sought to determine the needs of both parents and school personnel when considering implementation of the use of technology for communication. For this portion of the study, focus groups were conducted with parents, interviews were conducted with technology representatives and principals, and comments from surveys of teachers were reviewed. The studies are contained in Chapters 2-4. The major findings are presented below.

The parent focus groups provided insight to a number of issues related to improving school/home communication through the use of technology. In summary, participants expressed the following:

- A need to have multiple means of communication between home and school since preferences and availability of communication tools vary by household;
- A need for a minimum level of communication that is consistent between teachers since the level and effectiveness of communication varies by teacher;
- A need for more frequent communication about academic performance and homework assignments;
- Support for an Internet-based system for certain aspects of communication such as grade reporting and homework by persons who regularly use Internet technology now;
- Support for e-mail as an effective communication tool for parents who use it since messages can be mailed and read at the convenience of parents and particularly working parents;
- Support for voice mail as an effective communication tool for certain issues but not those requiring an immediate response;
- Concern about the use of technology to reach households without tools to use technology for communication;
- Concern about the effects of parents' socioeconomic, cultural, and language differences on their ability to communicate with the school;
- Concern about the difference between communication levels of elementary, middle, and high school parents – the lower the grade, the greater the communication –the higher the grade, the less the communication;
- Concern that measures taken to enhance security have decreased the level of comfort parents feel coming to or being at schools thereby reducing the opportunity for communication; and
- Recognition that the availability of technology in a home is not predictive of the amount of communication between homes and schools; the amount and quality of communication is dependent on the parent, teacher, and school's willingness to work together.

Teacher surveys provided insight into teachers' needs for the use of school/home communication and how that would impact them. The teachers expressed the following:

- A need to have adequate time necessary for training, for creating web pages, for keeping information such as homework assignments current, and for providing individual information for parents on a regular basis;
- Concern that with the demands already placed on them, they would not have the time needed to adequately maintain a web page and regularly e-mail parents;
- Concern that many families did not have computers or access to the Internet, and that not all of those who did knew how to use them, could read English, or would use them to communicate with the school;
- Concern that those families without Internet access would not receive the same information that those with access would receive; or, that duplicate efforts would need to be maintained to provide that information in another format;
- A need to keep student information private, and a concern that the system would not be safe from hackers; and

- Recognition that implementing technology for school/home communication would have high costs to the district for the necessary hardware and software, training, and personnel needed to set up the system and maintain it—money most of their districts did not have.

Principals expressed the following ideas related to the use of technology for school/home communication:

- Schools currently use a wide variety of methods to communicate with families, both Internet-based and non-electronic.
- Because many families lack of phones or access to the Internet and/or ability to use it, schools need to continue to use a variety of methods of communication.
- Parents need information about what the child is doing in the classroom, homework assignments, the child's academic and social progress, and how the parent can help the child with schoolwork.
- Those principals using Internet-based methods like them; most of those without would like to be able to use them, but they cite several barriers.
- The main barriers to the use of Internet-based communications are initial and ongoing cost, lack of parent access, privacy issues, and time. Multiple languages in some homes and school communities was also mentioned as a barrier for some schools.

Through the discussion of the experiences of the technology representatives with the use of the Internet for school/home communications, the following issues were brought up:

- Cost issues: The software itself is relatively inexpensive. It is the support, access to the Internet, and maintenance of the system that is difficult.
- Teacher issues: Teachers have a lot to do already. It is important to make the system simple for them to use and to make it policy/part of the evaluation system to use it.
- School board issues: The level of understanding, or lack of understanding, of technological issues by some school boards makes it difficult to implement practices.
- Digital divide issues: There was a concern that the use of technology for school/home communication will make the divide worse, both from a physical machine access and knowledge standpoint.
- Language Issues in cities: There was a question of how to deal with the many foreign languages spoken in the homes in some of the schools.
- Vendor Issues: "Is the state going to become a vendor?" It was suggested that the State should build on what exists by working with vendors, because they have worked out the kinks and have networks of users.

In analyzing the data received, the messages from the literature, school personnel, and parents were consistent: Communication between school and home needs to be provided in a variety of ways, both high-tech/low-touch and low-tech/high-touch, depending upon the age of the child, the nature of the message, the capacity of the family for using technology for communication with the school, and the capacity of the school for using technology for communication with parents.

This message came through in many ways. The National PTA's (1998) first recommendation regarding school/home communication is: "Use a variety of communication tools on a regular basis, seeking to facilitate two-way interaction through each type of medium." Janice Crawford, a senior fellow with the Ball Foundation, in a presentation on how schools can get parents involved, stated: "Schools should use at least three different ways of getting information out to parents, because a single form of communication does not work for all parents" (Friedman, 2003).

The literature stressed the importance of using a variety of methods for communicating (Kruger 1998, Epstein et. al. 1999, Jonson 1999, Moore 2000, Turner 2000, Anonymous 2001, Plevyak & Heaston 2001, Ramirez 2001, and Moore 2002). Huseth (2001), when communicating with parents through e-mail and a website found that one obstacle she faced was that not all parents have access to or like this way of reporting grades and missing work; for those parents, she communicated in traditional ways, by telephone and mail. Moore (2002) suggested "communication can be verbal, in person, on the telephone, through

the Internet, and via e-mail and voice mail. Because families are unique, each will have communication preferences. Ask them to tell you their favorite method” (p. 14).

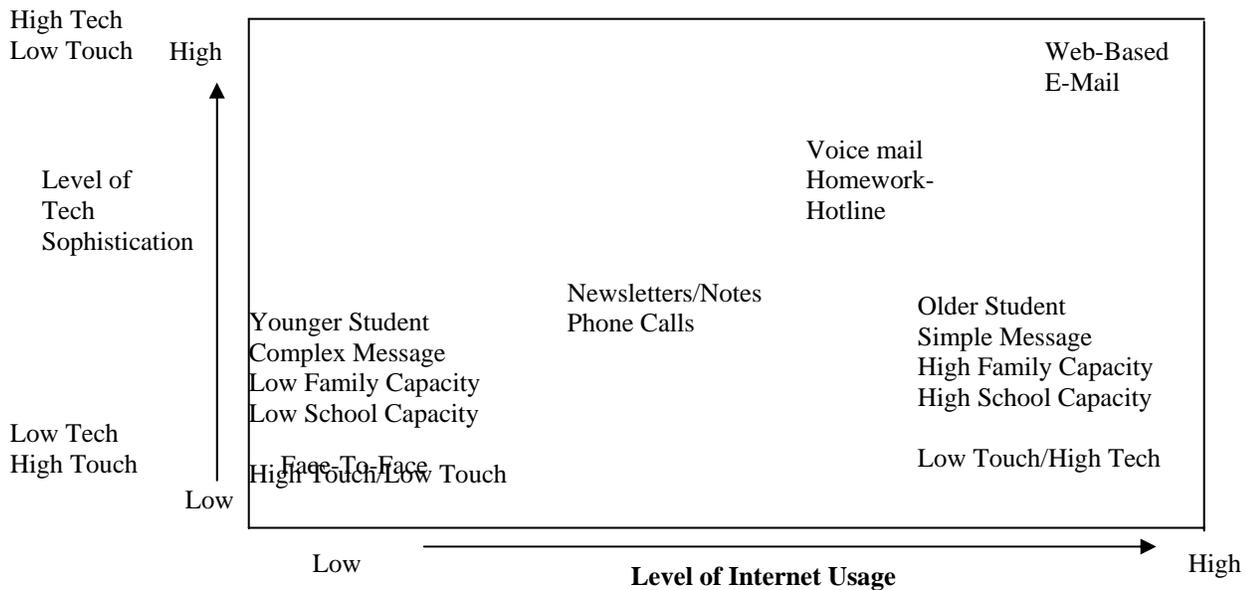
Recognizing the need to consider family differences in needs for communication, a committee formed by Springfield superintendent, made up of parents and administrators from 17 of the district’s 36 schools, approved a proposed parent involvement policy that the committee presented to the school board. The one-page proposed policy stated “the board in collaboration with parents and families shall establish practices that enhance parent/family involvement and reflect specific needs of students and their families” (Friedman, 2003).

Nearly all participants in the parent focus groups noted that a variety of communication methods were needed to address different communication needs. Parents stated: “Many parents do not have computers,” “There needs to be a high-tech system and a low-tech system that works for everyone.” Principals stated: “We assume everyone has a computer and even a phone. This is still not the case in some parts of the state or even in individual communities.” “All in all, nothing can top a good old-fashioned face-to-face meeting.”

There is a need for a variety of methods for schools to communicate with parents, because one method is not appropriate for all children, messages, families, or schools. It appears a continuum of communication methods from low-tech/high-touch to high-tech/low-touch is needed, and the type of communication that is appropriate for a particular situation is dependent upon each of these variables, as is shown in Figure 9.

Figure 9

Continuum of Types of School/Home Communication Methods



Summary

In summary, Internet access is readily available in schools; less so in homes: Whereas 97 percent of

Illinois schools are connected to the Internet, only approximately 55 percent of Illinois households are connected to the Internet. The technology needed for school/home communication is less available than is Internet access: Email is available in approximately three quarters of schools; voicemail in every classroom or faculty office in one third of schools; and interactive web pages for parents to access student information in one quarter of schools. Specific home/school applications are less available to schools than the technology itself, although availability varies by type of academic information: In general, email applications are more available than web-based systems. Finally, teacher use of those applications for communicating with parents is less than their availability, and use varies by application: Approximately one quarter of teachers use technology to communicate some type of academic information to parents.

Costs, time, and data privacy related to implementation were concerns across all four groups: parents, teachers, principals, and technology representatives. Parent access was a concern of parents, teachers, and principals. Cost considerations go beyond technology infrastructure and support: Nearly 74 percent of Illinois school districts were in deficit in 2002, and the number is expected to be 80 percent by the end of 2003-2004 school year. In addition, there is a wide disparity in funding per pupil between the highest and lowest poverty districts: In 2002, Illinois was ranked 49th of all 50 states in the funding gap; in 2003 it was last. Digital-divide concerns were expressed by parents, teachers, principals, and technology representatives.

There is a consensus among the literature and the groups involved in this study as to what is most needed to enhance school/home communication: a variety of methods for school/home communication; communication of information about what the child is doing in the classroom, homework assignments, the child's academic and social progress, and how the parent can help the child with schoolwork; and the use of technology to the extent it is consistent with the age of the child, the nature of the message, and the school's and family's capacity to use that technology for communication. There is also consensus as to the concerns with implementing the use of technology for school/home communication: cost, time, data privacy, parent access, and training.

Internet-based parent communication would be an effective means of communicating with some parents to keep them informed of what their child is working on in school, what the homework assignments are, how their child is progressing, and how they can help the child's learning at home. Communication could be done when it is convenient for the parents, which is especially helpful for those parents who work and are not available for communication during the school day. Parents could access the information as frequently as they want with a simple click of the mouse. This type of communication, while taking a lot of work up front to establish, would be easy to access. And much of it could be automatically updated as attendance, grades, etc. would simply be maintained on the computer. However, for those parents for whom Internet access is not accessible, for those parents who are not yet involved with their child's learning, for those situations where more personal communication is needed, and for those schools currently without the capacity for such communication, other means of communicating with parents need to be available.

It appears the appropriate methods of communication with families run along a continuum from low tech/high touch to high tech/low touch depending on the student's age, the nature of the message, the capacity of the family to use high-technology methods, and the capacity of the school to use high-technology methods of communication.

Current Capacity and Use of Technology in Illinois Schools

Background

In his February 2003 State-of-the-State address, Governor Rod R. Blagojevich called on all Illinois schools to adopt the National PTA standard for parental involvement to ensure that communication between home and school is frequent and meaningful. He announced the creation of a new web-based system to enable parents to access information about their children's classroom activities, homework, performance, and attendance over secure websites. And he wanted to explore the use of voice mail for teachers. The Illinois Century Network (ICN) provided funding to the Center for Application of Information Technology (CAIT) at Western Illinois University to develop applications and the Center for the Study of Education Policy at Illinois State University to survey schools across Illinois to determine the extent of the use of technology for communicating with parents of students in Illinois schools.

Information is available to indicate that schools are connected to the Internet and have technology that could be used to communicate with parents such as voice mail, e-mail, and web pages. Schools use Student Information Systems to record student data, and teachers are using electronic grade books for recording homework and test grades. In addition, schools are using parent communication tools to make this information available to parents. The initial direction of the ICN/ISU project is a research effort to determine to what extent such technology is currently being used, what technological needs exist for the schools, and what families feel they need in order to increase parental involvement. To address the first issue, surveys were sent to teachers, technology representatives, and principals to assess the availability and use of technology for communication with parents in their schools.

Objectives

The purpose of the surveys was to determine what technology was currently available in Illinois schools, what types of information could be sent to parents through that technology, to what extent that technology was being used by teachers to communicate with parents, and what concerns and needs school personnel had related to implementing the use of technology for school/home communication. Specific objectives of the study were:

1. What is the current capacity for using Internet technology applications to enhance parental involvement?
2. What types of technology are schools currently using to promote communications between parents and schools?
3. For what specific applications is technology being used?
4. What do schools and parents want and need to enhance communication about the student's activities and performance through Internet technology?

Study Procedures

Electronic random sampling was used to select one-quarter of the 4,212 principals in the State of Illinois. Principals to be surveyed were recruited from public record mailing lists of the Illinois State Board of Education. Principal survey participants were asked to complete and return via mail or fax a short survey with questions about the availability, use, need, and potential for and concerns about improved school/home communication of Internet-based technology, voice-mail, and other technology. A total of 191 surveys were returned from the 1035 sent out, for a response rate of 18 percent.

Each principal who was sent a survey was asked to distribute three surveys to several teachers in the building. Teachers to be surveyed were asked to complete a survey relating to issues of using technology to improve communication between them and parents. A total of 373 teacher surveys were returned from the 3105 sent out, for a response rate of 12 percent. The 831 technology representatives on the public record mailing lists of the Illinois Century Network, an agency of the State of Illinois, were requested to complete a survey that related to the use of technology in their schools for improved communication between schools and parents. A total of 219 surveys were returned for a response rate of 26 percent. Survey data were entered into a computer for analysis.

Results

1. What is the current capacity for using Internet technology applications to enhance parental involvement?

Based upon survey responses by teachers, principals, and district technology representative, Internet capacity across the state varied widely. All percentages are based on the total number of respondents in each group. According to principals, on average, over 96 percent (SD = 15.4) of teachers had Internet access in their classrooms, and the estimated percentage of parents with Internet access was 55 percent (SD = 28.7). However, for school/home communication, the capacity was lower varying by application. As seen in Table 9, the reported availability of different technologies was fairly consistent across groups, although differences in perceived availability existed.

Table 9

Availability of Selected School/Home Communication Technologies: Comparison of Responses from Technology Representatives, Principals, and Teachers

	Technology Reps (n = 219) % Yes	Principals (n = 191) % Yes	Teachers (n = 373) % Yes
Fax machines to send or receive parent information.	84.0	84.8	74.0
E-mail system for parent correspondence	73.1	68.1	63.0
Voice-mail system for parents to DIRECTLY contact each teacher	49.8	42.4	41.8
If voice is available, identify the configuration below:	Breakdown of Voice Mail %	Breakdown of Voice Mail %	Breakdown of Voice Mail %
a. Telephones & voice-mail in every classroom or faculty office	35.2	26.7	30.8
b. Telephones & voice-mail retrieval outside of the classroom or office	11.4	09.4	08.6
c. Other (please describe)	01.4	01.6	00.8
d. Missing	01.8	04.7	01.6
Interactive web pages for parent access to forms or student information	26.5	33.5	29.5
Video, CDs, or other stored media to communicate with parents	17.8	25.1	13.1
Community access television channel to communicate with parents	16.4	23.0	12.1
Two-way video equipment/connection to communicate with parents	02.3	02.1	01.9

The most available technologies were fax machines (74 percent to 84 percent) and e-mail (63 percent to 73 percent), while two-way video (2 percent) and community access television (12 percent to 23 percent) were the least available technologies. Interactive web pages (26 percent to 34 percent) and voice mail (42 percent to 50 percent) were reported to be accessible by one quarter to one half of the respondents. Voice

mail availability in every classroom or office ranged from 27 percent to 35 percent. The top three reported uses of voice mail were to discuss discipline issues (39 percent of 373), homework (36 percent), and general information (32 percent). Details can be found in the teacher survey in Appendix A-2.

Capacity can also be examined by specific applications. Table 10 indicates the perceptions of technology representatives, principals, and teachers regarding web and e-mail capacity by selected types of information: academic, scheduling, and learning resources. As mentioned earlier, principals estimated that, on average, over 96 percent of their teachers had access to the Internet, yet the percentages in the table indicate much less capacity for disseminating information. For most frequently changing applications such as daily homework, teacher feedback on progress, and grades, between 10 percent to 50 percent of schools **have the ability** to send this interactive type of **academic information** via e-mail or the web, depending on the type of information. Static information such as **schedules and**

Table 10

Availability of Web and E-mail Format by Type of Information: Comparison of Responses by Technology Representatives, Principals, and Teachers

Tech Reps n = 219 Principals n =191 Teachers n = 373	Is it possible for the school to send information to parents in Web Format			Is it possible for the school to send information to parents in E-mail Format		
	Tech Rep % Yes	Principal % Yes	Teacher % Yes	Tech Rep % Yes	Principal % Yes	Teacher % Yes
Academic Information						
Class homework & assignments	42.5	33.5	41.3	36.5	35.1	47.2
Student class expectations, agendas, or goals	33.8	30.9	44.0	28.3	34.0	47.5
Individual student schedule	19.6	31.9	26.5	28.3	40.8	44.0
Frequent feedback on daily or weekly academic progress	19.2	17.3	23.9	34.2	36.6	50.7
Student attendance other than on report card	16.0	18.3	17.7	25.1	27.2	33.0
Standardized test scores and interpretation	15.5	20.9	22.8	14.2	13.1	24.4
Report card grades	15.1	12.0	18.2	19.6	15.2	29.0
Student behavior other than on report card	11.4	09.9	16.6	29.2	23.6	45.8
Schedules & Meetings						
Calendars of school activities or events	71.2	59.2		23.7	27.2	
Lunch menus	58.0	48.7		21.0	22.5	
School closing information	54.8	47.6		21.5	23.6	
Public meeting schedules, agendas, or minutes	54.8	44.5		20.5	24.6	
Bus schedules	16.9	15.2		14.6	13.1	
Conference/meeting with parents	15.1	14.1	16.6	26.5	22.0	45.8
Emergency parent contact	13.2	9.9	18.8	20.1	18.3	39.9
Learning Resources						
Links to district, regional, and/or state websites	65.8	60.7	63.3	15.5	25.7	33.2
Links to student learning resources, e.g., databases, encyclopedias, etc.	65.3	48.7	55.0	16.0	24.1	29.2
E-mail links to teachers, staff,	63.9	58.1		28.3	45.5	

& administration						
Newsletters or press releases	55.3	40.3		16.0	23.0	
School policies, procedures, handbook, etc.	53.4	38.2		12.8	24.6	
Suggestions for parents to help children with school work	37.4	33.0	45.0	18.3	25.7	42.1
Available student or family services	23.3	26.7		11.9	19.4	

meetings are generally more accessible on the web, as are **general learning resources** such as links to district contacts, newsletters, and policies and handbooks. Thus, more schools could send information that remains fairly constant via web or e-mail, while fewer were able to send frequently changing information. Capability, however, does not indicate that this information is actually being disseminated via web or e-mail; use would be expected to be lower than capability due to cost, time, training, security, knowledge, and privacy issues.

