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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Study Highlights/Abstract
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- **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 School/Home Applications:** Specific school/home applications are less available to schools than the technology itself, although availability varies by type of academic information. In general, e-mail applications are more available than web-based systems technical applications.

- **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. Percentages vary by technology 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 school/home 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 unless steps are taken to address this issue.

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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

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- 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
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- Illinois State Board of Education, Information Technology Department, e-Learning Division.

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 February 2003, 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 and 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 for school/home communication depends on 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, principals reported only 55 percent of parents have access to the Internet.

Availability of Technology
Table 1 indicates e-mail is available in 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 accessing that information. 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 type of information. 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 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 electronic 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 as 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: Determining School Capacity for the Use of Technology in 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 including 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 costs 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 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 of a web-based student information system (SIS) 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 communication systems. They also need to assure security and data privacy. Security and privacy are of vital importance to both schools and parents. Ongoing surveillance is needed to keep the systems safe from spam and viruses. 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 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 families 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 cultural and economic differences in 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 assignments.

In summary, schools need to provide a continuum of methods for 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 though 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, issues;
- 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 increased 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 that languages were a concern.

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

- Cost issues: The software itself is relatively inexpensive. It is support, access to the Internet, and maintenance of systems that are difficult and costly.
- 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 Standard* #9 is 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 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. 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 Illinois State Board Education 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 voice mail 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 (ISU) 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 their 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 included:

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 student's activities and performance through Internet technology?

Timeline

The survey work and focus groups took place during the fall 2003 academic semester (September-December). 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. Quantitative and qualitative methods were used to build a picture of the technological capacity, use, and 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 included:

- 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. Study activities addressing the four research questions are 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 Appendices.

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 for school personnel, 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 these 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 School/Home 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
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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 student information system (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 teachers' 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 responded that the 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 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 that 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 as 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

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 used 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 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: Determining School Capacity for the Use of Technology in 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 five concerns with implementing an Internet-based School to/Home Communication System

Possible Major Concerns	Technology Reps (n=219)	Principals (n=181)	Teachers (n=373)	Parents*
Time	3	1	1	X
Cost	1	2	3	X
Data Privacy	2	4	4	X
Parent Access		3	2	X
Network security	5	5	5	
Training of school personnel	4			
Parent Use				X
Training of parents				
Content development				

*Parent concerns are based on parent focus groups at 6 schools across the state.

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. Concerns are discussed below.

Cost

Of major concern to all groups questioned are 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 principals, and 19 percent of teachers. Parents also mentioned cost as a concern: "Does this cost money? If so the district won't have it." Costs include not only initial costs for hardware and Internet connection, which most schools have, but also costs of implementing, maintaining,

and upgrading the 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 for communication software packages 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 for Communication Software Packages

COMPANY	SIS	GRADE BOOK	PARENT TOOL	STATE INITATIVES
AAL	$12.00	$3.00	$2-3.00	NC Dept of PI
C-Innovations	$10-12.00	$2-3.00	$2-3.00	
Chancery	$16-26.00	$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 for communication software packages, there are other costs. Technology representatives suggested software itself is relatively inexpensive; it is the support, access to the Internet, and maintenance of a system that is difficult. Additional costs include training, annual support additional software, and interface upgrades.

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 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 of a web based communication system 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. There are many potential solutions to provide voice mail albeit each with economic, technical, or access issues to consider. Given the network infrastructure available in Illinois, first consideration was given to attempt and maximize existing resources. One potential solution considered was to provide voice mail services centrally via existing Internet or other shared network connections. A method that was examined would be to develop a Voice over Internet Protocol (VoIP) system using Internet-based telephony. Unfortunately, current products designed to provide voice mail via the Internet are not able to scale to the size required and are less economical when compared to other options.

Another method to provide voice mail would be to procure it through the local telephone company or install private telephone systems at central locations within school districts. A hybrid solution might entail utilizing the Internet to connect to traditional telecommunications equipment centrally located. Costs are difficult to estimate given the diverse telecommunications offerings throughout Illinois and unknown levels of equipment currently installed in school districts. Further, since the offerings from telecommunications providers are unregulated, costs can vary greatly even in the same school district.