Table 11 summarizes respondents' major concerns with implementing an Internet-based school/home communication system. For all three groups, time and cost were the two items that ranked as top three concerns. Other issues differed by one's role in the school. As can be expected, technology representatives identified data privacy (51 percent), training of school personnel (50 percent), and network security (48 percent) as top three concerns due to their responsibilities in supporting technology use in the schools. In contrast, principals (47 percent) and teachers (52 percent) identified parent access due to their contact with families.

Table 11

Top Concerns for Technology Representatives, Principals, and Teachers with Implementing an Internet-based School/Home Communication System.

- Please select the three top concerns you have with implementing an Internet-based School to Home Communication System. Indicate your top concern with a 1, your second with a 2, and your third with a 3.

Possible Major Concerns	% rating 1,2, or 3	% rating #1	% rating 1,2, or 3	% rating #1	% rating 1,2, or 3	% rating #1
	Technology Reps		Principals		Teachers	
Time	65.5	21.1	56.2	43.8	61.4	25.9
Cost	59.3	34.7	57.8	32.1	35.5	18.6
Data Privacy	51.2	21.9	46.2	19.4	29.9	16.9
Training of school personnel	49.5	10.1	44.1	08.6	41.5	06.8
Network security	47.9	09.6	26.9	15.0	24.9	07.4
Parent Access	27.5	07.3	46.5	19.8	51.6	24.7
Parent Use	19.3	02.3	31.7	04.8	36.7	04.1
Training of parents	13.8	0.5	24.1	03.2	29.5	04.7
Content development	11.9	02.3	13.6	02.7	13.2	00.8
Other (Describe)		03.2		01.5	---	01.9

If one looks at the number-one ranked concern, for technology representatives it was cost (35 percent), for principals it was time (44 percent), while a similar percentage of teachers identified time (26 percent) and parent access (25 percent) as the number one concern. Content development was the concern the least number of people identified as either the number one (1 to 3 percent) or top-three concern (12 to 13 percent).

- What types of technology are schools currently using to promote communications between parents and schools? and**
- For what specific applications is technology being used?**

The previous section discussed access to Internet technology. Capability, however, does not indicate the extent to which technology actually is being used. As Table 12 indicates, more schools used paper formats to communicate with parents in comparison to technology-based formats. With the exception of providing e-mail or web links to parents on paper, over 50 percent of principals identified using paper formats for communicating to families. Responses ranged between 52 percent for reporting student attendance (other than report card) to 86 percent for providing school calendars of activities and events. In contrast, the availability of information using web or e-mail ranged between 9 percent to 54 percent.

The perceived teacher use of technology resources to communicate to families differed by group; generally, technology representatives and principals reported higher percentages of teachers using the Internet than did the teachers themselves. The numbers responding to each item varied greatly; thus, to aid interpretation, the tables report percentages of the total rather than the percentage of those with Internet access. The most striking findings for principals and technology representatives were their higher estimates of teacher use as well as the wide range of estimates provided. For each application, the standard deviation (a measure of variability in response) was similar to or exceeded the reported mean (average). For this reason, the following summarizes the teachers' own reported use of the Internet for academic, schedules, and learning resources.

Depending on the type of information, between 6 to 32 percent of all 373 teachers used Internet resources to communicate with parents. The types of information over 20 percent of teachers reported using were providing links to websites (32 percent), providing suggestions for parents to help children with school work (29 percent), providing links to learning resources (28 percent), reporting class expectations (28 percent), listing homework (26 percent), and reporting frequent

Table 12

Perceived Use of Paper and Technology Formats for Reporting Information

	Tech Reps % of teachers use web or e- mail for this option	Principals: % of teachers use web or e- mail for this option	Teachers Do you use web or e-mail now for this option?	Available on paper for parents?
	M % SD	M % SD	% Yes	Principals % Yes
Academic Information				
Individual student schedule	34.9 38.3	37.0 40.6	15.0	67.0
Student class expectations, agendas, or goals	26.4 25.5	33.7 35.9	27.6	81.2
Class homework & assignments	26.3 24.51	33.8 34.8	25.7	77.0
Frequent feedback on daily or weekly academic progress	29.9 31.4	45.8 39.5	25.2	68.6
Student attendance other than on report card	43.5 41.9	49.7 45.4	08.3	52.4
Student behavior other than on report card	26.5 29.1	32.9 38.1	18.5	74.9
Standardized test scores and interpretation	22.6 34.7	53.9 48.0	5.9	79.6
Report card grades	45.6 43.1	53.9 47.9	9.1	82.2
Schedules & Meetings				
Emergency parent contact	40.3 41.8	39.4 43.8	16.6	67.0
Conference/meeting with parents	26.2 21.3	42.2 37.5	18.8	77.5
Bus schedules				68.1
Calendars of school activities or events				85.9
Lunch menus				80.1
School closing information				68.6

Public meeting schedules, agendas, or minutes					79.6	
Learning Resources						
Suggestions for parents to help children with school work	20.7	21.3	39.1	35.6	28.7	70.7
Links to district, regional, and/or state websites	44.8	35.6	46.5	36.5	31.6	45.0
Links to student learning resources, e.g., databases, encyclopedias, etc.	44.6	31.3	47.5	38.5	28.4	39.3
E-mail links to teachers, staff, & administration						48.7
Available student or family services						57.1
Newsletters or press releases						80.1
School policies, procedures, handbook, etc.						82.2

academic progress (25 percent). These items closely correspond to the features that teachers who did not have Internet capability reported as being the most beneficial for families. The applications for which the Internet was used the least were report card grades (9 percent), student attendance (8 percent), and standardized test score results (6 percent).

In general, whatever format schools selected, it appears the majority of families were satisfied with the level of communication with schools. Seventy percent of principals reported that they surveyed parents to ask their level of satisfaction with the communication they have with the school concerning their child's academic progress. And of the 115 (70 percent) that reported surveying parents, the mean percentage of parents who were reported as satisfied was 83 percent (SD = 18). See Principal Survey in Appendix A-3 for more details.

4. What do schools and parents want and need to enhance communication about the student's activities and performance through Internet technology?

Table 13 summarizes percentages based on all technology representatives, principals, and teachers rather than just those who did not have these options available on the web or e-mail because both groups identified benefits or desirable uses. In general, the **academic information** was perceived by all groups as being the most beneficial for families. The percentage of respondents who perceived this type of information as being beneficial ranged from 23 to 46 percent. The range of respondents who perceived **learning resources** as being beneficial ranged from 18 to 42 percent. **Schedules and meetings** were perceived to be beneficial by the lowest percentage of respondents (17 to 35 percent).

Table 13

Perceived Benefits of Specific Applications by Technology Representatives, Principals, and Teachers

If not available on web or e-mail now, would it be beneficial for students' families?	Tech Reps	Principals	Teachers
	% Yes	% Yes	% Yes
Academic Information			
Class homework & assignments	45.7	32.5	43.4
Student attendance other than on report card	45.7	24.1	33.0
Standardized test scores and interpretation	45.7	23.0	31.4
Frequent feedback on daily or weekly academic progress	44.7	28.3	38.9

If not available on web or e-mail now, would it be beneficial for students' families?	Tech Reps	Principals	Teachers
	% Yes	% Yes	% Yes
Student class expectations, agendas, or goals	43.4	28.8	38.1
Individual student schedule	42.0	25.1	33.5
Student behavior other than on report card	40.6	23.6	38.6
Report card grades	39.3	27.2	35.7
Schedules & Meetings			
Bus schedules	34.7	19.4	
Conference/meeting with parents	32.9	18.8	35.4
Lunch menus	30.6	21.5	
School closing information	28.8	24.6	
Public meeting schedules, agendas, or minutes	28.8	23.6	
Emergency parent contact	28.3	17.3	29.8
Calendars of school activities or events	21.5	24.1	
Resources			
Suggestions for parents to help children with school work	42.0	29.3	37.8
Available student or family services	39.3	22.0	
Newsletters or press releases	30.1	22.5	
School policies, procedures, handbook, etc.	28.3	24.1	
Links to student learning resources, e.g., databases, encyclopedias, etc.	24.7	26.2	32.4
E-mail links to teachers, staff, & administration	21.9	17.8	
Links to district, regional, and/or state websites	20.5	22.0	26.8

Table 14 indicates the percentage of teachers who identified the listed applications as ones for which technology would be the most useful for supporting communication. This table represents all teachers—those with and without Internet access. Teachers identified the following applications for technology as being one of their top five most useful for communicating with families: class homework (63 percent), suggestions for parents to help children with school work (52 percent), reporting class expectations and goals (50 percent), providing frequent feedback on academic progress (48 percent), and sending information related to student behavior (41 percent). The information that received less support for technology applications were student attendance (17 percent), standardized test scores (15 percent), and student schedules (9 percent).

Table 14

Teachers' Reported Perceived Benefits of Information Using the Internet

	Select 5 items that technology would be most useful for supporting communication.
	% Selected
Academic Information	
Class homework & assignments	62.7
Student class expectations, agendas, or goals	50.4
Frequent feedback on daily or weekly academic progress	47.7

	Select 5 items that technology would be most useful for supporting communication.
	% Selected
Student behavior other than on report card	40.8
Report card grades	24.1
Student attendance other than on report card	17.4
Standardized test scores and interpretation	14.7
Individual student schedule	08.8
Schedules & Meetings	
Conference/meeting with parents	24.4
Emergency parent contact	18.8
Learning Resources	
Suggestions for parents to help children with school work	52.0
Links to student learning resources, e.g., databases, encyclopedias, etc.	35.4
Links to district, regional, and/or state websites	18.2

Both Tables 13 and 14 indicate that classroom-based academic and behavior information were perceived to be the types of applications for which technology would be the most useful. This type of information could be characterized as formative and frequent as opposed to the more summative and static types of applications such as schedules, standardized test scores, or district links.

On the surveys, teachers, principals, and technology representatives make comments about their concerns related to implementing technology for school/home communication. A summary of their comments, along with typical comments, may be found in Appendix A-4.

Summary

In summary, principals reported 96 percent of Illinois classrooms are connected to the Internet, and they estimate 55 percent of households are connected to the Internet. E-mail is available in approximately three quarters of schools; voice mail in every classroom or faculty office in one third of schools; and interactive web pages for parents to access student information in one quarter of schools. Specific home/school applications are less available to schools than the technology itself, although it varies by type of academic information. In general, e-mail applications are more available than web-based systems. Approximately one quarter of teachers use technology to communicate some type of academic information to parents; the percentages vary by application. Costs, time, and data privacy related to implementation were concerns across all four groups: parents, teachers, principals, and technology representatives. Parent access was a concern of parents, teachers, and principals.

Needs of Parents for Communication

Background

In his February 2003 State-of-the-State address, Governor Rod R. Blagojevich called on all Illinois schools to adopt the National PTA standard for parental involvement to ensure that communication between home and school is frequent and meaningful. He announced the creation of a new web-based system to enable parents to access information about their children's classroom activities, homework, performance, and attendance over secure websites. And he wanted to explore the use of voice mail for teachers. The Illinois Century Network (ICN) provided funding to the Center for Application of Information Technology (CAIT) at Western Illinois University to develop applications and the Center for the Study of Education Policy at Illinois State University to survey schools across Illinois to determine the extent of the use of technology for communicating with parents of students in Illinois schools.

Much information is already available to indicate that technology such as voice mail, homework hotlines, and educational CD-Rom programs is being used to increase parental involvement. Internet technology is increasingly being used by teachers for e-mail, classroom websites, and online student performance portfolios to keep parents informed of students' performance. Schools and school districts are also turning to the Internet as a vehicle to communicate with parents about special programs, to inform parents new to the area about the school, and to adhere to the reporting of school achievement requirements.

The initial direction of the ICN/ISU project, however, is a research effort to determine to what extent such technology is currently being used, what technological needs exist for the schools, and what families feel they need in order to increase parental involvement. In order to address the latter issue, a series of focus groups of parents across Illinois were convened to assess their ideas and experiences with the use of technology to improve school/home communication as well as to engage family members in the development of future technology plans.

Objectives

The purpose of the parent focus groups was to determine how families view the Internet and other electronic approaches as a means to improve communication between schools and parents regarding student activities and performance. Specific objectives of the study were:

1. To identify the kinds of contact parents currently have with their school and how well those methods of communication work;
2. To determine parents' needs for improved communication about their child's school activities and performance; and
3. To assess to what extent increased electronic communication can help address those needs.

Study Procedures

Illinois State University (ISU) currently works in partnership with a number of elementary, middle, and high schools through the College of Education. A total of six schools - two elementary, two middle, and two high schools - were selected as sites for parent focus groups during the late fall of 2003. The selected schools represented various geographic regions of Illinois including southern and central Illinois, Chicago, and the northern suburbs. Principals at the selected schools were contacted, provided with letters of invitation from the project team, and asked to randomly select homerooms in which to distribute the letters. In the letter, parents were asked to contact a toll-free number if they were interested in participating in a focus group. Focus group sizes ranged from 6-8 members; however, telephone interviews were conducted with parents from one school when the number of respondents was insufficient to convene a group.

Each session was conducted by a moderator, and an assistant moderator was present in all sessions. Each session lasted about an hour and was audio taped. Questions used in the discussion were developed and reviewed by members of the project team and a pilot session was conducted with ISU staff members. Each group was asked the same core questions – shown in Appendix C-1 – and a general question about why parents elected to participate in the focus group was asked to begin each session. At the end of the session each parent was asked to complete a brief form which collected demographic data regarding the parent’s age, income, marital status, as well as familiarity with the Internet. The results of this survey are exhibited in Appendix C-2. Moderators met and discussed common perceptions and opinions expressed by the participants after each session and a draft report of the analysis was reviewed by members of the focus group team upon completion of the sessions.

Results

School/Home Communication Experiences

Parents were asked to think about the last time they had contact with the school, how that occurred, and what the nature of the topic was. They were also asked to identify all the current means they had for finding out about school activities and how their child was performing in school. Experiences varied somewhat based on the grade level of the child, but generally parents reported finding out about school activities through beginning of the year school calendars, monthly newsletters, special mailings, and less frequently, through the school website. In terms of student performance, the most frequently mentioned methods were through parent-teacher conferences, report cards, phone calls from the school, and particularly, at the elementary schools, weekly progress folders. Some parents reported being able to access homework assignments via the Internet; most did not. Several parents also indicated that their child was not the most reliable way to find out about school activities, particularly at the middle school and high school levels. Therefore communication methods were needed which took the child out of the loop of communication between school and home. In the northern suburbs of Chicago, cable television was also mentioned as a tool to find out about school events but parents in rural areas cited their lack of access to cable. Typical comments regarding this topic area included:

“The main source is parent-teacher conferences and progress reports that we get two times a year.”

“A newsletter is mailed out once a month.”

“Every (elementary school) student has a notebook and you have to sign off everyday. While a bit bothersome to sign, it’s good to know and keep up with.”

“Not all classes have homework assignments listed on the Internet but a few teachers do.”

“There’s a voice-messaging system and teachers listen to calls every morning.”

“I signed up for teachers to communicate through e-mail. I told my son that maybe I may know his grades before he does.”

“I can’t rely on my son to tell about homework. For two months, he said he did not have any assignments.”

Parents were also specifically asked about their methods of contacting the school, and nearly all parents reported the use of automated phone systems they could use to report the absence of their child as well as follow-up phone calls from the school if they failed to report the absence. In addition to phone calls to teachers or school visits, several parents cited the use of e-mail to contact teachers about their children as the best means for working parents to keep in touch during the day.

“I communicate via e-mail. It’s wonderful.”

“I work nights. It is nice to be able to know what’s going on since I can’t go in and out during the day when I sleep.”

Regarding how well these means of communication between school and home worked for them now, the issue of consistency was frequently raised, particularly consistency from teacher to teacher as students progressed through the grades as well as for older students with different teachers for individual subject areas. Participant comments included:

“Every teacher has different (communication) systems.”

“Voice-mail is okay but by the time the teacher gets the message it may not be timely.”

“I don’t get any information about progress until there is something wrong. We have no parent-teacher conferences unless something is wrong.”

“The Internet site is missing things and is also out-of-date.”

“Our school Internet site has been down for several months.”

“This school sends out a wealth of information but it is not a friendly school. Security has made a difference because it is so formal.”

Participants were also asked who bore the major responsibility for ensuring that communication between home and school occurred. Many parents felt that the parent was responsible and that parents who were more involved were more likely to know what was going on and therefore would have few communication issues. Other parents suggested that it needed to be a joint responsibility between the parent and the school.

“I made it clear at Open House that I wanted to know. I have average struggling kids and this is the time to establish a rapport.”

“I don’t think every parent thinks they are communicated with. I want to know what is going on because my daughter spends more time with her teacher than she does with me. I want to know what this person is like who is influencing my child.”

“Much communication is dependent on parent-student relations.”

“I have an LD kid and so I need to know if he is on-task. So I go to each teacher and have an understanding of how we will communicate about what he is doing.

“If you have good teachers you have good communication and therefore no problems.”

“Parents have to let the teacher and school know that they need to know.”

Participants were also asked to comment on reasons why some parents are less involved than others and how to increase that level of involvement. Typical comments included:

“Time is more valuable than money. Many parents don’t have the time.”

“As a working mom, I am stretched out.”

“We have a diverse school and many cultures believe in leaving the communication to the school.”

“Language is an issue itself. Many parents don’t speak English here.”

“Teachers and coaches helped me feel welcome. This really made a difference in my participation.”

Communication and Information Needs

Parents were asked what type of information or communication they needed to make them feel more in touch and more involved with the school and their child’s learning process. Most responses focused on academics. Participants wanted a better understanding of the grading system, homework assignments and ways to help with homework, and mid-period progress reports or early warnings if their child was having academic difficulties. High school parents were particularly concerned about test dates for ACT and SAT tests. A secondary area of concern was finding out about extracurricular opportunities for their child, logistics regarding extracurricular activities, and fund-raising efforts. Generally, parents of high school and middle school students had the most concerns about academic progress. Typical comments included:

“I want to know before report card day how he is doing. I want to know if there is a problem.”

“Every Friday I want a paper that tells me what my kid is doing and what to look forward to.”

“Spelling words on the website would be nice.”

“My problem is that I don’t understand the teaching skills that they do now. Some of the things she is learning are way over my head.”

“Knowing the purpose of assignments would help.”

“One thing that bothers me is my understanding of the weighted grading system. I want to know more about it in plain English.”

“I think it is so important to continue (progress reports) in the high schools because there is a disconnect. While some would say that it is time to break the cord – I think it’s important to maintain.”

“We need to know what extracurricular and social activities are available, what time to report for the bus for marching band, etc.”

“A calendar of events, monthly, for each subject, so I can get involved over time.”

Use of Technology to Enhance Communication

Parents were asked whether using the Internet, e-mail or voice mail had improved communication and what their experiences had been to date. They were also asked how these types of communication might be used in the future to improve school/home communication. To some extent, parents whose schools used technology such as an Internet website, e-mail, or voice-mail saw it as an improvement over past methods while noting their user problems; parents without such communication tools were more likely to see it as a solution to many of their issues. Nearly all participants, however, noted that a variety of communication methods were needed to address different communication needs.

“Voice mail is nice because you can leave a detailed message. You don’t have to rely on staff to relay. You can leave private-type information without having to leave it with an intermediary.”

“Voice mail for attendance is great.”

“Voice mail is more personal; you can hear the tone of voice.”

“E-mail is real time. The teacher can be notified right in class.”

“An e-mail broadcast of daily events to parents would be good. I will not call in daily but would look it up.”

“It would be nice to have ‘Parent University,’ presentations about what’s going on in class. Some parents feel they are intruding in the classroom.”

“A homework hotline would be good.”

Participants were also asked about any concerns they had about the expanded use of the Internet, e-mail, or voice mail as means of communicating between school and home. Three main concerns were cited. The first was a concern about privacy and how legal requirements might affect the quality of communication. Second, whether funding could be found to support the increased use of technology was questioned; and finally, cultural differences as well as parents’ familiarity with the Internet were cited as impacting the usefulness of certain methods of communication.

“We don’t have a computer now but by the time they get to middle school, we hope to have one.”

“Many parents do not have computers.”

“I need my child’s supervision to get on the computer.”

“People say in e-mails what they would not say otherwise. Things said in e-mail tend to be more negative.”

“I am very leery of certain issues. The confidentiality does really bother me. This is why I don’t use these things. Both personal and academic issues should be kept private.”

“Sometimes things don’t go through, messages don’t make it and you don’t know.”

“There needs to be a high-tech system and a low-tech system that works for everyone.”

“Does this cost money? If so the district won’t have it.”

“Money will always be an issue. We have to figure out the best way to use what we have.”

Parents were also asked which information-sharing and communication applications could best be served by technology. For most discipline issues or other immediate problems, they indicated that personal *phone calls* worked best. For arranging meetings and attendance reporting, *voice-mail* was or could be useful. Participants also cited voice mail as a means to contact school counselors regarding class schedules, school events, and course selection. The school *Internet* web site was cited as a means for finding out about homework assignments. Participants felt that *e-mail* was a way to leave more elaborate messages about difficulty with a course, problems with homework, or multi-faced questions. A non-custodial divorced parent also noted that e-mail provided a way to feel in contact with the school and with his child’s education when day-to-day progress reports were no longer routinely available. Others used e-mail to thank teachers and let them know they are doing a good job and encouraged their children to e-mail teachers if they were having trouble. This was viewed as promoting assertiveness which would become important in college when parents have even less opportunity to get involved.

“I prefer phoning in to voice mail because I am not on e-mail all the time to check for messages.”

“E-mail is great for parents who work.”

“The computer would be a great way to know about homework.”

Summary

The parent focus groups provided insight to a number of issues related to improving school/home communication through the use of technology. In summary, participants expressed the following:

- A need to have multiple means of communication between home and school since preferences and availability of communication tools vary from home to home;
- A need for a minimum level of communication that is consistent between teachers since the level and effectiveness of communication varies from teacher to teacher;
- A need for more frequent communication about academic performance and homework assignments;
- Support for an Internet based system for certain aspects of communication such as grade reporting and homework by persons who regularly use Internet technology now;
- Support for e-mail as an effective communication tool for parents who use it since messages can be mailed and read at the convenience of parents and particularly working parents;
- Support for voice mail as an effective communication tool for certain issues but not those requiring an immediate response;
- Concern about the use of technology to reach households without tools to use technology for communication;
- Concern about the effects of parents’ socioeconomic, cultural, and language differences on their ability to communicate with the school;
- Concern about the difference between communication levels of elementary, middle, and high school parents – the lower the grade, the greater the communication –the higher the grade, the less the communication;
- Concern that measures taken to enhance security have decreased the level of comfort parents feel coming to or being at schools thereby reducing the opportunity for communication; and
- Recognition that the availability of technology in a home is not predictive of the amount of communication between homes and schools; the amount and quality of communication is dependent on the parent, teacher, and school’s willingness to work together.

Needs of School Personnel

Background

In his February 2003 State-of-the-State address, Governor Rod R. Blagojevich called on all Illinois schools to adopt the National PTA standard for parental involvement to ensure that communication between home and school is frequent and meaningful. He announced the creation of a new web-based system to enable parents to access information about their children's classroom activities, homework, performance, and attendance over secure websites. And he wanted to explore the use of voice mail for teachers. The Illinois Century Network (ICN) provided funding to the Center for Application of Information Technology (CAIT) at Western Illinois University to develop applications and the Center for the Study of Education Policy at Illinois State University to survey schools across Illinois to determine the extent of the use of technology for communicating with parents of students in Illinois schools.

The ICN/ISU research effort to determine to what extent technology was being used in schools to communicate with parents and what parents need from schools to enhance parent involvement also included a study to determine what technological needs exist in schools. In order to better understand school/home communication needs from the schools' perspective, information was sought from both school principals and technology specialists in schools. For the principals, a series of open-ended questions were posed through the Illinois Principals Association (IPA) listserv; for the technology representatives, a discussion was conducted with them at a technology conference. In addition, informal discussions were conducted with additional school personnel.

Needs of Principals

Objectives

The purpose of the questions through the listserv was to determine principal's experiences with school/home communication, how the principals view the Internet and other electronic approaches to communication with families, and what the needs of the schools were for implementing the use of technology for communicating with parents. Specific objectives of the study were:

1. To identify the kinds of communication schools currently have with families and additional communication methods principals would like to use;
2. To identify the information parents need about their child's education and effective means to convey that information;
3. To identify principals' views about the use of the Internet, e-mail, and voice mail to communicate with parents and barriers to such methods; and
4. To identify examples of best practice of using technology for school/home communication.

Study Procedures

The listserv maintained by IPA for Illinois principals was used to solicit responses from principals to three sets of questions during the late fall of 2003. One member of the School/Home Communication team secured temporary access to the listserv and posted a statement explaining the project and three different sets of questions over a period of one week. The questions may be found in Appendix D. Principals who subscribe to the IPA listserv who chose to respond to the questions e-mailed their responses to either the listserv or to the project team member, who analyzed the comments by the principals. There were 11 responses to the first set of questions, 8 responses to the second set, and 3 responses to the third set, with a total of 16 different principals responding to one or more sets of questions.

Results

Current and Desirable Methods of Communication

Principals were asked what effective methods of communication with families they use and what methods they would like to use but cannot because of technological, cost, access, or training issues. A wide range

of methods was given by the principals, with the most common method being the school newsletter. Other methods include mail, newspapers, district newsletters, classroom newsletters, parent/teacher conferences, report cards, notes from the teachers, phone calls, face-to-face meetings, homework hotlines, e-mail, voice mail, district web site, school web site, classroom web site, cable, open house, students, assignment books, and yearly calendar in parent/student handbook. Comments regarding this topic include:

“Spring and Fall Parent-Teacher conferences, bi-weekly take-home school newsletter, classroom newsletters, e-mail, phones, voice mail, report cards, notes, personal contacts before or after school.”

“We print school news in the local community paper. The paper is mailed to each family in our district, paid for by registration fees.”

“We communicate via the U.S. mail, notes taken home by the student, and by telephone.”

“In addition to monthly newsletters, our school district purchased a web based software program called Parent Connect. This software program allows parents to view homework assignments, current grades, discipline reports, upcoming assignments, test, quizzes, and projects. Each teacher also has a phone in their room and access to voice mail.”

The use of the Internet was the most common method of communication principals would like to use but could not at this time, with the barriers being the cost, lack of parent access to the Internet, technical difficulty with the software and hardware, and the need for translation into other languages. One principal indicated they now have full use of Internet access, but are concerned about continued use in the future because of the need for \$1.4 million cuts per year in the budget. Other methods desired and barriers were telephones in each classroom (cost), voice mail (no phones in classrooms), cable in each community (not all cable companies allow them to use it), and homework hotline (cost and time). Comments regarding this topic included:

“I think the web-based reporting system would be a good thing. It is cost prohibitive to us. Our teachers do not have phones in their rooms. Voice mail is not a option.”

“Would love to communicate across the net, but many of our parents do not have computer access. Would also like to have a homework hotline, but cost & time prohibit.”

“We currently have new classroom management software that allows instant access to a student's attendance, grades, discipline, etc. But we do not have the financial or technological capability to extend this safely (behind a firewall) to parents. We would need a BIG influx of dollars, equipment and techie personnel to make this accessible on line to parents. It is a great idea, but who can make this happen for us? We are already deficit spending to the tune of over \$1.5 million dollars. And what about the parents who do NOT have computers and high-speed internet access at home (perhaps 45 percent of our student population)?”

“As far as technology goes... I don't believe it will work "web based" because our parents do not have access outside the building... also if we did this we would have to have access to a Spanish interpreter to word process for individual students parents.”

Information Parents Need

Principals were asked what information parents need for keeping in touch with their child's work at school and effective means of communicating that. Principals indicated parents need to know how their child is progressing academically, socially, and emotionally. They also need to know the child's attendance. In addition, parents need general information about what's going on in the classroom and upcoming events in which the child is participating. Web pages, e-mail, voice mail, newsletters, notes,

and personal conferencing are effective methods of communicating that information. Comments regarding this topic included:

“They need the ability to check grades online, daily dialog between parents and teachers. Daily organizers, website newsletter, website grade book, etc.”

“They need attendance, up-to-date classroom performance information, and general information about what is going on within each of their child's classes.”

“Parents need to know how their child is doing daily. An "on-top-of-things" parent will find out one way or another. The others might access a phone message, web page, or the like.”

Desirability and Barriers to Internet-Based Communication

Principals were asked what they thought about the use of the Internet for communications with families, what the barriers to its use were, and how web sites, e-mail, and voice mail could be used. Most principals saw Internet-based communication as desirable, but expressed concerns about the cost, both start-up costs and ongoing costs, and lack of parent access to the Internet. Also mentioned were privacy issues, potential breakdowns of the system, and the amount of time it would take teachers to respond to parents. Some principals saw voice mail as more important for elementary students, with Internet and e-mail more appropriate for middle school and high school students. Some saw voice mail as more appropriate for incoming communications such as reporting absences; the Internet for outgoing, regular communications such as newsletters; and voice mail for more personal communications specific to a child or family. Comments regarding this topic included:

“Voice mail is fine, but it means playing telephone tag to reach someone. Also, if a teacher leaves a voice mail (or even e-mail for that matter) there is no guarantee that a student won't delete that before a parent gets the message.”

“All in all, nothing can top a good old-fashioned face to face meeting.”

“All three means of communication could greatly enhance communication with parents, keeping in mind all three need to be used together and not as a stand alone approach. Reason - as we all are moving toward more technology in our lives not everyone is completely comfortable in all areas of technology. As the parents of our students are attempting to keep up, they may be more in tune to internet and not e-mail.”

“Will the state fund the initial cost? ... Once the hardware and software is in place, will the state allow for an extra taxation or provide funds for costs incurred by the district in an ongoing basis?”

“We assume everyone has a computer and even a phone. This is still not the case in some parts of the state or even in individual communities.”

“The major downside to any electronic communication with parents is the poverty factor. Over 40 percent of our students do not have Internet access at home.”

“Not all families will have access, just as they don't all have phone capabilities now. Breakdowns and potential overloads on the system. I would also be concerned about the amount of time teachers will have to spend just to answer/respond to parental inquiries.”

Other Practices

Principals were asked what else could improve communications with families and what were some “Best Practices.” Few principals responded to this set of questions. Ideas were to increase the frequency of communications and give parents a computer and Internet access. One principal expressed frustration

with working for two years to get the student software compatible with the communication software so they could implement Internet-based communication with families. Comments included:

“The most important change that needs to be made in H to S communication is an increase in frequency.”

“Give everyone in a home their own computer to use for school communication and educational purposes. Provide internet access for everyone.”

“We have purchased GradeBook and EdLine which I believe are top quality products. However, our older version of the student management software we have been using isn't compatible, (even though the software salesperson said it was) and therefore we are in the process of completing a conversion to a new student information management software program. Hopefully this will fix the "bugs" and we can accomplish the mission we started two years ago.”

Summary

Principal responses to questions posed on the Illinois Principals Association listserv provided insight to several issues related to using technology to improve school/home communication. In summary, principals expressed the following ideas related to the use of technology for school/home communication:

- Schools currently use a wide variety of methods to communicate with families, both Internet-based and not.
- Because of many families' lack of phones or access to the Internet and/or ability to use it, schools need to continue to use a variety of methods of communication.
- Parents need information about what the child is doing in the classroom, homework assignments, the child's academic and social progress, and how the parent can help the child with schoolwork.
- Those principals using Internet-based methods like them; most of those without would like to be able to use them, but they cite barriers.
- The main barriers to the use of Internet-based communications are initial and ongoing cost, lack of parent access, privacy issues, and time. Multiple languages was also mentioned as a barrier for some schools.

Needs of Technology Representatives

A discussion was conducted with technology representatives from several school districts who participated in a technology conference of users of software to communicate with parents to obtain their perspective about the use of the Internet for school/home communication.

Study Procedures

Two members of the research team met with technology representatives from two rural school districts and one suburban school district who are using the Internet for school/home communication, along with a company representative, to interview them about their experience in the use of technology for communication. They met at a regularly scheduled technology conference in the fall of 2003. The interview script may be found in Appendix E.

Results

When asked about their experiences with the use of the Internet for school/home communication, what they liked, what they didn't like, and what they would like to help make communication with parents better, major areas of discussion were related to difficulties with actual implementation: policies and procedures, school board support for funding, teachers actually using what is available, and parents being able to use it.

For some, the biggest problem is making everything happen at school: policies, procedures, and implementation. "Good ideas, strategic alignment at the local levels are the key." It was stressed "interoperability is important."

For some, the school board did not provide the necessary support. It appeared the boards were not knowledgeable enough about the issues, but the seven people on the board were the ones making the decisions. In one district, "70 percent of the tax base is derived from older farmers." In that district, because of cuts schools might be closed down that are full of technology. In another district, the school board voted "no" to new buildings that apparently were needed to allow the use of technology. However, elsewhere, the school district is "strongly in favor of a tax levy for technology." One suggestion to help with this issue was to "make school boards privy to best practices."

Some indicated they needed software; another needed phones for voice mail: "If ICN would come in and provide free phone lines, etc., then maybe the board MIGHT implement it." Another stated, "There is plenty of software – we need money and lower SES households to come into technology."

Another issue was the lack of time for both teachers and the technology people to fully implement what is available. For some, it was a contract issue to provide time for teachers to implement this. For example, related to voice mail, it was stated "Voice mail didn't work because teachers did not implement it" and "Teachers don't use voice mail that is available." It was suggested schools need to make communication by voice mail part of teacher's evaluation to make it work."

There was much discussion related to the digital divide. One stated "The problem is the parents that are involved are also those that have technology and that low-income people are left out." One suggestion was to "provide recycled computers to parents (without maintenance) so every home would have them." Also mentioned was a concern about multiple languages spoken at home in some districts.

Other comments included "Face-to-face is absolutely necessary for some issues," "Data privacy will be a major issue" on both the technology representative and parent side, and for some, "E-mail is better than voice mail."

Summary

Through the discussion of the experiences of the technology representatives with the use of the Internet for school/home communications, the following issues were brought up:

- Cost issues: The software itself is relatively inexpensive. It is the support, access to the Internet, and maintenance of the system that is difficult.
- Teacher issues: Teachers have a lot to do already. It is important to make the system simple for them to use and to make it policy/part of the evaluation system to use it.
- School board issues: The level of understanding, or lack of understanding, of technological issues by school board members makes it difficult to get even little things approved by the board.
- Digital divide issues: There was a concern that the use of technology for school/home communication will make the divide worse, both from a physical and knowledge standpoint.
- Language Issues: There was a question of how to deal with the many foreign languages spoken in the

homes in some of the schools.

- Vendor Issues: “Is the state going to become a vendor?” It was suggested that the State should work with vendors because they have worked out the kinks and have networks of users.

Needs of Teachers

Teachers provided on the surveys insight into some of the issues related to implementing technology for the use of school/home communication and how that would impact them. The summary with teacher comments may be found in Appendix A-4. The teachers expressed the following:

- A need to have adequate time necessary for training, for creating web pages, for keeping information such as homework assignments current, and for providing individual information for parents on a regular basis;
- Concern that with the demands already placed on them, they did not have the time needed to adequately maintain a web page and regularly email parents;
- Concern that many families did not have computers or access to the Internet, and that not all of those who did knew how to use them, could read English, or would use them to communicate with the school;
- Concern that those families without Internet access would not receive the same information that those with access would receive; or, that duplicate efforts would need to be maintained to provide that information in another format;
- A need to keep student information private, and a concern that the system would not be safe from hackers; and
- Recognition that implementing technology for school/home communication would have high costs to the district for the necessary hardware and software, training, and personnel needed to set up the system and maintain it—money most of their districts did not have.

Conclusions and Recommendations

In summary, Internet access is readily available in schools; less so in homes: Whereas, 97 percent of Illinois schools are connected to the Internet, approximately 55 percent of Illinois households have access. Technology needed for school/home communication is less available than is Internet access: E-mail is available in approximately three quarters of schools; voice mail in every classroom or faculty office in one third of schools; and interactive web pages for parents to access student information in one quarter of schools. Specific home/school applications are less available to schools than the technology itself, although availability varies by type of academic information: e-mail applications are more available than web-based systems. Finally, teacher use of applications for communicating with parents is less than their availability and varies by application: Approximately one quarter of teachers use technology to communicate some type of academic information to parents. Costs, time, and data privacy related to implementation were concerns across all four groups: parents, teachers, principals, and technology representatives. Parent access was a concern of parents, teachers, and principals. Cost considerations go beyond technology infrastructure and support: Nearly 74 percent of Illinois school districts were in deficit in 2002, and the number is expected to be 80 percent by the end of 2003-2004 school year. There is also wide disparity in funding per pupil between the highest and lowest poverty districts: In 2002, Illinois was ranked 49th of all 50 states in the funding gap; in 2003 it was last. Digital-divide concerns were expressed by parents, teachers, principals, and technology representatives.

There is a consensus among the literature and the groups involved in this study as to what is most needed to enhance school/home communication: a variety of methods for communication; communication of information about what the child is doing in the classroom, homework assignments, the child's academic and social progress, and how the parent can help the child with schoolwork; and the use of technology to the extent is it consistent with the age of the child, the nature of the message, and the school's and family's capacity to use that technology for communication. There is also consensus as to the concerns with implementing the use of technology for school/home communication: cost, time, data privacy, parent access, and training.

Based upon the findings from the literature, state data, cost study, surveys, interviews, and focus groups, seven recommendations are given:

Recommendations

Based upon the findings from the literature, state data, cost study, surveys, interviews, and focus groups, seven recommendations are given:

1. Improved school/home communication would benefit students, their families and schools; however, multiple communication methods and formats are needed to meet the varying capacities and communication needs of Illinois families.
2. Illinois can promote cost-effective solutions that build upon the variety of existing student information systems, parent communication tools, and grading systems already in place rather than mandating a one-size-fits-all system. The State should seek to provide communication solutions that meet interoperability standards and are compatible with as many current school communication systems and vendor products as is feasible.
3. Illinois should make use of the existing ICN infrastructure to provide a menu of support services from which schools may selectively choose based upon their priorities, capacity, and needs. Steps toward implementation include assuring a basic level of access and capacity for all schools; providing services to support the activities for which technology is most useful to increase parental involvement; and helping schools share best practices related to school/home communication.
4. State-sponsored school/home communication initiatives must recognize the current financial constraints under which Illinois schools are operating. To address cost issues, the state could provide financial support through targeted grants tied to specific goals that seek to increase the frequency of school/home communications from current levels.
5. School/home initiatives will need to address issues related to personnel time for training and

implementing home/school communication systems. Support will be required for schools to train personnel and parents in order to accomplish reasonable goals to increase the frequency and extent of school/home communication.