What do we know? In general, more populated areas will have offerings from telecommunications providers that will most often be lower cost than purchasing private telephone equipment or a strictly VoIP solution. Large school districts operate at a scale that makes private equipment feasible and many have installed such equipment. Schools located in less populated areas will generally have fewer options. A potential solution for these schools may be to install private telecommunications equipment in a central collocation site and use existing Internet connections to connect to it.

Ultimately, the cost for providing voice mail will be a factor of what public and private infrastructure currently exists within each district, the geographical distance and interconnectivity between schools, what local exchange company offerings exists, whether private telephone equipment is installed within the district, and what bandwidth is installed or available if choosing a hybrid VoIP alternative such as that discussed for rural or underserved locations. In order to obtain precise costs and options to provide voice mail services for over 4,000 school buildings in 892 districts, the variables discussed earlier must be correlated with current Internet connectivity and local exchange company offerings. While beyond the scope of this report, such a study is worthwhile.

The results of such a study will not dictate a singular solution, however, taking into account the wide variety of service offerings and existing infrastructure, a goal of the proposed study would be to determine what options are available by geographic region with associated costs. A secondary goal should be to further explore the referenced hybrid solution to take advantage of existing network connections in order to serve rural and underserved populations. The study should examine ongoing maintenance and service costs as well as detailing existing networks, equipment levels, and bandwidth availability. Resources beyond technology must also be considered such as costs for systems administrators to maintain the system, assure security and privacy of data, and help train school personnel.

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	$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	$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 Business and Support Services, 2003). About one-third of 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 Business 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. Principals suggested that we proceed cautiously and keep the financial burden in mind.

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 schools 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 e-mail that includes confidential information, as some people share e-mail 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 viruses. Finally, technology personnel will also need to provide ongoing training for school personnel and for parents to use the system.

Time

As is indicated by the North Carolina example, time is needed to implement the use of technology for use in parent communication; in the North Carolina case, after three years, they were far less than half completed with installation of necessary tools. Also to be considered is the time necessary for school personnel, including technology representatives and principal**s**, to implement and maintain a 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 technology representative, 44 percent of principal, and 26 percent of teacher survey respondents, 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) who 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 students at 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 students' grade summaries from within the program, either for individual students or for the entire class. He sends the grade summaries at the end of each week. ON his web site he also provides 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 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 parents, many of whom have no means of transportation and 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, n.d.). For those families with Internet access, communicating with the school via e-mail and web site is an effective way to find out what is going on in their child's life at school at a time convenient for parents. 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 (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: A 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 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 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 understanding is reached, 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 & Wikelund, 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-social economic status 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 at 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 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 college 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.

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 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 Parent Teacher Association, 1998a) 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 factors 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 and 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. Findings from study activities are contained in Chapters 2-4. Major findings are presented below.

The parent focus groups provided insight to a number of issues related to improving school/home communication though the use of technology. In summary, parent 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 messages from 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 Parent Teacher Association'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).