6. In collaboration with parents and families, schools should establish policies and practices that establish a framework for school/home communication related to student academic performance and development to ensure consistent expectations. Explicit policy goals would also help schools identify budget priorities.
7. Any new statewide program/initiative must recognize the cultural and economic differences in the schools and homes across the state; as technological communication becomes more pervasive, the potential exists to widen the digital divide rather than close it unless steps are taken to address this issue.

Review of the Literature

In his February State-of-the-State address, Governor Rod R. Blagojevich stated:

Our message to parents is unequivocal: We support you.

This week, I will sign into effect a proclamation calling on all Illinois schools to adopt the national PTA's standard for parental involvement. This proclamation will call upon all of our schools to adopt measures to ensure that communication between home and school is frequent and meaningful.

In order to help our schools meet the national PTA standards, — I'm also announcing the creation of a new web-based system — that will enable parents to access information about their children's classroom activities, — homework — performance — and attendance over secure websites.

And finally, we will explore other common sense solutions, such as providing every teacher — a voice mail box — so parents can leave messages and have their calls returned.

National PTA National Standards for Parent/Family Involvement Programs

The National PTA includes the following information on its Web site:

In the midst of the current climate of education reform, National PTA maintains what numerous research studies and years of experience as advocates on behalf of children have demonstrated to be true: *Parent and family involvement increases student achievement and success.*

The overall importance of parent and family involvement, as the foundation for all other education reforms, warrants the same consideration and attention as other areas for which national standards are being developed. Therefore, the establishment of standards to guide parent involvement programs and evaluate their quality and effectiveness is crucial.

The National PTA has long promoted parents' involvement in their children's education as an important way to support learning. One of the eight goals included in the Goals 2000: Educate America Act, which became law in 1994, addressed parent involvement: "Every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children" (U. S. Department of Education, 1994). In response to that goal for parent involvement, the National PTA developed the National Standards for Parent/Family Involvement Programs in 1997 (National PTA a., 1998).

The National Standards for Parent/Family Involvement Programs, along with their corresponding Quality Indicators, developed by the National PTA in cooperation with educational and parent involvement professionals through the National Coalition for Parent Involvement in Education (NCPIE), were created to be used in conjunction with other national standards and reform initiatives to support children's learning and success.

The six National Standards for Parent/Family Involvement Programs created by the National PTA, which build upon the six types of parent involvement identified by Joyce L. Epstein, Ph.D., of the Center on School, Family, and Community Partnerships at Johns Hopkins University, are as follow:

- Standard I: Communicating—Communication between home and school is regular, two-way, and meaningful.
- Standard II: Parenting—Parenting skills are promoted and supported.
- Standard III: Student Learning—Parents play an integral role in assisting student learning.

- Standard IV: Volunteering—Parents are welcome in the school, and their support and assistance are sought.
- Standard V: School Decision Making and Advocacy—Parents are full partners in the decisions that affect children and families.
- Standard VI: Collaborating with Community—Community resources are used to strengthen schools, families, and student learning.

The Effect of Parent Involvement on Student Outcomes

Henderson (1987), in the introduction to The Evidence Continues to Grow, wrote: “Had I seen all the new studies before selecting the title for this sequel to The Evidence Grows, I might have worded it more strongly, for now the evidence is beyond dispute: parent involvement improves student achievement.” By 1995 even more evidence was in, and continued to demonstrate that parent involvement improved outcomes for children.

To support their recommendations for increased parent involvement in schools, the National PTA cites findings from the series of publications developed by Anne Henderson and Nancy Berla: The Evidence Grows (1981); The Evidence Continues to Grow (1987); and A New Generation of Evidence: The Family Is Critical to Student Achievement (1995): “Citing more than 85 studies, these publications document the profound and comprehensive benefits for students, families, and schools, when parents and family members become participants in their children’s education and their lives” (National PTA a., 1998).

The findings from the pertinent research listed on the National PTA Website (National PTA a., 1998) include the following:

When parents are involved, students achieve more, regardless of social-economic status, ethnic/racial background, or the parents’ education level.

The more extensive the parent involvement, the higher the student achievement.

When parents are involved in their students’ education, those students have higher grades and test scores, better attendance, and complete homework more consistently.

When parents are involved, students exhibit more positive attitudes and behavior. Students whose parents are involved in their lives have higher graduation rates and greater enrollment rates in post-secondary education.

Different types of parent/family involvement produce different gains.

To have long-lasting gains for students, parents involvement activities must be well-planned, inclusive, and comprehensive.

Educators hold higher expectations of students whose parents collaborate with the teacher. They also hold higher opinions of those parents.

In programs that are designed to involve parents in full partnerships, student achievement for disadvantaged children not only improves, it can reach levels that are standard for middle-class children. In addition, the children who are farthest behind make the greatest gains.

Student behaviors, such as alcohol use, violence, and antisocial behavior decrease as parent involvement increases.

Students are more likely to fall behind in academic performance if their parents do not participate in school events, develop a working relationship with their child’s educators, or keep up with what is happening in their child’s school.

The benefits of involving parents are not confined to the early years; there are significant gains at all ages and grade levels.

Junior and senior high school students whose parents remain involved, make better transitions,

maintain the quality of their work, and develop realistic plans for their future. Students whose parents are not involved, on the other hand, are more likely to drop out of school.

The most accurate predictor of a student's achievement in school is not income or social status, but the extent to which that student's family is able to (1) create a home environment that encourages learning; (2) communicate high, yet reasonable, expectations for their children's achievement and future careers; and (3) become involved in their children's education at school and in the community.

The school's practices to inform and involve parents are stronger determinants of whether inner-city parents will be involved with their children's education than are parent education, family size, marital status, and even student grade level.

When parents receive frequent and effective communication from the school or program, their involvement increases, their overall evaluation of educators improves; and their attitudes toward the program are more positive.

Parents are much more likely to become involved when educators encourage and assist parents in helping their children with their schoolwork.

Others have found similar results. Several synthesis of research findings concluded that parents' involvement in their children's education increases student achievement and success in schools. Cotton and Wikelund (1989), in a synthesis of information from forty one documents that contained research on the effects of parent involvement on student achievement and other student outcomes, concluded:

The research overwhelmingly demonstrates that parent involvement in children's learning is positively related to achievement. Further, the research shows that the more intensively parents are involved in their children's learning, the more beneficial are the achievement effects. This holds true for all types of parent involvement in children's learning and for all types and ages of students.

More recently, Carter (2002) in a synthesis of research published during the preceding decade, concluded, "Parent/family involvement has a significant impact on student outcomes throughout the elementary, middle school, and secondary years."

All active forms of parent involvement seem equally effective in bringing about improvements in children's attitudes and behavior (Cotton & Wikelund, 1989). However, parent involvement at home, in which parents are working directly with their children on learning activities in the home, has a more significant impact on children's achievement than parent involvement in school. (Carter, 2002; Cotton & Wikelund, 1989).

The most effective forms of parent involvement appear to be those which engage parents in working directly with their children on learning activities in the home. Programs which involve parents in reading with their children, supporting their work on homework assignments, or tutoring them using materials and instructions provided by teachers, show particularly impressive results (Cotton & Wikelund, 1989).

Whereas parent assistance with homework can be beneficial, parents may need guidance and assistance in order to work effectively with their children (Carter, 2002). Effective programs assist parents in learning how to create a home environment that fosters learning and how to provide support and encouragement for their children's success (Carter, 2002). In fact, providing training and orientation for parents, such as written directions, "make-and-take" workshops, or demonstrations, enhances the effectiveness of parent involvement (Cotton & Wikelund, 1989).

The earlier in a child's educational process parent involvement begins, the more powerful the effects will be (Carter, 2002). Although parent involvement has been shown to benefit students at all grade levels, the

nature of the involvement that is most beneficial to children changes as they reach adolescents (Carter, 2002). Parents generally become less involved as their children grow older, and their involvement is more likely to take the forms of monitoring homework, helping students with post secondary plans, parent-school agreements on rewards for achievement and behavioral improvements, as well as regular home-school communication about students' progress and parent attendance at school-sponsored activities (Cotton & Wikelund, 1989). Singh, K. et. al. (1995) found that educational aspirations of parents have a powerful influence on eighth-grade student's achievement.

More active forms of participation, such as working with their children at home, attending and actively supporting school activities, and helping out in classrooms and field trips, produce greater achievement benefits than more passive ones, such as receiving phone calls, reading and signing written communications from school, or attending and listening during parent conferences; however, passive forms yield higher benefits than no involvement (Cotton & Wikelund, 1989).

While in general parent involvement improves student outcomes, variations have been found according to students' family cultures, ethnicity, and/or socioeconomic background (Carter, 2002). Parents of disadvantaged and minority children can and do make a positive contribution to their children's achievement in school if they receive adequate training and encouragement in the types of parent involvement that can make a difference (Cotton & Wikelund, 1989). The ways in which Hispanic parents/families are involved in their children's education may be different from those of traditional American families, but they are valuable and should be both respected and considered when planning parent involvement programs (Carter, 2002).

Attewell and Battle (1999) found a positive effect of home computers upon academic achievement in reading and math for eighth graders (in 1988); however, they observed the effect was larger for high-SES students, smaller for girls than boys, and smaller for minorities. Higher SES children received much more of a payoff from home computing than lower SES children. The average computer effect was equivalent to about one quarter of the gap in reading and math performance between blacks and whites, but was larger than the male-female differential in math performance. They speculated that more affluent and higher educated parents were better able to help with home computing and were more likely to be aware of the importance of engaging in learning with their children, a pattern observed for parental involvement in schoolwork more generally, where higher SES parents exhibit higher levels of involvement.

Although the most frequently used home-school communication methods were written messages, including newsletters, bulletins, and flyers, which provide no opportunity for parents to respond, there is evidence that communication between school personnel and parents by phone calls, personal contacts, and other means improved attendance and school performance, and may also increase parent initiated contacts with the school (Tangri and Moles, 1987).

More recent results continue to come in. The National Education Association (NEA) (2003) web site includes the following statements about what research says:

The evidence is beyond dispute; parent involvement improves student achievement. When parents are involved, children do better in school," according to Ruth Yoon, Director of Parent Involvement Initiatives for the Los Angeles Annenberg Metropolitan Project. Their study on parental involvement found that:

The family makes critical contributions to student achievement from preschool through high school.

When parents are involved at school as well as at home, children do better and stay in school longer.

When a critical mass of parents is involved, the whole school improves.

When schools, families, and communities work together to support learning, children tend to do better in school, stay in school longer, and like school more." That's one finding of a January

2003 report from the National Center for Family & Community Connections with Schools at the Southwest Educational Development Laboratory.

A New Wave of Evidence: The Impact of School, Family, and Community Connections on Student Achievement also found that students with involved parents, “no matter what their income or background,” were more likely to succeed in school—attending school regularly, earning higher grades, passing their classes, and graduating and going on to postsecondary education.

The public recognizes the importance of parent involvement for student achievement. According to the 35th Annual PDK/Gallup Poll of the public’s attitudes toward the public schools, the top reason given to explain why some students do not learn was lack of home and parental support, with 93 percent of the respondents saying that contributed to learning failures a great deal or a fair amount (74 percent great deal, 19 percent fair amount). (Rose & Gallup, 2003)

Parent involvement was the top reason given to explain the achievement gap between white children and black and Hispanic children, with 97 percent of respondents saying amount of parent involvement was very important or somewhat important (90 percent very important, 7 percent somewhat important) and 97 percent saying home life and upbringing were very important or somewhat important (87 percent very important, 10 percent somewhat important). It was also the top reason given to explain the achievement gap between white children and Asian children, with Asian students outperforming white students, with 95 percent of respondents saying amount of parent involvement was very important or somewhat important (95 percent very important, 12 percent somewhat important) and 93 percent saying home life and upbringing were very important or somewhat important (80 percent very important, 13 percent somewhat important) (Rose & Gallup, 2003).

The Effect of Increased Communication on Parent Involvement

“Of all types of parent involvement, supervision of learning activities at home may be the most educationally significant” (Epstein, 1982, p. 111). To get parents involved, and to have them help with the child’s learning at home, there needs to be increased communication from the school to the parent about what the child is learning, how the child is progressing, and what the parent can do at home to help.

Epstein (1984) restated that “the most payoff for the most parents comes from teachers involving parents in helping their children learn at home” (p. 72). She found that “parents who are active at school influence the use of learning activities at home” and that “parents think they should help when teachers frequently ask them to help.... Only the parent’s direct experiences with the teacher—through frequent requests for parent involvement or from other school-to-home communications—influences parents’ understanding of their children’s educational program” (p. 71).

Epstein (1986) stated: “Parents think they should help if the teachers give them learning activities to do at home. Other kinds of communications... did not make parents think that they should help with home learning activities” (p. 291).

Parents were aware of and responded positively to teachers’ efforts to involve them in learning activities at home. Parents with children in the classrooms of teachers who built parent involvement into their regular teaching practice were more aware of teachers’ efforts, received more ideas from teachers, knew more about their child’s instructional program, and rated the teachers higher in interpersonal skills and overall teaching quality.... Teacher practices of parent involvement had more dramatic positive links to parents’ reactions than general school-to-home communication or parent assistance at school” (p. 291).

Watkins (1997) concluded:

The findings from this study are consonant with a substantial research base that suggests that teacher communications can increase many forms of parent involvement.... In this study, teacher communications were approached in terms of parent-perceived amount of teacher communications, which was a significant predictor of parent involvement.... (p. 8).

The communication from teachers in Watkin's study related to information about the child's classroom, the child's strengths and positive qualities, the child's progress, what the child was learning, ideas about how the parent could help the child learn, along with activities the parent and child could work on together, and asked the parent to help with the child's school work. It also included a folder of the child's work with comments.

Epstein, M. H. et. al (1999), in a study to improve communication about homework for special education students, concluded:

Effective communication begins with teachers, who should communicate with parents by providing a list of suggestions on how parents might assist with homework. This finding suggests that teachers perceive a responsibility in supporting parents in helping their children with homework and affords optimism that with support or training, motivated parents can become successful partners in their children's education (p. 69)

When Gettinger and Geutschow (1998) asked parents and teachers for suggestions to facilitate parent involvement, the majority of their responses focused on enhancing parent-school communication, including more frequent parent-teacher meetings, more time to devote to communication with parents, and greater access to phones for communication. Parents also suggested that "having teachers provide information in advance about opportunities to participate in classroom, school, or at-home learning activities would facilitate their involvement." Suggestions included newsletters, recorded telephone messages, and times teachers could be reached by telephone.

It is often necessary for schools to reach out to parents on a personal level before the parents are able to become actively involved with their child's learning. For example, in Hispanics' countries of origins, the roles of parents and schools were sharply divided. Many low-income Hispanic parents view the school system as a bureaucracy not to be questioned, and because of this they tend to be reserved, non-confrontational, and non-involved in their children's schools. Because of this attitude toward school, typical parent involvement efforts are often unsuccessful with Hispanic parents, who need to be allowed to become involved with the school community at their own pace. The hardest part of building a partnership with low-income Hispanic parents is getting them to the first meeting. Impersonal efforts, including letters, flyers, announcements at church services or on local radio or TV, are largely ineffective, even when they are in Spanish. The only successful approach is personal: face-to-face conversations with parents in their primary language in their homes (Inger, 1999).

Dwyer & Hecht (2001) found one point remains consistent and clear throughout the literature: Parent involvement begins with school-parent communication. The first step for parent involvement includes the school reaching out to the parent. Schools need to develop a better understanding of the needs and situations (both social and economic) of their students' parents before developing programs to increase their education participation

National PTA Quality Indicators for Standard I: Communication

Because increased parent involvement improves student outcomes, and because increased communication with the parent by the teacher increases parent involvement, strategies to improve communication become important. The National PTA (National PTA b., 1998). developed Quality Indicators for each of the six National PTA Standards for Parent Involvement. Below are the introduction and 13 quality indicators for Standard I: Communication—Communication between home and school is regular, two-way, and meaningful:

Communication is the foundation of a solid partnership. When parents and educators communicate effectively, positive relationships develop, problems are more easily solved, and students make greater progress.

Too often school or program communication is one-way without the chance to exchange ideas and share perceptions. Effective home-school communication is the two-way sharing of information vital to student success. Even parent-teacher conferences can be one-way if the goal is merely reporting student progress. Partnering requires give-and-take conversation, goal setting for the future, and regular follow-up interactions.

Successful programs:

1. Use a variety of communication tools on a regular basis, seeking to facilitate two-way interaction through each type of medium.
2. Establish opportunities for parents to share partnering information such as student strengths and learning preferences.
3. Provide clear information regarding course expectations and offerings, student placement, school activities, student services, and optional programs.
4. Mail report cards and regular progress reports to parents. Provide support services and follow-up conferences as needed.
5. Disseminate information on school reforms, policies, discipline procedures, assessment tools, and school goals, and include parents in any related decision-making process.
6. Conduct conferences with parents at least twice a year, with a follow-up as needed. These should accommodate the varied schedules of parents, language barriers, and the need for child care.
7. Encourage immediate contact between parents and teachers when concerns arise.
8. Distribute student work for parental comment and review on a regular basis.
9. Translate communications to assist non-English-speaking parents.
10. Communicate with parents regarding positive student behavior and achievement, not just regarding misbehavior or failure.
11. Provide opportunities for parents to communicate with principals and other administrative staff.
12. Promote informal activities at which parents, staff, and community members can interact.
13. Provide staff development regarding effective communication techniques and the importance of regular two-way communication between the school and the family.

In reviewing 16 articles related to parent communications, most of which are descriptive literature based on research with recommendations for effective home-school communication, the most frequently mentioned of the 13 National PTA Quality Indicators are the first three. Nine of the articles mentioned the importance of using a variety of methods for communicating and the need for communication to flow both from the school to the home and from the home to the school (Kruger 1998, Epstein et. al. 1999, Jonson 1999, Moore 2000, Turner 2000, Anonymous 2001, Plevyak & Heaston 2001, Ramirez 2001, and

Moore 2002). Seven articles mentioned providing opportunities for parents to share information about their child so the teacher will better understand the child (Kruger 1998, Jonson 1999, Moore 2000, Turner 2000, Anonymous 2001, Moore 2002, and Nelson et. al. 2002). Seven articles also mentioned the need to provide parents adequate information about the child's courses, placement, activities, and services available (Kruger 1998, Smith 1999, Tacy 1999, Moore 2000, Turner 2000, Ramirez 2001, and Moore 2002).

The Quality Indicators mentioned next in frequency included Indicators #10, #9, and #13. Five mentioned the importance of communicating with parents regarding positive behavior and achievement, and doing that before a problem develops, rather than communicating only when there is a problem to be resolved (Jonson 1999, Turner 2000, Anonymous 2001, Plevyak & Heaston 2001, and Moore 2002). Five articles also mentioned the need for providing teacher training related to parent communication (Bare 1996, White 1998, Turner 2000, Anonymous 2001, and Moore 2002). Four articles mentioned the need to translate the written information and provide translators for verbal interaction with those parents who need it to understand what is being communicated to them (Bare 1996, Jonson 1999, Ramirez 2001, and Moore 2002).

National PTA Quality Indicators for Standard III: Student Learning

One area that appears to be missing from the Quality Indicators for Standard I: Communication is communication with the parent about the how the parent can help the child with learning activities at home and otherwise support the child's learning. However, there are items in the Quality Indicators for Standard III: Student Learning that address communication with the parent about those areas. Below are the introduction and Quality Indicators for Standard III: Student Learning (National PTA c.,1998):

Student learning increases when parents are invited into the process by helping at home. Enlisting parents' involvement provides educators and administrators with a valuable support system-creating a team that is working for each child's success.

The vast majority of parents are willing to assist their students in learning, but many times are not sure what assistance is most helpful and appropriate. Helping parents connect to their children's learning enables parents to communicate in powerful ways that they value what their children achieve. Whether it's working together on a computer, displaying student work at home, or responding to a particular class assignment, parents' actions communicate to their children that education is important.

Successful programs:

1. Seek and encourage parental participation in decision-making that affects students.
2. Inform parents of the expectations for students in each subject at each grade level.
3. Provide information regarding how parents can foster learning at home, give assistance, monitor homework, and give feedback to teachers.
4. Regularly assign interactive homework that will require students to discuss and interact with their parents about what they are learning in class.
5. Sponsor workshops or distribute information to assist parents in understanding how students can improve skills, get help when needed, meet class expectations, and perform well on assignments.
6. Involve parents in setting goals each year and in planning for post-secondary education and careers. Encourage the development of a personalized education plan for each student, where parents are full partners.
7. Provide opportunities for staff members to learn and share successful approaches to engaging parents in their child's education.

All of the above Quality Indicators except #4 and #7 involve communication between the school and the parent specifically related to providing the parent with the information and skills needed to help the child at home with learning. Because this appears to be the most effective way in which parents can help improve student achievement, this becomes a critical area for communication. The parent would need to be fully aware of what the child is learning, of the child's progress, of the child's homework, and of how the parent can help the child at home.

This type of information needed to encourage parents to help their child's learning is not generally available in communications that come from the school district or the school, but rather in communications that come from the teacher. But the typical report card and parent-teacher conferences do not provide that information often enough to provide parents with the information they need to help the child on a daily basis. Other communication methods are also needed.

Technology as an Aid to Communication

Typically teachers send newsletters to the class or individual notes home to parents or make phone calls when the need arises, but those methods of communication can be time consuming and not practical for each child in the classroom. And with more parents working, finding a time to make a phone call can be difficult. Because of these difficulties, some teachers and schools are exploring other methods of communicating with parents that use modern technology.

Three early forms of the use of technology for communication with parents are the telephone, radio, and television. Both the radio and televisions provide one-way communication, in which parents receive information from the school, either in delayed-time or in real-time. With the telephone, communication was two-way and real-time. As we look at the use of technology in communication, the considerations of whether the technology provides communication one way from the school to the home, one way from the home to the school, or two-ways, and whether it is in real-time or delayed-time become important considerations (Blanchard & Oliver, 1999).

Five of the articles related to parent communication made references to the use of technology to enhance communication. Epstein (1999) found that in an effort to assist special education students with homework, parents and teachers recommended establishing telephone network hot lines so that parents can call, computerized progress reports provided to parents on a regular basis, and systems for teachers to place homework assignments on audiotapes so parents can hear assignments.

Green (2000) described a method for videotaping parental enrichment seminars for later checkout from the school's Parent Resource Center. Moore (2002) suggested "communication can be verbal, in person, on the telephone, through the Internet, and via e-mail and voice mail. Because families are unique, each will have communication preferences. Ask them to tell you their favorite method" (p. 14). Smith (1999) suggested establishing a web site to post information for parents. And Moore (2000) stated: "When possible, e-mail can be an effective and easy method of communication, as questions and concerns can be addressed early and in a nonthreatening format. Communicating with families by e-mail can encourage sharing and can set the stage for open discussions.

In addition to those five articles that mentioned the use of technology, another 27 articles were reviewed that were specifically about the use of technology to improve parent-school communication. Seventeen of those articles related to the use of web pages, nine to the use of e-mail, and seven to the use of either voice mail or recorded telephone messages. A few mentioned other forms of technology, such as Personal Digital Assistants, speaker phones, digital movies, or videotapes. Five of the articles mentioned that in addition to the use of either e-mail or web pages, the teacher provided information in traditional ways (newsletters, notes, etc.) for those parents who did not have access to the Internet. Most of the information provided to the parents was general information about class activities, what the students were learning, homework assignments, test dates, and how the parent could help the child at home; a few provided information to parents about the child's grades, completion of assignments, and/or attendance.

Voice Mail

One of the difficulties with telephones for parent communication is that they require real-time communication, and finding the time when both teachers and parents were available was difficult. In addition, many schools did not provide telephones for each teacher. However, one answer to these problems is the use of voice mail, in which teachers can record a message for parents to be picked up at the parents convenience, and the parent can leave a message for the teacher. This provides two-way communication in delayed-time, when the parent and teacher are available to make a call or pick up a message.

Early research by Bittle (1975) on improving parent-teacher communication through recorded telephone messages can provide information about the effectiveness of the use of voice mail, which is similar to the recorded message. In Part I of this experiment, the first-grade teacher provided a daily recorded telephone message which reported each day's activities, homework assignments, and announcements of future events. The results demonstrated that parents will seek out information about their child's school activities when it is convenient for them to do so. In Part II, on alternating weeks the teacher included a list of daily spelling words with the recorded messages; on the other weeks the teacher continued to send the spelling lists home with the children. The listing of the spelling words on the recorded message produced improvement in spelling by all of the students in the class; their scores dropped on the weeks the list was not on the message but was sent home with the student. The students showing the greatest improvement were those whose performance was the weakest during the baseline conditions. Students who were doing well during the baseline conditions also benefited from the information. During Part III the teacher added a non-academic request to the parents, to return a consent form for a class picnic and to send 15 cents for the lunch. A note with that request was sent to both the experimental class and a control class. In addition, the teacher of the experimental class recorded that request on her message. 100 percent of the children complied with the request, whereas in the control group only 30 percent of the students brought the money and 60 percent of the children returned the consent form. Bittle concluded the communication procedure used in this experiment

proved to be an effective parent-teacher communications system. It provided a daily flow of information from the teacher to the parents. The information provided was easy to understand and useful to the parents.... The system required very little teacher time (less than 5 minutes daily) in message preparation time and no more than three minutes per day of parent time. The time required by the teacher was probably more than offset by the reduction in record-keeping tasks resulting from a higher level of compliance with her instructions. Most important of all, the system resulted in improved academic performance for every student in the class (p. 94).

Chapman and Heward (1982) replicated the Bittle experiment to determine if recorded messages could be used to increase parent-teacher communication and improve spelling test performance in a special education classroom. Their findings were similar to those of Bittle. They concluded that lower spelling scores in the absence of the recorded message may suggest that parents do not attend to written information sent home with their children, or that the children are unreliable in transporting the information to their parents. Another interpretation is that parents are more likely to provide learning opportunities at home when their role in parent-teacher communication is active rather than passive; when the procedure required parents' active involvement in seeking the information, the children's spelling scores improved. Parents reported they liked the recorded message because they knew that information about the child's class and spelling assignment was available daily, if their child was absent from school they could get the next day's assignment, the messages were available any time after 5:00, and they didn't have to rely on their child for information about school activities.

Cameron and Lee (1997) conducted two studies in which they investigated the use of voice mail to enhance home-school communication with families and teachers at both early and later elementary levels. With voice mail, parents received an average of 3.4 messages per week, compared to .7 for the comparison group. Parents contacted teachers 1.1 times a week, compared with less than one contact

every two weeks for the comparison group. Parents reported voice mail was beneficial for getting information about upcoming events, leaving brief messages, expressing concerns about a child, and obtaining homework assignments. They found that at the upper age levels, parents expressed greater satisfaction with voice mail than with comparison messaging for keeping informed and exchanging support between home and school; the reverse was the case at the kindergarten level. Voice mail produced more satisfaction for the parents of older children, and the usual methods were more effective for parents of younger students. It should be noted that it was usual for parents to drop off and pick up their child from kindergarten daily, so they were generally satisfied with their opportunities to communicate with the teacher before the use of voice mail. Cameron and Lee concluded:

Voice mail had a greater effect on communications between teachers and parents of older students, whereas usual communications continued to be viewed more appreciatively by parents and teachers of younger children. The character of communications between teachers and parents at the different levels calls for commensurably different and appropriate media. The effects of parents of younger children using the facility for an emotional connection with their children and parents of older children attempting to monitor their increasingly independent children were replicated in these two studies. (p. 189)

The Bridge Project provides funding for schools to acquire voice-mail technology and the necessary training for schools using it. The project reports that when implemented correctly, voice-mail communication systems can have significant results on a school community; “50 percent of parents access the system every day, teacher-parent communication increases approximately 500 percent, and homework completion and attendance improve” (Barrett, p. 1).

Internet

A group of fourteen articles related to the use of e-mail and/or a classroom Web site for increasing communications with parents. Rice (2001), a fifth-grade teacher, described how she moved from weekly newsletters one year, more telephone calls with a telephone log the next year, to e-mail the following year. She preferred e-mail to the previous forms of communicating with parents, as it gave her more flexibility in when she could send out the communications. And she could also send a message to a large number of parents at once. It also was more helpful for parents, who could send and receive messages when it was convenient for them. She found when communicating by e-mail she received more responses from parents about volunteer opportunities and upcoming events in the classroom. She had four to five parents volunteering in the classroom each month, compared to two to three a year during the previous two years.

Near the end of the third year, Rice created a class Web site. Feedback from parents was “incredible.” She stated the classroom Web site was the “best communication tool that I have used.” Through the site she provides parents with information about the school and what they’re doing in the classroom. She also keeps them up-to-date on opportunities to get involved. She posts pictures and samples of student work. And she informs parents of any important forms or letters that students are bringing home so they can be returned promptly. For the three students in her class with out access to the Internet at home she provides traditional forms of communication to stay in touch. “Yes, I have finally found the ideal way to improve communication between home and school: a classroom Web site” (Rice 2001, p. 2).

Spurr (1999), a high-school teacher, also reported much success with his use of e-mail and a Web site for his classes. By using a computerized grading program that allows him to enter an e-mail address for each student, he e-mails the student’s grade summary from within the program, either for individual students or for the entire class. He sends the grade summaries at the end of each week. He also provides on the Web site an outline at the beginning of each unit, updated with due dates, expected test dates, and other information of interest to parents. It takes less than five minutes each day to keep the unit description page current. Feedback from parents has been very positive: “You are the only teacher that I have had any

'real' communication with this year. I think this would be a great idea for all teachers to incorporate." "I think the weekly e-mail is a great idea. Share it with your coworkers." "We have found it to be a very valuable way to keep in touch with Katie's progress. I wish every one of her teachers did this" (p. 8). He still uses traditional methods of communication with parents who do not have Internet access.

Sumner (2000) also created a classroom Web site that includes a newsletter, weekly spelling list, and information and updates on various units the class is working on. It also includes a guestbook so parents and other relatives can leave messages for the children. Each child also has a web page. Like Rice and Spurr, she received many positive comments from parents about the classroom Web page. She also communicates to parents by e-mail. And she provides printed copies of the information to parents without Internet access.

Contreras (Undated), sixth-grade teacher, sent a weekly e-mail to parents that includes help session times for the week, current curriculum topics, dates of quizzes and tests for the week, fun activities they have completed in class, and live Internet links to allow parents to print worksheets or help their child at home. Parents without Internet access received a print out of the e-mail.

Tanner and Hood (1997) provide information for creating a classroom or program Web site.

McKenzie (2000) provides a list of Web sites that can be of assistance to teachers wanting to use the Internet to increase parent communication, such as My Grade Book that enables parents to access their child's grades online; My School Online, which makes it easy to create a Web page; and SchoolCenter, which allows parents to keep up with what students are studying in class and includes such features as a calendar, permission slips, student handbook, and e-mail links to staff.

The County Department of Education of Orange County, California, is designing a high-tech link between the county centralized computer system and the schools in all twenty-eight school districts. Teachers make daily input into the County computer, through their in-class terminal, giving the students assignments, daily homework, review and make up requirements, test scores, class grades, report cards, progress reports, student project due dates, teacher comments, attendance records, classroom presentations, and student Homework Help Hot Lines. All students and parents can access the information for their child on the Internet. Confidentiality and security are maintained by keeping the personal identification number and access password confidential. For those without a computer at home, the television connection to the Internet via local cable hook-up is available to those with televisions, which almost 95 percent of the homes have (NACE-CEE).

Huseth (2001), as a middle-school teacher, found her older methods of communication with parents, first phone calls and later progress reports every other week, to be more time-consuming and ineffective, so she created a classroom Web page. She wanted to expand on another teacher's site with curriculum and classroom information to concentrate on parent communication, where parents could find information they needed regarding student performance in the classroom. She started her Web site with a calendar of homework assignments and due dates and a page of science-related Web links related to the units they were studying.

Huseth conducted a survey of parents and students to determine what information to include on the Web page. The top three parent needs were a science calendar of assignments and due dates, a current list of student grades and missing assignments, and research links to the World Wide Web.

Huseth (2001) added an e-mail parent contact distribution list, and each Monday an e-mail letter is sent to parents that contains homework assignments for that week from all curricular areas associated with their house at school. She found that she decreased time spent on the phone and mailing letters by using the Web site. Parents and students have shown an "overwhelming interest" in the Web site and e-mail letter. She had a 92 percent return rate on her parent survey, and 95 percent of those had access to a computer on a weekly basis. After initiating the Web page, the missing work rate dropped from 17 percent to 11

percent. The average grade rose from 81 percent the previous year to 84 percent in the first Trimester. She wants to set up an online grade book and progress reports to use to communicate with parents. One obstacle she faced was that not all parents have access to or like this way of reporting grades and missing work; for those parents, she communicates in traditional ways, by telephone and mail.

Nelms (2002) conducted action research related to the effects of her classroom Web site on parent communication. She found that all participants felt the Web page was beneficial to improving parent/teacher communication. Parents considered information pertaining to individual students, the classroom calendar, and informational resources to be the most valuable aspects of the Web site, with the calendar being most valuable to those who were interviewed. They did not find any of the information that was not beneficial. Parents stated that the Web page provided better communication with the school and was a useful source of information about their child which they used to stay informed about their child's educational experiences and keep informed about current activities. Some of the factors that affected this study included parent's current skills with computer technology, access to the Internet, and comfort with current methods of home-school communication. Nelms suggested a free, school-sponsored workshop for parents on accessing the Internet and the school Web site may have improved participation in the study.

Maryland's Montgomery County schools built a state-of-the-art data-management system. The IMS is a daily management tool that helps principals and teachers monitor student performance on an individual, class, and grade level. This is also where they can access all standards and curriculum documents, use or create assignments linked to standards, and create reports for planning purposes, or inform parents about student achievement. Eventually, the IMS will allow students and parents to communicate with teachers, help teachers collaborate, and allow educators and students to take online courses, including professional development classes (Willi, (2003).

Three additional school districts described their applications of software designed to communicate with parents through the Internet in a series of articles. (Velasquez, 2003, Viebranz, 2003, White, 2003).

A parent forum was recently added to Blackboard, allowing parents to discuss issues and concerns with other parents in the academy (Lopez, 2003).

Other Technology

In addition to voice mail, e-mail, and Web sites, other forms of technology have been suggested to enhance parent communication. One of these is the use of videos produced primarily by students including information such as how parents can help their child succeed in school, what materials to purchase for projects, and descriptions of special programs and curricular units. As one example, they produced a video "How to Help Your Child with the Science Research Investigation Project", an 8th grade science activity that required substantial homework. During the 1996-97 school year, 27 out of 70 students failed to turn in a finished project, even with available assistance through Saturday Science Days, after-school sessions, parent information sheets, and calendars. The 12-minute video described the project requirements and demonstrated specific ways families could assist students. The video had a significant impact on student success: Only 3 out of 68 students failed to turn in a finished project during the 1997-98 school year (Clevenson, 1999).

With the advent of inexpensive video-editing tools, digital video has become accessible to many classrooms. Students can create professional-looking video content complete with voiceovers, transitions, and text effects. The article provided step-by-step guides for the production process, equipment basics, project ideas, and links and resources, (Bourgeois, 2003).

Some schools are using Personal Digital Assistants (PDAs) to communicate with parents. Teachers can download grades, notes on behavior and upcoming assignments onto student PDAs. When students take their handhelds home each evening, parents are able to view the information and stay in touch with their child's performance (Rajala, 2003).

Other forms of technology reported include the speakerphone to allow an administrator to have a translator available when calling parents or to hold a conference with a parent by telephone (Laffey, 1999); television ads to urge

parents to remember to check their children's homework (Berteaux, 2000); Webcam with a password-protected system to allow parents to view the classroom activities on the classroom Web site (Buckleitner, 2002); and digital movies that can be submitted to the local cable company or sent home with students for parents to view (Buckleitner, 2002).

Implementing the Use of Technology for Communication

Five years ago, you probably did not think it was possible to give parents remote web access to report cards and attendance records. But vast improvements in the ability of networked computers—in both schools and communities—to talk among themselves efficiently and securely are paving the way for your district to collect, organize, and disseminate student information in ways never before imagined (Kimball, 2003, p.1).

Below are some of the ten student information systems as described in Kimball's article:

Campus SIS, Infinite Campus www.schoolextra.com: A comprehensive, district-wide information solution spanning student information management, parent/staff communication management, parent/staff communications, and web site management. The web-based system includes student census, grade books, scheduling, health and discipline tracking, and special education data. Highlights include a parent portal, web-based and custom reporting, online student registration, and XML/XSL integration.

ESIS, Administrative Assistants Ltd. (AAL) www.aalsolutions.com: eSIS targets the information systems needs of school districts, from student records and attendance to fees management. As a web-based solution, the system provides access to realtime data from any computer. The system is designed with security, customization, and ease of use in mind.

PaC School Management Systems, Skyward Inc. www.skyward.com: This integrated student/financial management system covers grades, attendance, special education, and food service. Its web-based desktop provides secure remote access to student data. A wireless handheld PC option lets teachers enter and access data with Pocket PC devices.

SchoolMation, FullSite Ltd. www.schoolmation.com: SchoolMation is a low-cost, full-featured, web-based education management solution for use on an internal network or the Internet. It provides easy and secure access to attendance and academic records, course information, lesson content, and homework assignments.

Xsphere/studentSphere, TENEX Systems, Inc. www.tenexsys.com: "The web-based and web-enabled financial and student administrative software addresses schools' student data needs. Functionality includes attendance, census, discipline, grade reporting, health records, scheduling, and transportation.

Kimball described the following questions that need to be answered when planning for SIS, a project that usually takes at least two years to implement:

How many teachers, students, administrators, and parents will the system serve?
Should we use a client-server or web-based system?
How do we factor in our existing technology infrastructure?
What state and district reporting requirements should I consider?
How much functionality should we really expect?