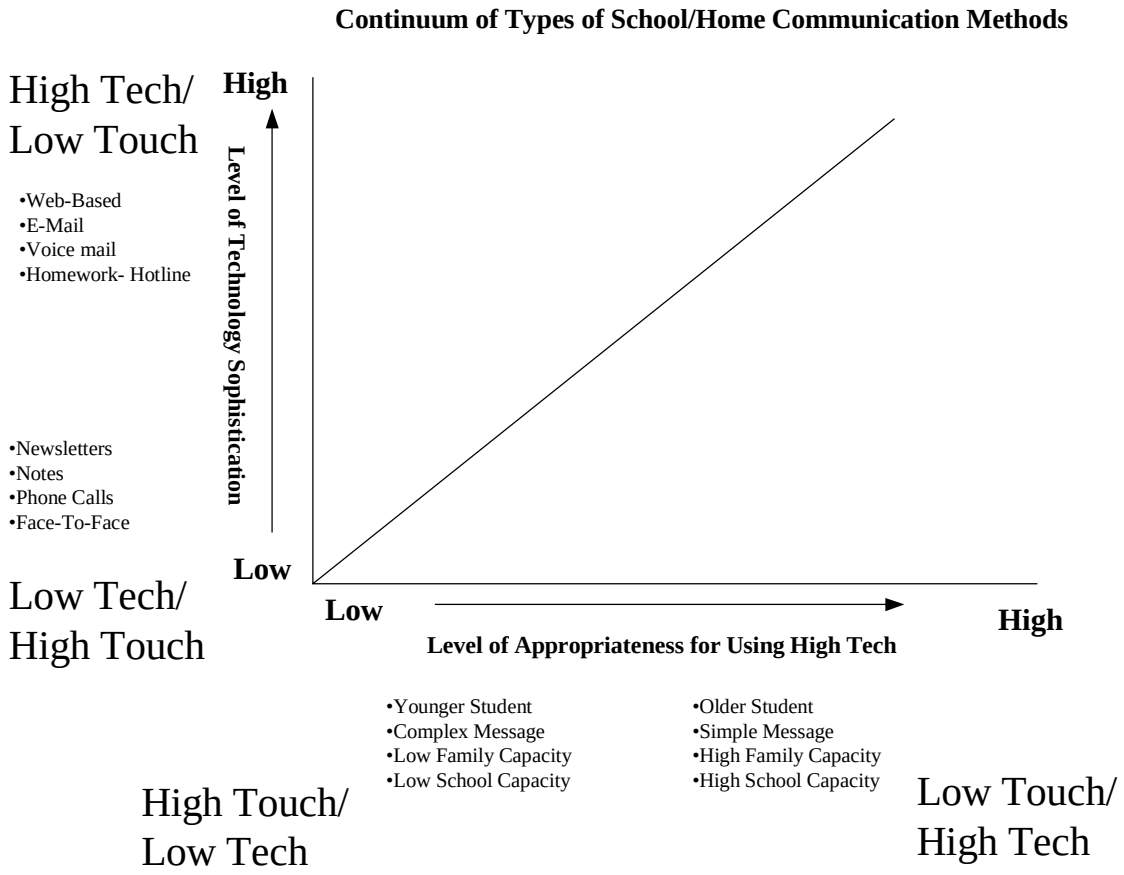
The literature stressed the importance of using a variety of methods for communicating (Kruger 1998; Epstein et. al. 1999; Jonson 1999; Moore 2000; Turner 2000; Anonymous 2001; Plevyak & Heaston 2001; Ramirez 2001; and Moore 2002). Huseth (2001), when communicating with parents through e-mail and a website 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 parents who didn't like electronic communication, 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, the Superintendent in Springfield, Illinois formed a committee made up of parents and administrators from 17 of the district's 36 schools, approved a proposed parent involvement policy that the committee then 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 1.

Figure 1



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: 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: In general, e-mail 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 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.

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 se high-technology methods of communication.

Current Capacity and Use of Technology in Illinois Schools

Background

In February 2003, 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.

Information is now 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 to determine:

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 1,035 sent out, for a response rate of 18 percent.

Each principal who was sent a survey was asked to distribute three surveys to 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 3,105 sent, 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 teach 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, & administration	63.9	58.1		28.3	45.5	
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.

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).

2. What types of technology are schools currently using to promote communications between parents and schools? and

3. 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
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
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 February 2003, 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.

Information is 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. The participating schools were Anna Jr. High School, Anna; Edison Jr. High School, Pekin; Kennedy High School, Chicago; Niles West High School, Skokie; Oakhill Elementary School, Streamwood; and Ridgely Elementary School, Springfield.

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 B-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 B-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 in 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 though 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 C. 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 D.

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 teaches 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 or 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.

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.

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.