Kimball provided the following statistics regarding the use of SIS in the public schools:

85 percent of high schools use a SIS, compared to 77 percent of middle schools and 67 percent of elementary schools.
87 percent can access their SIS via the server in the school building.
62 percent can connect to their SIS at a central facility via the web.
45 percent say their SIS is hosted at a district data center.

According to the U.S. Department of Education's ed-tech leader, NCLB funds are available to further the school-home connection. Districts can use funds from Enhancing Education Through Technology (Title I, Reading First) or other programs to improve their school-to-home connection. With the funds they can buy laptops for students,

allowing them to access their work and online curriculum resources anytime. Or they can strengthen parental involvement by purchasing a service that allows teachers to post attendance, grades, and homework assignments on a secure web site that parents can access (Bailey, 2003).

The U.S. Department of Education online publication *Weaving a Secure Web Around Education: A Guide to Technology Standards and Security* provides information to schools related to implementing technology for parent communication. They provide a list of possible content for various types of websites, including sites for student and parent information, as follows:

- homework information and assistance;
- links to educational databases, online encyclopedias, and other research resources;
- district, school, and classroom announcements;
- student products such as writing samples, art samples, presentations, term projects, and audio/video recordings of student performances;
- school lunch menus;
- school closings for weather and other reasons;
- school safety information;
- school calendar and event lists;
- official communications and handbooks;
- course syllabi;
- school discipline code;
- adopted curriculum guides;
- special education rights, procedures, and other legal information; and
- programs (e.g., gifted) available in the school (U.S. Department of Education, 2003).

Tips for building a website are given, including the following, with information provided for each: The first step in building a web site is to conduct a needs assessment. Stakeholders need to be involved in the needs assessment process. Web content will vary according to the audiences the agency wants to serve. School, district, and state department of education sites will have different content.

For Security, password-related issues include the following: A password should consist of both alpha and numeric characters. The agency should require that passwords be of a sufficient length (e.g., eight alpha and numeric characters). The agency should establish procedures that require passwords to be changed frequently (e.g., every thirty to sixty days). Passwords should not be shared or “loaned” to another person. Passwords should not be written down. Agencies should establish guidelines for posting content on a web site. Web site content guidelines should address consistency without stifling creativity. Agencies should develop procedures to deal with advertising on the Internet, especially if the agency uses an outside ISP to host the web site. Technical guidelines are necessary for password protection.

Finally, the need for professional development for effective Internet use within an educational agency goes beyond training for developers and programmers: All staff members and student users of the equipment need to have an understanding of the policies governing its use and enough technical skills to navigate the web and use other appropriate computer applications (U.S. Department of Education, 2003).

Technology in U.S. Education

By the fall of 2000, almost all public schools in the United States had access to the Internet: 98 percent were connected. In comparison, only 35 percent of public schools had access to the Internet in 1994. There were virtually no differences in school access to the Internet by school characteristics (e.g., poverty level and metropolitan status) in 1999 or 2000 as there had been previously.

The increase in Internet access over the years may have been aided by the allocation of funds through the Education rate (E-rate) program, established in 1996 to make services, Internet access, and internal connections available to schools and libraries at discounted rates based upon the income level of the students in their community and whether their location is urban or rural. However, in 2000 there were still differences in Internet access in instructional rooms by school characteristics. For example, in schools with the highest concentration of students in poverty (75 percent or more students eligible for free or reduced-price school lunch), a smaller percentage of instructional rooms were connected to the Internet (60 percent) than in schools with lower concentrations of poverty (77 to 80 percent of

instructional rooms.) Likewise, in schools with the highest minority enrollment (50 percent or more), a smaller percentage of instructional rooms had Internet access (64 percent) than in schools with lower minority enrollment (79 to 85 percent of instructional rooms) (National Center for Education Statistics, 2001).

Over the years, changes occurred in the type of network connections used by public schools and the speed at which they are connected to the Internet. In 1996, dial-up Internet connections were used by 74 percent of public schools having Internet access. By 2000, schools tended to use faster dedicated-line Internet connections, such as 56Kb, T1/DS1, fractionalized T1, T3/DS3, and fractionalized T3 lines. Seventy-seven percent of the nation's public schools connected to the Internet used dedicated lines, 11 percent used dial-up (not continuous) connections, and 24 percent of schools used other (continuous) connection types, including ISDN, wireless connections, and cable modems. There were differences by instructional level; secondary schools (86 percent) were more likely to use dedicated lines than elementary schools (74 percent) (National Center for Education Statistics, 2001).

NetDay (2001) found time was the most common barrier listed by teachers as to why they are not utilizing the Internet and technology more frequently. They concluded that if teachers had more time to spend online, they may be better able to use the technology for other duties, including communication with students and parents.

Teacher and Parent Training in the use of Technology

The importance of professional development for teachers is emphasized in the No Child Left Behind Act, which requires that 25 percent of state federal technology funding be allocated for professional development and that such professional development be research based. Surveys consistently show that teachers are interested in technology, but need increased opportunities to develop their capacities. Only 20 percent of teachers consider themselves well prepared to use technology in their classes. A 1999 report from the National center for Education Statistics reports that 66 percent of teachers who received more than 32 hours of technology-related training felt well to very-well prepared to use technology in their classrooms. The percentage who felt well to very-well prepared to use technology dropped to 34 percent for those who received from 9 to 32 hours and to 24 percent for those who received less than 9 hours of technology-related professional development. The U.S. Congress is requiring that states allocate at least 25 percent of federal technology funding to professional development. CARET reviewed and summarized 26 studies, surveys, and reports related to professional development. Below are their major findings. More information about each is provided in the article.

1. Which models or strategies are effective for preparing new teachers to use and integrate technology? Demonstrate infusion of technology into instructional practices. Require that college faculty use technology in their courses as a learning and teaching tool.
2. How can national, state, and local teacher technology standards be met? Integrate technology standards with professional development at state, regional, and local school sites.
3. Which strategies build teacher confidence and interest in technology? Being mentored by an experienced teacher who is proficient with technology, sufficient time for collaborative learning and practice with technology, active participation in professional meetings, and use of computers at home by teachers.
4. What can school leaders do to enable teachers to make effective use of technology? Customize professional development programs to address teacher's needs, allocate needed computers and connectivity in the classroom, use technology in their own work and in communication with teachers, and commit funds to support teacher involvement in decision making (Cradler, J., Freeman, Cradler., & McNabb, (2002).

Districts described their training in the use of technology for teachers: East Prairie School District 73 used technology to increase student achievement. Eight years ago, standardized test scores were close to the bottom compared with area schools; now achievement results in grades 3, 5, and 8 are among the top in reading, writing, and math – with 20 percent of the students being English-language learners. To help teachers learn to use the new technology, they created the East Prairie Technology College, a three-year staff-development program that provides teachers with 180 hours of intensive technology training, covering everything from basic computer skills to more advanced multimedia production skills (Willi, 2003).

When Scarsdale NY made technology a major initiative 6 years ago, they knew investing in millions of dollars' worth of hardware and software would mean nothing unless they had a cadre of teachers who could use it well, so they made a commitment to staff development in technology. As part of the initiative, all district teachers received a laptop to practice their skills and plan units, and were offered an array of hardware and software to work on, encompassing everything from PowerPoint to 3-D computer animation. "Our goal is for teachers to become so well

versed and self-sufficient in technology it's as comfortable to use as an overhead projector, a book, or a piece of chalk." (Willi, 2003).

In addition to teacher training, in order to make sure parents have the knowledge necessary to access the classroom web site, it might be necessary to provide training for those not used to using that method of communication (Ramirez, 2001). In one district's initiative with a goal to place a new Apple iMac computer into the home of every fifth grade student, along with an Internet provider and a E-mail account, participating parents had to complete ten hours of computer training (free of charge) to include educational uses of the Internet, word processing skills, and E-mail protocol prior to receiving their computer (Josephs, 2001).

Summary

In summary, the research is clear that parents' involvement improves student learning and other student outcomes, especially when parents help their child at home with learning. Increased parent communication will increase parent involvement. Of the types of parent communication that influence parent involvement, those from the teacher that encourage the parent to become involved with the learning, that tell the parent what the child is learning and how the child is progressing, and that tell the parent how to support that learning at home are the most effective. Technology can help the teacher communicate more frequently and more effectively with the parent. However, in order for that to occur, both the teachers and the parents have to have the appropriate technology available and know how to use it.

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Appendix

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Appendix A-1
School to Home Communication
Technology Representative Survey Results
(n = 219)

1. Please check how your school(s) currently record and makes information available to parents. Then note the current and desired role of the Internet in School to Home Communication.

	Recorded in electronic format by teacher, school staff, or district.	Is it currently possible for the school to send information to parents in web or e-mail format?		If available on web or e-mail what % of teachers use this option?		If not available on web or e-mail now, would it be <u>beneficial for students' families</u> ?	If not available now, check the items that would be <u>feasible</u> for your district to make accessible on the web.
		% Yes	Web % Yes	E-mail % Yes	% who use it for... M % SD		
Academic Information							
Individual student schedule	74.4	19.6	28.3	34.9	38.3	42.0	32.9
Student class expectations, agendas, or goals	36.5	33.8	28.3	26.4	25.5	43.4	37.0
Class homework & assignments	39.7	42.5	36.5	26.3	24.51	45.7	36.1
Frequent feedback on daily or weekly academic progress	31.5	19.2	34.2	29.9	31.4	44.7	28.3
Student attendance other than on report card	68.0	16.0	25.1	43.5	41.9	45.7	36.5
Student behavior other than on report card	51.6	11.4	29.2	26.5	29.1	40.6	28.3
Standardized test scores and interpretation	41.6	15.5	14.2	22.6	34.7	45.7	29.7
Report card grades	69.4	15.1	19.6	45.6	43.1	39.3	30.1
Schedules & Meetings							
Emergency parent contact	61.6	13.2	20.1	40.3	41.8	28.3	22.8
Conference/meeting with parents	23.3	15.1	26.5	26.2	21.3	32.9	22.4
Bus schedules	43.4	16.9	14.6			34.7	28.3
Calendars of school activities or events	74.9	71.2	23.7			21.5	17.8
Lunch menus	58.9	58.0	21.0			30.6	24.2
School closing information	51.6	54.8	21.5			28.8	23.7
Public meeting schedules, agendas, or minutes	54.8	54.8	20.5			28.8	25.1
Resources							
Suggestions for parents to help children with school work	25.6	37.4	18.3	20.7	21.3	42.0	32.4
Links to district, regional, and/or state websites	60.7	65.8	15.5	44.8	35.6	20.5	18.3
Links to student learning resources, e.g., databases, encyclopedias, etc.	58.9	65.3	16.0	44.6	31.3	24.7	20.1
E-mail links to teachers, staff, & administration	60.7	63.9	28.3			21.9	16.9
Available student or family services	19.2	23.3	11.9			39.3	30.6
Newsletters or press releases	54.8	55.3	16.0			30.1	25.1
School policies, procedures, handbook, etc.	54.8	53.4	12.8			28.3	22.4
OTHER: Please Describe:	04.6	05.0	01.4			02.3	03.2

2. Please select the three top concerns you have with implementing an Internet-based School to Home Communication System. Indicate your top concern with a 1, your second with a 2, and your third with a 3.

Possible Major Concerns	% rating 1,2, or 3	% rating #1	Possible Major Concerns	% rating 1,2, or 3	% rating #1
Cost	59.3	34.7	Data Privacy	51.2	21.9
Time	65.5	21.1	Parent Use	19.3	2.3
Training of school personnel	49.5	10.1	Parent Access	27.5	7.3
Training of parents	13.8	0.5	Content development	11.9	2.3
Network security	47.9	9.6	Other (Describe)		3.2

3. Communication Technologies	Available for School and Home Communication % Yes	If not available, desirable for School and Home Communication % Yes
E-mail system for parent correspondence	73.1	16.4
Interactive web pages for parent access to forms or student information	26.5	48.9
Fax machines to send or receive parent information.	84.0	03.2
Community access television channel to communicate with parents	16.4	33.8
Two-way video equipment/connection to communicate with parents	2.3	26.0
Video, CDs, or other stored media to communicate with parents	17.8	25.6
Voice-mail system for parents to DIRECTLY contact each teacher?	49.8	26.0
If voice is available, CIRCLE the configuration below:	Breakdown of 49.8	
a. Telephones & voice-mail in every classroom or faculty office	35.2	
b. Telephones & voice-mail retrieval outside of the classroom or office	11.4	
c. Other (please describe)	01.4	
d. Missing	01.8	

4. Please Circle the SIS, Grade book, and Parent Tool used in your district:

Vendor	<u>SIS PRODUCT</u>		<u>GRADE BOOK</u>		<u>PARENT TOOL</u>	
None	None	05.0	None	05.5	None	14.6
AAL	ESIS	00.5	Teacher Assistant	00.0	Parent Assistant	00.0
C-Innovations	Zangle Desktop	00.0	Zangle Teacher Connect	00.0	Zangle Parent Connect	00.0
Chancery	WinSchool/ Mac	08.7	eClass Grades	06.8	K-12 Planet	00.5
Cross Pointe	Cross Point Student 0	00.0	Yes	00.0	Yes	00.0
DMG Maximus	School Max	00.0	I-Grade	00.0	I-Parent	00.0
Eagle	AERIES	00.0	AERIES Teacher Access	00.0	AERIES Parent Access	00.0
Infinite Campus	Campus SIS	00.0	Campus Teachers ClassBook	00.0	Parent Portal	00.0
Pearson Education	SASIXp	00.9	Integrate Pro	00.9	Parent Connect	00.5
Pentamation	OPEN SERIES	02.3	Teacher Workstation	00.5	Parent Workstation	03.2
Power School	Power School	03.7	Power Grade	03.7	Yes	03.2
Skyward	PaC Student	06.4	PaC Educator Gradebook	01.4	PaC Family Access	02.3
Software Technology Inc.	STI Office	26.5	STI Classroom	18.3	STI Home	05.5
Specialized Data Systems	SDS School Office	10.5	SDS Grade Reporting	04.1	SDS Parent	01.4
Other	Other:	19.6	Other	35.2	Other:	04.6

Appendix A-2
School to Home Communication
Teacher Survey Results
(N=373)

1. Please check how your school currently records and makes information available to parents. Then note the potential role of the Internet in School to Home Communication.

	Is it possible for the school to send information to parents <u>in web or e-mail format?</u> .		If possible to use web or e-mail, do <u>you</u> make it available in that format now?	If not available on web or e-mail now, would it be <u>beneficial for students' families?</u>	Select 5 items that technology would be <u>most useful</u> for supporting communication.
	Web % Yes	E-mail	% Yes	% Yes	% Yes
Academic Information					
Individual student schedule	26.5	44.0	15.0	33.5	08.8
Student class expectations, agendas, or goals	44.0	47.5	27.6	38.1	50.4
Class homework & assignments	41.3	47.2	25.7	43.4	62.7
Frequent feedback on daily or weekly academic progress	23.9	50.7	25.2	38.9	47.7
Student attendance other than on report card	17.7	33.0	08.3	33.0	17.4
Student behavior other than on report card	16.6	45.8	18.5	38.6	40.8
Standardized test scores and interpretation	22.8	24.4	5.9	31.4	14.7
Report card grades	18.2	29.0	9.1	35.7	24.1
Schedules & Meetings					
Emergency parent contact	18.8	39.9	16.6	29.8	18.8
Conference/meeting with parents	16.6	45.8	18.8	35.4	24.4
Resources					
Suggestions for parents to help children with school work	45.0	42.1	28.7	37.8	52.0
Links to district, regional, and/or state websites	63.3	33.2	31.6	26.8	18.2
Links to student learning resources, e.g., databases, encyclopedias, etc.	55.0	29.2	28.4	32.4	35.4
OTHER: Please describe:	01.1	01.3	01.1	01.3	02.1

2. Please select the three top concerns you have with implementing an Internet-based School to Home Communication System. Indicate your top concern with a 1, your second with a 2, and your third with a 3.

Possible Major Concerns	% rating 1,2, or 3	% rating #1	Possible Major Concerns	% rating 1,2, or 3	% rating #1
Cost	35.5	18.6	Data Privacy 9	29.9	16.9
Time	61.4	25.9	Parent Use	36.7	04.1
Training of school personnel	41.5	06.8	Parent Access	51.6	24.7
Training of parents	29.5	04.7	Content Development	13.2	00.8
Network security	24.9	07.4	Other: (Describe)	---	01.9

3. Communication Technologies	Available for School and Home Communication % Yes	If not available, desirable for School and Home Communication % Yes
E-mail system for parent correspondence	63.0	24.7
Interactive web pages for parent access to forms or student information	29.5	46.1
Fax machines to send or receive parent information.	74.0	05.6
Community access television channel to communicate with parents	12.1	25.7
Two-way video equipment/connection to communicate with parents	01.9	18.8
Video, CDs, or other stored media to communicate with parents	13.1	20.4
Voice-mail system for parents to DIRECTLY contact each teacher?	41.8	29.8
If voice is available, CIRCLE the configuration below:	Breakdown of 41.8	
a. Telephones & voice-mail in every classroom or faculty office	30.8	
b. Telephones & voice-mail retrieval outside of the classroom or office	08.6	
c. Other (please describe):	00.8	
d. Missing	01.6	
If you do have voice-mail available at school for parents to leave messages, please rank the top 3 reasons below for parents leaving a message. Please rank from 1 to 3 with 1 being the number one reason.		
	% rating 1,2, or 3	% rating #1
Discipline issues	39.4	10.5
Attendance issues	18.5	06.4
Homework questions/issues	36.2	16.1
Report card questions/issues	17.9	07.0
General information (meeting times, events being held, etc.)	31.7	10.4
Other (please describe)		04.8

Appendix A-3
SCHOOL to HOME COMMUNICATION
Principal Survey Results
(N-191)

1. Please check how your school currently records and makes information available to parents. Then note the current and potential role of the Internet in School to Home Communication.

Please respond from a principal's perspective. Tech representatives will receive their own survey.	Recorded on paper format by teacher, school staff, or district	Available on paper for parents?	Recorded in electronic format by teacher, school staff, or district.	Is it possible for the school to send information to parents in web or e-mail format?		If available on web or e-mail <u>what % of teachers use this option?</u>		If not available on web or e-mail now, would it be <u>beneficial for students' families?</u>
				Web % Yes	E-mail % Yes	% who use it for... M % SD	% Beneficial	
Academic Information								
Individual student schedule	69.6	67.0	50.3	31.9	40.8	37.0	40.6	25.1
Student class expectations, agendas, or goals	80.6	81.2	37.7	30.9	34.0	33.7	35.9	28.8
Class homework & assignments	81.2	77.0	31.4	33.5	35.1	33.8	34.8	32.5
Frequent feedback on daily or weekly academic progress	73.8	68.6	35.6	17.3	36.6	45.8	39.5	28.3
Student attendance other than on report card	62.8	52.4	73.3	18.3	27.2	49.7	45.4	24.1
Student behavior other than on report card	79.1	74.9	40.8	9.9	23.6	32.9	38.1	23.6
Standardized test scores and interpretation	70.7	79.6	39.3	20.9	13.1	53.9	48.0	23.0
Report card grades	79.6	82.2	55.0	12.0	15.2	53.9	47.9	27.2
Schedules & Meetings								
Emergency parent contact	83.8	67.0	51.8	9.9	18.3	39.4	43.8	17.3
Conference/meeting with parents	83.2	77.5	25.1	14.1	22.0	42.2	37.5	18.8
Bus schedules	70.2	68.1	30.9	15.2	13.1			19.4
Calendars of school activities or events	82.2	85.9	61.8	59.2	27.2			24.1
Lunch menus	77.0	80.1	46.6	48.7	22.5			21.5
School closing information	68.1	68.6	50.8	47.6	23.6			24.6
Public meeting schedules, agendas, or minutes	78.5	79.6	51.8	44.5	24.6			23.6
Learning Resources								
Suggestions for parents to help children with school work	67.5	70.7	28.8	33.0	25.7	39.1	35.6	29.3
Links to district, regional, and/or state websites	48.7	45.0	57.1	60.7	25.7	46.5	36.5	22.0
Links to student learning resources, e.g., databases, encyclopedias, etc.	40.8	39.3	42.9	48.7	24.1	47.5	38.5	26.2
E-mail links to teachers, staff, & administration	50.8	48.7	59.7	58.1	45.5			17.8
Available student or family services	56.0	57.1	26.2	26.7	19.4			22.0
Newsletters or press releases	79.1	80.1	44.0	40.3	23.0			22.5
School policies, procedures, handbook, etc.	84.3	82.2	40.8	38.2	24.6			24.1
OTHER: Please Describe:	02.1	03.1	02.6	01.0	01.0			01.0

2. Please select the three top concerns you have with implementing an Internet-based School to Home Communication System. Indicate your top concern with a 1, your second with a 2, and your third with a 3.

Possible Major Concerns	% rating 1,2, or 3	% rating #1	Possible Major Concerns	% rating 1,2, or 3	% rating #1
Cost	57.8	32.1	Data Privacy	46.2	19.4
Time	56.2	43.8	Parent Knowledge or Use	31.7	04.8
Training of school personnel	44.1	08.6	Parent Access to Internet	46.5	19.8
Training of parents	24.1	03.2	Content Development	13.6	02.7
Network security	26.9	15.0	Other: (Describe)		01.5

3. Communication Technologies	Available for School and Home Communication % Yes	If not available, desirable for School and Home Communication % Yes
E-mail system for parent correspondence	68.1	22.0
Interactive web pages for parent access to forms or student information	33.5	43.5
Fax machines to send or receive parent information.	84.8	03.7
Community access television channel to communicate with parents	23.0	26.2
Two-way video equipment/connection to communicate with parents	02.1	27.2
Video, CDs, or other stored media to communicate with parents	25.1	18.3
Voice-mail system for parents to DIRECTLY contact each teacher?	42.4	29.3
If voice is available, CIRCLE the configuration below:	Breakdown of 42.4	
a. Telephones & voice-mail in every classroom or faculty office	26.7	
b. Telephones & voice-mail retrieval outside of the classroom or office	09.4	
c. Other (please describe)	01.6	
d. Missing	04.7	

4. Communication Procedures and Policies	N %	Y %
Does your school have a policy for the time frame for responding to parent inquiries?	51.3	39.3
Does your school have a computer ethics policy that is known by every user?	04.2	91.6
Do you survey parents and ask their level of satisfaction with the communication they have with the school concerning their child's academic progress?	22.0	70.2
If yes, What percent are satisfied with the level of communication?	M = 83.2 SD = 18.0 (n=115)	

5. Internet Access	M %	SD
Please estimate the percent of your teachers who have access to the Internet in their classroom.	96.8	15.35
Please estimate the percent of your students who have home access to the Internet.	56.7	23.84
Of those families with Internet access above, estimate what percent of parents have the knowledge and ability to use the Internet for home to school communication.	55.2	28.66

Appendix A-4

Open-Ended Survey Responses Concerns Listed by Teachers (n = 268)

In the open-ended comments made by teachers on the surveys, the two areas most frequently mentioned as concerns were time (80) and parent access (75), followed by privacy (38) and cost (37). Other areas mentioned were equipment, training for teachers and parents, and human resources. Concerns about time included time for maintaining the system, time for training teachers, and especially time for providing the information on a regular basis with an already busy schedule. Concerns related to parent access included parents' lack of computers in the home, lack of access to the Internet, knowledge of how to use the computer to access information over the Internet, multiple languages, and parents' lack of visiting the sites and using the information even when they had the access. Cost concerns included costs not only for the hardware and software, but also for training and the human resources needed to implement the system. Most privacy concerns were related to student information, but also mentioned was the teacher's privacy. Typical comments by teachers include:

Time

Time for techs to maintain should be available 24/7 for parents.

It takes a great deal of time for staff or other key players to learn programs and then keep up with input of all the information

The time to learn and implement these methods would need to be provided by the school to ensure that they were implemented school wide.

Time during school must be dedicated to hands on training of teachers to ensure effectiveness of internet based school to home administration.

Teacher have had limited responses to computers, email and finding the time to train and use on a daily basis may be difficult.

I spend a lot of time now preparing lesson, tutoring and grading papers. Plus, our school is small so all of us are already on 2 or 3 committees. On top of that every time we turn around we have to deal with ISAT or NCLB. I don't need more paperwork

The time it would take to get all of the information entered daily.

I maintain a website now - it is time consuming and I am not sure if my parents really take advantage of it.

There is not enough time in the day to be responsible for weekly updates etc.. individualized for every students.

We spend a great deal of time on record keeping as it is. I am afraid this might be seen as a duplication of some of the work we already do and therefore doubly time consuming.

With little planning time available, time to put information on the web page is a huge concern. I have in the past trained students to do it.

We barely have time to complete day-to-day basic requirements. I imagine this program would take some time to input data.

There would have to be time set aside from class instruction time for the teacher to have ideas ready for publications.

The time it would take for the teacher and technology personnel to constantly keep each teachers website updated in a timely manner.

Teachers are already struggling with the demands placed on their time and prioritizing them. Creating websites and keeping them updated would be yet one more demand on a teachers' time that should be spent on lesson plans and their implementation.

Schools have been inundated with more and more mandates, responsibilities, even threats. All these require increased paperwork, meetings, red tape etc. which amounts to time spent always from teaching. Most schools have had to reduce staff due to budget.

Parent Access/Use

Most of our students and/or parents do not have computers in their homes. Our school is a high poverty school and computers are not a priority in the home.

I believe that if a school to home communication system is implemented as part of policy, it needs to be available to all families. However, we do not address the problem that not all families have computers or internet access.

Many parents do not have internet access - They may feel that those who do have an unfair advantage over them and their children.

My main concern is if we convert much of the previous communication we will still need the current method because not all of our parents would have access to the web or email.

There are many parents who do not have a home computer or access to the internet or deem it necessary. Yet, those who do, comment on how much they like the information. The majority of our families are in low socio economic levels.

Parents may not have internet access at home. Surveying my students, 1/4 do not have access. If internet is sole method of communication a significant number are missing information. Parents may not know how to use info effectively.

Access and literacy remain obstacles.

We have a high LEL population - how do we communicate with them?.

Many families do not have computers - we have a large (over 50 percent) Hispanic population - English knowledge is a problem. We also have a high mobility rate.

Not many of our parents have internet access. Many of our parents do not read English.

Parents may not be comfortable with the technology. Thus, it would be difficult to get them to come in for training. Plus, if parents work, difficult to fit time schedules and sadly, there are parents who barely read what goes home in backpacks.

Getting parents to be involved enough to come in and be trained. How long would training be? When? Who will train parents?

We have such a system and the teachers love it, but we have found that some parents do not understand how to use it, or its purpose even after going through an information meeting.

With our low number of hits on our current web pages would the cost + time be warranted?

Many parents will not use a system they are unfamiliar with. We can put all the info there for them but will they read it?

Privacy/Security

I would not feel comfortable sending email that includes confidential information as some people share email access.

I would be concerned that other people than parents could access confidential information.

Data privacy is of utmost importance, how do we secure the information?

We constantly have someone breaking into our system.

With all of the students that are so computer "savvy", worried me that they would be able to hack into other students files. We presently have the ability to put any of those things on our website; however we do not feel it is secure enough to keep unauthorized persons from accessing a students data and files.

My privacy is important to me and I would also want to be respectful to my students to not allow their information to public.

Protection for students and parents from "pop-ups" and inappropriate material.

Cost

There would be tremendous cost for training and possible software.

We have such major financial problems now, I don't see how this fits into the budget!

We don't have enough money for teachers, curriculum and books.

The financial state of our schools is limiting all of our resources, to implement this kind of system while releasing

teachers of their jobs is questionable.

It is well known that funding is tight right now in the educational field. Generally technology is rather expensive to implement. Additionally, maintenance is an ongoing process and another area of concern plus updates.

I think the idea is great! However our school is having to make cuts to save money. If too costly, this wouldn't be feasible to implement.

Cost covers many areas-training for all parents involved, hardware/software etc.

Equipment

This school does not have a working computer for teachers.

We need upgrading of equipment.

Technology in our school is very outdated and unreliable.

The computers on servers are often down.

Training

There's not enough training of current technologies and software applications.

It is hard to coordinate time for personnel to learn new programs.

It would cost a lot of money to train all of the staff on how to do each of the areas needed.

Personnel

For the information to be useful, it would need CONSTANT updating and maintain. The larger the school district and the larger the website, the larger the problems and personnel issues.

We don't have the personnel to accomplish this.

Open-Ended Survey Responses

Concerns Listed by Principals (n = 113)

Principals were asked for their concerns on the Principal Survey. The concern most frequently listed was cost (34), followed by time (23) and parent access (21). Four other concerns, privacy, security, human resources, and training were each mentioned 10 times. Principals were concerned about the costs of additional equipment and software, training, and personnel at a time their budgets were shrinking. Time concerns involved the time to enter data into the system and time for teachers to create and maintain web pages at a time cutbacks in staff made it already difficult to do their jobs. Principals were concerned that many of their parents did not have Internet access and those who did would need training that would take additional cost and time. Concerns with privacy and security were related to keeping student information private, legal problems if information got out, hackers, and viruses. Human resources and training concerns were related to both time and cost. Following are typical comments made by principals:

Cost

We do not have enough money for basic supplies at this time.

Who is going to have the time to update the data. We are rarely updating our website. Cost is the point to be a mandated activity without \$. How do you ensure the proper safeguards of student records.

Our technology is so out dated, the cost of getting new computers, software, training for teachers and parents would be prohibitive.

Great idea, but no funds, a twice-failed referendum leaves us with a zero budget.

Cost of training staff how to efficiently do all of these things- cost of personnel to keep updated information on web. cost of technology needed.

Budget cuts have crippled our ability to use and/or integrate technology. There is barely enough money to provide sound education software for our communication, much less an extensive home- school internet system.

An internet based school to home communication system would be a wonderful to promote parent involvement. However the cost of email and maintaining a web site are expensive.

Time

We do not have enough time to plan lessons, meet and collaborate etc this would require time that we do not have available.

Time is a major concern with an elementary building. It would be very consuming to have teachers put all expectation down on website.

The time it would take to enter and update the information (depends on if it was daily or weekly).

It takes time; personnel to input data.

Due to cutbacks the existing staff does not have time to do all of the work to send this electronically to families.

I am the tech director for the district as well as a principal. It is very time consuming to keep up with all these information sources and make sure it stays up to date.

I am concerned that we are asking teachers to update their web pages daily but we don't provide them time.

Finding additional time during the data to enter all the information is difficult with all the additional time restrains we have for our staff.

Parent Access

With low socio-economics of our parents, access is a huge issue. Until NCLB changes, our focus will be reading and math, not posting things on the internet.

We have 95 percent of our students on free or provided lunch. Many of our parents cannot afford the cost of a computer for their home. Schools funds to make internet service available for all our classrooms is not available.

The school serves at-risk and their school pre-school children, most parents do not have dependable telephone service and a computer would be a low priority.

The majority of the parents do not have frequent access to the internet or computers. Then the cost and time to train parents and school personnel might cause major roadblock.

Parents without access feel left out.

I am not sure enough of our parents have access/or know how to access the internet.

87 percent poverty level in our school families do not have computers.

50 percent of our students parents don't have internet in the home.

47 percent of the school is on free/reduced lunch. Few children report internet access in their home.

Privacy

I want the data that is shared to remain private.

Concern over who reads to at home. Not concerned about who writes it at school-that security is ok.

Computer viruses and confidentiality.

Because information on the information superhighway is not safe all of the time. could run into legal problems.

Security

We have already experienced hackers and associated issues concerns.

Hacking into current system and vulnerability to viruses etc.

Hackers and changing the data on computing the system!

Even secure systems owned by the government seem to have hacker problems. How can we be sure of security.

Human Resources

We just implemented a new data base system - we have had nothing but problems trying to implement.

We are presently so overwhelmed we need a person for the district to do this proposed job.

Someone to put data into computer.

Training

Time is the key factor in that time to train staff and parents could be difficult to find.

Staff have numerous responsibilities implementing best practice instruction, literacy, ESL concerns, data entry, parent communication, district and meetings, staff development etc. Training means yet another meeting for an already overburdened staff.

Some staff is very knowledgeable of technology, others are not very knowledgeable.

Open-ended Survey Responses

Concerns Listed by Technology Representatives (n = 132)

Technology representatives were asked to explain their concerns with implementing technology for school/home communication. The two most frequently mentioned concerns were cost (48) and time (29). Also listed were privacy and security, human resources, training, and parent access. Cost and time were interrelated with each other and with the other concerns, in that time was often expressed as a lack of sufficient personnel to get the job done or time for training staff; to provide more personnel, as well as training and parent access, would require additional funds in addition to funds needed for equipment, software, and other associated costs. Likewise, privacy and security related to each other in that a breach of security by hackers could result in lack of privacy of student information. Privacy issues also included legal ramifications. Finally, both time and costs were involved with making the system more secure. Following are typical comments by technology representatives:

Cost

We do not have the funds to set up, run, maintain, or upgrade any new system.

We are already deficit spending and do not have much available for technology.

To replace our current SIS product and implement a better system of school to home connection is costly.

To implement an internet-based school communication system and to use the internet that often we would need a faster internet hookup or line and that would cost a lot of money.

The teachers have a difficult time putting all their information on line. We can't afford a network person to do this.

The cost of personnel to keep constantly updated.

Tax cap County, limited state funds.

Security costs money-it all comes down to \$

Our current student information system cannot handle a school- to-home internet based link. An expensive upgrade or replacement would be needed.

No money-District budget is 500,000 in red!

District funds are limited and the future does not appear to look much better. My budget has seen a dramatic decrease over the past 5 years. We are functioning at a third of the budget that we had 5 years ago.

Cost is the major concern because of software to provide access to different student management resources for web and e-mail capabilities. Also for the cost of the additional security software and hardware to protect students' data when it is made available.

Cost of time available to train staff, set up file server and time for staff to update web pages other than donating their time and efforts.

Cost of programs (software) and yearly subscription and tech support and cost of hardware beyond districts financial means.

Budget- where will the money come from- it not only includes internet access but time for tech, upkeep, training, filters etc.

Time

With the small number of staff and the already huge demands on people's time, when would we be able to do this too?

Who will have the time to update?

Who will be responsible? When can teachers add this component to their schedule.

We just implemented PowerSchool and found Time to be our biggest obstacle.

Too many special programs and activities - time is not available for existing staff to complete such a major activity.

Teacher time to develop & post info, teacher time to learn what to post and how, my time to train and monitor. With less money, our class sizes are getting larger and time is a real concern to implement anything that requires additional task of our teachers.

Time to set up these options costs money. We are a low income school district with the technology, but an

insufficient number of personnel to update, maintain and repair the technology.

Time needed both for training and time that is needed for teachers to post information to the website.

Time spent entering and organizing data.

Teachers would not only have to learn how to post items to the web site but would need to do it on a weekly basis. They are already stressed out because the demands that the school and recertification place upon them. Many coach, or serve on curricula committees.

Not enough time for implementation, training and updating.

It takes a large amount of time to keep a website updated with current information.

District personnel wear multiple hats and are already expected to do more than is humanly possible in a 12-16 hour work day. I frequently ask my principal what parts of my job she wants me to neglect in order to accomplish the present top priority.

Privacy

We would like to use a terminal solution, but we are somewhat fearful of someone inappropriately accessing private data.

We must be cautious to maintain confidentiality of student information related to privacy and safety.

Very concerned about legal ramifications relating to data privacy.

Some information should not be available through electronic communication. Person-to-person is best for discipline and other serious areas that really don't need to be visible over the computer.

Any information made public has the chance to be seen by the wrong person. Student data must be kept private or the school faces legal problems. The biggest companies in the world are hacked time to time. If they cannot keep their DATA secure how do you expect us to.

A breach in data privacy is my biggest concern because of the obvious trends of identity theft and e-fraud. I would not want our district held liable for a privacy problem.

Security

I am a security freak. I fear that a hacker could compromise the data integrity.

Some school administrators are afraid of letting information like that out, whether over internet or any media.

Privacy and network security are two big issues.

One of the primary objections to having student data online is the integrity of the network and outside access. Due to present financial difficulties, we do not have a firewall and would need to have this with sensitive data being sent.

Opening the system to the world is scary.

No firewall, yet.

Human Resources

Would need someone responsible for posting to website.

No \$ to employ additional personnel to handle this time-consuming communication system although it is highly important.

Lack of staff to implement. Computer coordinator is full time teacher. Technician is 10hrs/week for over 100 computers on z networks.

IT staff is one person who has 90min/day and 200+ computers to maintain on a Novell Network and internet.

With the limited number of tech support/developers on staff in our district, creating a successful implementation program, and supporting this endeavor long term would be a commitment of time I am not sure is possible considering everything else.

I am the only person who would be capable of implementing this kind of communication, and although it would be a wonderful way to communicate, the time commitment would be huge.

Training

The training will take time and resources. It is difficult to get teachers to stay after school for training and there are too few substitutes.

The time frame for teaching teachers would be limited due to insufficient human resources to provide training.

Majority of school personnel lack sufficient knowledge in using technology. More training would be needed to successfully implement an internet home/school communication system.

Cost affects time and ability to train personnel.

Parent Access

Less than 50 percent of our students have an internet connection at home.

With our demographics, the number of district families with internet access is limited.

We have a rather small number of parents who have use internet access in our district at this time and administrators are not comfortable using this distribution medium.

Only 50 percent of our parents have access at home and few have a robust connection.

A small number of parents would benefit, at least initially. We have a low percentage of parents with internet access.

A small percentage of those that do would use the internet for this purpose.

Appendix A-5

Open-ended Survey Responses

Examples of Best Practice Listed by Technology Representatives, Principals, and Teachers

Technology Representative Responses (n = 21)

We use a toll-free phone system that allows parents access to: 1. Emergency info/school closings 2. Individual school message at each school 3. Absentee reporting systems 4. (Individual voicemail for all teachers DID NOT work in our district)

Washington Community High School #308: k-12 planet (for grades) is great, but not always updated and not all faculty participate.

Washington Middle School #52: daily assignments posted on the web

The following methods are available for communications: a monthly school newsletter, a school website, individual teacher website (optional but encouraged), teacher weekly newsletter

Teachers throughout the district create classroom web page using teacher web. Parents can access the page from home and email staff directly from their page. Schools also use "homework online".

Prairie Hills School District 144 - one stop shopping for parents, teachers, students, curriculum and standards.

New Athens CUSD#60- HS Business ED Teacher, Tracy Ptacek has developed her own web page, with class assignments, quizzes etc. available for all of the students.

Mr. Doug Shearer has written on-line science activities that extend learning beyond the school day and involve parents and students in collaborative construction of knowledge. Doug Shearer (shearerd@hawthorn73.org) Hawthorn Junior High School

Kennedy school is currently using the 3Com NBX system which utilizes existing network infrastructure to transfer and make phone calls. The main menu is set up for 5 language options. Voice mail can also be received through email as a sound file 14016081

I was impressed with the communication levels at Wilson School in Pekin (I student taught there). The teacher I would with used her website and her email to contact parents daily. The district also had phones/voice mail in place in classrooms. Grade Book is uploaded to web daily, in addition to above.

Galva CUSD #224 was the first school in Illinois to use PowerSchool as their SIS. The decision to purchased PowerSchool over other products was the Parent Access. It was one of the few products available 5 years ago that had parent access.

First Class is a awesome communication tool for email file sharing

Edline system provides academic updates, calendar assignment information to parents and students, contact person Karen Mack 630-530-3414

District web pages with links to teacher sites high school email monthly newsletters to parents emergency notices Byron emails daily announcements home to parents

At Dakota High School- I understood they had assigned each family (student) a password to enable parents access to teachers gradebooks. Contact its principal - Deb Keith

An example would be [www.units.org/ejhs/Academic Teams/index.html](http://www.units.org/ejhs/Academic%20Teams/index.html)

Middle School - Team/Student homework a websites posted as well as spelling words and a photo album of Mock Trial.

High School - Also www.unit5.org/newhsime/teacher-hotlist1.htm Teacher h

All parent teacher conferences at LFHS are scheduled electronically. Parents are also able to pay fees electronically at Lake Forest High School 847-234-3600

Our district uses "MyD230" from Apps Communications located in Orland Park. This online gradebook allows parents up-to-the minute information regarding their students.

Principal Responses (n=12)

We use Edline to report grades, etc. This works well especially the mass email feature.

We saturate our parents via mailings, the newspaper, internet and a newsletter. Our TU studio will be interfaced into our community cable opening new doors for communication.

We have our school and individual websites. We ask for email addresses at registration. We record email addresses as team nicknames.

We do use an electronic grading program and send out progress reports / report cards every 3 weeks for all students and weekly for those with academic difficulties. (Would be nice if it were online or could be sent via email).

We are currently using teachers base at our middle school. We are piloting it in the MS to see if it would be beneficial for an elementary building.

Waterville High School is a rural district. The technology coordinator teaches staff to design web pages use email internet.

The students and parents have different passwords, so parents can have private exchanges with teachers.

School messenger- to make attendance calls to make announcements to whole school population via phone

Home work web pages- Chris Marszalek 847 821 8946

Online survey - victor 847 459 4260 * 7717

Bureau valley CUSD #340 (My daughters School) uses Edline as a parent I am impressed.

Unfortunately this community would not benefit from this because of limited access.

Homework web, use of Edline - "Homework web", use of Edline - Joe Bochle

Teacher Responses (n=73)

We use www.creativecurriculum.net as a form of assessment as well as an activity resource guide that is based on the individual achievement.

We have just started using the power school program and are working out the bugs. I think it's a good tool but we haven't gotten completely comfortable with it yet. Astoria CUSD#1

We have implemented the program PowerSchool this year. It is wonderful in letting parent, and students' access-grades, homework, assignments, attendance, lunch records, communication with teachers. We have not explored all the facets of this program. I

We have developed web pages but they are not available at the current time.

Most communication is accomplished using word processing digital pictures etc.

We do have a website that I have been helping to enhance by building slideshows of what is happening with the school setting. Access capability is not always easy for parents and students because of money constraints. We are skewing to technology.

We are presently using a communication system called EDline. We have used it at the junior high level for a year and are now implementing it in other grades.

We also have the families' lunch account available for parents to access.

Water low high school allows parents to access their students' grades on a regular basis through internet. This is a great idea so you can keep up with your child's progress throughout the year.

Utilizing free teacher web pages scholastic for example offers it.

The Middle School of our district - Mazon - Verona - Kinsman ZC is using Teacher Ease for (piloting) home school communication.

The high school has grades on line so parents can check them at anytime with id # and password. Bryan as high has school communications sent by the office to those people who signed up.

The clowpack site established by clow elementary school is an excellent resource for parents, teachers and students to use that supports the curriculum and teaching that is occurring in the classrooms

<http://backpack.ipdsd.org/clow/index.htm>.

The "best practice" in communication at this school is the telephone.

Telephone

Home visit

Parent/Teacher conference - face to face

Team websites. Students are able to use the web sites.

Several of our teachers use teacher web to assignments, giving parents daily access to classroom expectation.

School messenger program good to use for mass calling to homes or schools.

School Messenger - Mass calling to homes or classrooms.

School and district web pages offer calendars, menus, events and email links.

Rural areas do not have the advanced technology's the Chicago or suburban schools do.

Power schools, web and email features have greatly increased school parent communications.

Power school system. Our school uses, posts grades and grade for homework assignments quizzes and tests. It is super!

Phones in every classroom would be great!

Phone

Paper and pencil.

Phone-students can call when they need to talk to their parents or parents can get in touch with the teacher. It is a great communication tool to have phone access in the classroom.

Pekin district 108 has a great way for teachers to develop web pages and publish them easily.

Pekin 108 uses lots of technology, voicemail, email, and webpages. ISU's professional dev. school in the COE introduced me to their exceptional technical abilities!

Parents are able to retrieve school report from the district web.

Our schools best practices include technology, but not parent contact using technology.

Our school launched the pilot program for parents and teachers to communicate. The advantage was that parents and teachers were able to send and receive messages quickly. However, the disadvantage was with the parents who didn't have a computer.

Our school assesses its students using an online curriculum. Our parents can view their child's growth and see digital pictures of their child in the classroom. However many parents don't use the website and the teachers put lots of extra time into putting

Our program (Head Start) doesn't have access to the internet.

Our pre K classroom is a virtual classroom and is connected to Western Illinois University, Macomb, ILL. Students can talk and interact with classroom teachers. We are looking for funding to establish this in other classrooms as well.

One of our district teachers uses Thinkwave software to communicate with parents, post grades and assignments. She says it has been very beneficial in helping with notification of grades. I use Thinkwave however I have bought the license to publish to t

In my building, we have difficulty even finding an empty and private phone to use. I do communicate daily with parents via the assignment back which works great.

If a student is absent, parents may call and get homework that same day.

I work with 5th graders on school TV studio. We videotape broadcast if student brings tape. Do live broadcasts at open houses

Just get a grant for station to buy laptop and digital camera to do movies, graphics for station.

I use the district web site under my name for homework and what we do in class with pictures. Parents can use any computer to get to these web sites. Both Clark School and my web site www.wankeganschools.org/clark or www.eankeganschools.org/dbade.

I think Hononegah High School does an excellent job with their web page. Many teachers link their personal web page to the school page. We also use a grade inactive program that enables teachers to easily email students grades.

I post my grades to the internet through thinkwave.com for a small charge the district pays. Students and parents have passwords to access their grades etc. It is a great way to keep students as well as parents informed of the students progress.

I frequently email my students grades to their parents and this helps with our communication.

I am working a weekly/biweekly email newsletter to my parents

Our tech club gives web page development for teachers.

Homework hot-line for hours teacher is available, assignments, up coming events, etc.

Homework web pages-school notes websites.

Grade book program "class master" allows you to email grade printouts.

Source www.ttononegah.org academic: link

Homework Hotline - Service where teachers learn to daily homework on a voicemail for parents and students to call on the telephone - high mount school.

Home work hotline –is super!!

Having homework assignments available daily to parents is a big concern for many students struggling. A site-updated daily would help greatly.

Teachers don't have time to add another responsibility to their already full schedule. No more mandated response

Harold Washington Elementary School has a telephone and classroom voicemail system in each room. Allowing teachers to contact parents on the spot and providing parents with a way to contact teachers directly

Gurnee (Warren Township High School) email and web site interaction as well as access to student data.

District 144 - Uses technology for promotion status. Students have 3 ways of being retained. Computers take the data from district grade program, attendance program and edutest (computer testing for grade level - taken 3 times a year).

D39, Wilmette, Illinois has many innovative and best practices such as threaded conversations and power school and backpack 39. And it is all due to matt fuller, District tech. media coordinator. He is the best in II! 847-256-2450 & 237

Cumberland does have a homework hotline. Phone system. Parents and students can call in on a daily basis to check on the daily homework in their child's classroom. They can also leave voice mail messages for their child's teacher.

Classroom telephones for parent questions and concerns and for teachers to quickly contact parents.

Cary school dist is a participant in www.edline.net

A new program that will allow parents to view current grades, attendance data and report card grades.

Blackhawk elementary School's PTO places announcements for meetings on community access TV.

Bret Hark does have their school on-line with daily/weekly homework updates.

Excellent district webpage <http://www.itasca.com>

At new hope-* We have our school web pages available for parents. * The Fairfield community high school, where out students graduate in to, has a homework hotline that allows parents to access homework information and classroom assignments

At a different school each of the teachers have a link on the home web page. Then the teacher can list expectations, post newsletters as well as provide links to great educational web sites.

As the middle school and high school, voicemail and email are beginning to be used more efficiently. It has not allowed at the elementary school yet.

As individual, email, webpages, internet, voicemail are all available to parents to get in contact with their child's teacher. These make easy access to communicating with each other.

Our team leaves one message on the homework line that includes assignments from the entire team. That way parents make one phone call for assignments instead of six.

Appendix B
Cost Study

Neil – You may add the cost study here
(Please send me an electronic version to:
dmaki@ilstu.edu

Thanks!
Michele

Appendix C-1

Parent Focus Group Questioning Route

1. Think back to the last time you had contact with the school either about school activities or your child's performance:
 - a. What was the nature of that contact and how did it occur?
 - b. How else does your school communicate with you?
 - c. How do these ways work for you?
 - d. How do you communicate with the school?
 - e. To what extent is your child your source of information?

2. What type of communication or information do you need to make you feel more in touch, more involved with your school, with school activities or your child's work at school?
 - a. What do you want to know about or know more about?
 - b. How would that be helpful?
 - c. What do you need to communicate to the school that you can't conveniently do now?

3. Does your school use the Internet, e-mail, or voice mail to communicate with you now?
 - a. What has been your experience with this?
 - b. Has this type of communication been an improvement and if so, how?
 - c. Based on your experience or what you know about these types of communication how could they be used to improve school to home communication?
 - d. What kinds of information sharing and communication would each of these specifically be most helpful with?
 - e. What downsides if any, do you see to using these types of communication?

4. How else can communication be improved?
 - a. Do you know of anything that other schools are doing that you think would work for you?
 - b. Who do you think is primarily responsible for communication between home and school?

Appendix C-2

Demographic Characteristics of Focus Group Participants

1.	Number of children under age 18:	Mean = 2.4; Median = 2
2.	Percent with a telephone in the home:	100%
	Percent with a cell phone:	83%
	Percent with answering machine/voice mail:	73%
3.	Percent with access to a computer at home:	83%
	Percent with access to a computer at work:	63%
	Percent with access to the Internet at home:	83%
	Percent with access to the Internet at work:	63%
	Percent with no access to a computer:	3%
	Percent with no access to the Internet:	3%
4.	Average hours per week on the Internet	
	None:	10%
	Fewer than 5 hours:	23%
	5-10 hours:	57%
	More than 10 hours:	10%
5.	Percent female:	93%
6.	Percent married:	70%
7.	Percent Hispanic:	3%
8.	Percent minority:	13%
9.	Age:	
	25 to 34:	13%
	35 to 44:	50%
	45 to 55:	30%
	Over 55:	7%
10.	Gross family income:	
	\$15,000-24,999:	22%
	\$25,000-34,999:	11%
	\$35,000-49,999:	15%
	\$50,000-74,999:	30%
	Over \$75,000:	22%
11.	Language spoken at home other than English:	
	None:	90%
	Spanish:	3%
	Other:	7%

Appendix D

Principal Interview Sets of Questions

SCHOOLTOHOME COMMUNICATION QUESTION SET 1

1. What are some of the most effective ways parents find out about what's going on at school and how their child is doing? What are some ways you would like to communicate but can't now due to technological, cost, access, or training issues?
2. What information do your parents need in terms of keeping in touch with their child's work at school? What would be effective ways to communicate to them?

SCHOOLTOHOME COMMUNICATION QUESTION SET 2

3. One of the concerns that led to this project is whether using the Internet, e-mail and/or voice mail (more) could enhance communication between parents and their child's school or teacher.
 0. What do you think about this?
 0. What downsides do you see?
 0. What kinds of information-sharing and communication do you think each of these would be helpful with? (voice mail, Internet, e-mail)

SCHOOLTOHOME COMMUNICATION QUESTION SET 3

4. How else can school-to-home communication be improved?
5. Do you have some examples of best practice of using technology for school-to-home communication? What is the school doing? Can you provide a name of a contact person who could provide more information?

Appendix E

TECHNICAL REPRESENTATIVE PANEL DISCUSSION INFORMED CONSENT SCRIPT

Good afternoon. My name is _____.

I'm here today from the Center for Education Policy Research at Illinois State is here today. We are working on a project initiated by the Governor to know how technology is and can be used to improve school to home communication. We want to know about how your schools are using Internet and voice-mail technology and what issues you have run into implementing such systems. We are just trying to get some candid feedback about issues that might not be on our surveys to add to our report. It will come out in January 2004. Anything you tell us will not be attached to your name in the report so you don't have to worry about embarrassing yourself or your district. In fact, the report might lead to your school getting some support from the state to help with school-to-home communication. If an issue comes up that you don't want to talk about in the panel but you feel it is important for us to know, you can give us your feedback through e-mail at _____. Do you have any questions?

[If the panelists can't answer a question or if an audience member wants to talk with someone else, direct them to the Research and Sponsored Programs Office at (309) 438-8451.]

1. What are some of the ways parents find out about what's going on at school and how their child's doing?
 - Do you think your Internet system works to improve communication between schools and parents?
 - What do you like about it?
 - What don't you like?
 - What more would you like to help schools communicate better with parents?
 - In what ways would that be helpful?
2. If you have voice mail now, does it work for helping schools and parents communicate? If you don't have voice mail now, what are the issues involved in it working to help with school-to-home communication?

Thanks for your feedback. We will take your comments along with other principals', teachers, and other tech reps, draw some conclusions, and make recommendations to the Governor.

Appendix F

Resources for Schools: Implementing Technology for School/Home Communication

Hardware and Software

Minimum and recommended requirements and maximum readily available for hardware and software to run an Internet system may be found in Appendix G.

SIS, Grade Book, and Parent Tools

A list of SIS, Grade Book and Parent Tools listed by technology representatives in use in their schools may be found in the Technology Representative Surveys in Appendix A-1.

A Software Vendor List may be found in Appendix H.

Best Practice

List of examples of “best practice” for technology used for school/home communication reported by technology representatives, principals, and teachers on surveys may be found in Appendix A-5.

Implementing the Use of Web Sites for Parent Access

US Department of Education Publication: *Weaving a Secure Web Around Education: A Guide to Technology Standards and Security*. NCES 2003-381. <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2003381> Information is included in the Review of the Literature under Implementing the Use of Technology for Education.

Kimball, C. (2003). How to Select a Student Information System. *Scholastic Administrator*, Oct 2003. Retrieved 10/08/2003 at <http://www.scholastic.com/administrator/oct03/articles.asp?article=sis> provides a list and description of ten Student Information Systems. Four are included in the Review of the Literature under Implementing the Use of Technology for Education.

Tanner, D. R., & Hood, J. R. (1997). Tips and guidelines for building a web site. *Music Educators Journal*, 84, 22-28. provides information for creating a classroom or program Web site.

McKenzie, W. (2000). Home-school communication. *Innovative Teaching Newsletter*, 3(12). Retrieved Sept. 17, 2003 at <http://walter@surfaquarium.com/newsletter/home.htm> provides a list of Web sites that can be of assistance to teachers wanting to use the Internet to increase parent communication, such as My Grade Book that enables parents to access their child’s grades online; My School Online, which makes it easy to create a Web page; and SchoolCenter, which allows parents to keep up with what students are studying in class and includes such features as a calendar, permission slips, student handbook, and e-mail links to staff.

Teacher Training for Technology

Cradler, J., Freeman, Cradler., & McNabb, (2002) article in Literature Review provides considerations for teacher training

Parent Involvement

Education Week on the Web: Education Issues A to Z – Parent Involvement
<http://www.edweek.org/context/topics/issuespage.cfm?id=12>

Additional Resources are listed in the list of References, both print and online resources.

Appendix G

Hardware and Software Requirements

What are the minimum and recommended requirements and maximum readily available for hardware and software to run an Internet system

Processing speed in megahertz (MHz)

500 minimum

1,000 recommended

3,200 maximum readily available

RAM in megabytes

256 minimum

512 recommended

1,024 maximum readily available

Operating system, one of the following

Windows

UNIX/LINUS

Mac

Software

Webserver that runs w/ (and usually comes with) operating system

Network that runs w/ (and usually comes with) operating system

Security software

Router software (if router used?)

Bandwidth in kilobytes (kbs)

128 minimum, available through DSL

? recommended, available through T1

? maximum readily available, available through T3

11 is offered through wireless

? , fiber

Internet Service Provider (ISP), choices are

ICN

Other

If IP, then need

Registered domain name w/ a valid Internet registrar

(static/block IP?)

Servers to accommodate need which might include

Mail

Web-posting

File storage

List-serve

Others

(Discussion with Wes Matjeka, technical support, College of Education, 9/26/03 with guidance from NCES publication #2003 381)

**Appendix H
Software Vendor List**

<u>CORPORATE NAME</u>	<u>WEB ADDRESS</u>	<u>SIS PRODUCT</u>	<u>GRADE BOOK</u>	<u>PARENT TOOL</u>
AAL	www.aalsolutions.com	eSIS	Teacher Assistant	Parent Assistant
C-Innovations	www.cinnov.com	Zangle Desktop	Zangle Teacher Connect	Zangle Parent Connect
Chancery	www.chancery.com	WinSchool/MacSchool	eClass Grades	K-12 Planet
Cross Pointe	www.crosspointeinc.com	Cross Point Student	Yes	Yes
DMG Maximus	www.schoolmax.net	School Max	I-Grade	I-Parent
Eagle	www.eagle2000.com	AERIES	AERIES Teacher Access	AERIES Parent Access
Infinite Campus	www.schoolextra.com	Campus SIS	Campus Teachers ClassBook	Parent Portal
Pearson Education	www.pearsondigital.com	SASIXp	Integrate Pro	Parent Connect
Pentamation	www.pentamation.com	OPEN SERIES	Teacher Workstation	Parent Workstation
Power School	www.powerschool.com	Power School 3.0	Power Grade	Yes
Skyward	www.skyward.com	PaC Student	PaC Educator Gradebook	PaC Family Access
Software Technology Inc.	www.ssts.com	STI Office	STI Classroom	STI Home
Specialized Data Systems	www.specdatasys.com	SDS School Office	SDS Grade Reporting	SDS Parent