Principals’ Perceptions of Administration – Related Uses of the Internet: an Exploratory Study

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PRINCIPALS' PERCEPTIONS OF ADMINISTRATION – RELATED
USES OF THE INTERNET: AN EXPLORATORY STUDY

by
Ekoka Andrew Molindo, Ed.D.

A DISSERTATION

Presented to the Faculty of
The Graduate College at the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Doctor of Education

Major: Educational Administration

Under the Supervision of Dr. Daniel U. Levine

Omaha, Nebraska

December, 1997
DISSERTATION TITLE
PRINCIPALS' PERCEPTIONS OF ADMINISTRATION-RELATED USES OF THE INTERNET: AN EXPLORATORY STUDY

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Abstract

PRINCIPALS’ PERCEPTIONS OF ADMINISTRATION – RELATED USES OF THE INTERNET: AN EXPLORATORY STUDY

Ekoka Andrew Molindo, Ed.D.

The University of Nebraska, 1997

Adviser: Dr. Daniel U. Levine

The use of computers in assisting in administrative tasks has revolutionized the workforce. Today, principals and administrators in many fields rely on accurate, fast, inexpensive and up-to-date information in order to make sound decisions.

The purpose of this study was to examine the perceptions of school principals regarding the use of the Internet for administrative purposes. This descriptive study focused on the potential benefits and problems of Internet use perceived by school principals. The research questions focused on seven areas: demographics, attitudes, benefits of the Internet, frequency of use, experience, policies and issues.

A total of 292 principals in Nebraska completed the questionnaire. Data from the questionnaire were tabulated and percentages were calculated based on the frequency of responses sorted by age, number of years served as a school principal, highest educational level achieved, size of school and the highest degree earned.

Descriptive statistics (mean, mode, median, and percentages) were computed to facilitate the analysis of the data. All demographic variables, such as age, years of
experience, size of the school and highest educational level attained, were analyzed for significant relationships between demographic factors and principals’ attitudes, perceptions of possible benefits of the use of the Internet, frequency of use of the Internet, administrative policies, and concerns with regards to the use of the Internet in schools. ANOVA was used to analyze the data, with a significance targeting $p < .05$.

The findings suggest that principals consider the Internet as a valuable instructional tool in their schools. In Nebraska, 99.9% of the 292 principals who returned completed surveys had Internet services available to students in their schools. It was encouraging to note that 89% of principals did encourage their staffs to attend Internet in-service in order to remain current on its instructional uses.

On the other hand, 73.2% of the principals surveyed had themselves received only five hours or less of formal Internet training. Also, 89.4% of principals had never used the E-mail to communicate with students, and 94.5% had never used E-mail to communicate with parents.

In analyzing variables that contributed to significant results in the study, it was determined that most differences were related to level of the school (secondary or elementary) and location (rural or urban). Few significant differences related to size of school or experience of the principal.
Dedication

This dissertation is dedicated to Lynette Anne, my best friend, my love and my bride. Her prayers, encouragement, support and sacrifices were necessary for the completion of this research study.

In addition, I dedicate this dissertation to the students of Cameroon. The education of the past alone will not be adequate to solve the problems of the future. This calls for a new educational paradigm that will enable Cameroon to compete in the global economy. This new educational paradigm will empower students to think critically, encourage collaboration and teamwork, promote positive traditional African values, and emphasize the acquisition of computer technological expertise. To produce the desired results, this new education paradigm must be affordable, available and accessible. I dedicate this dissertation equally to my former congregation of Ebenezer Baptist Church, Limbe, Cameroon, and to my former students at Saker Baptist High School and National Comprehensive High School in Limbe, Cameroon.

Finally, I dedicate this dissertation to my family in Cameroon: Valentine Monoko, Collins Tanyui, Sally Ebenye, Sarah Mokongo, Ketty Limunga Masoki, Sarah Iguma Ngeka, Hannah Nalove Luma, Elisa Mula Ekeke, Ekwilli a Wacka, Luma Haddison and Papa Molindo Ekwe for their love for me and above all, their trust in God.
Acknowledgements

There were many lessons learned during the course of writing this research project, one of which is the acute awareness of all the debts I owe to so many people. If I tried to mention the names of all of them, another research project would be underway, however, a few individuals have played a significant role in the completion of this research project. I would like to name some of the individuals who have played an important role in providing me their insight, guidance and expertise.

Special thanks go to my most supportive advisers and the members of my dissertation advisory committee; Dr. Dan Levine (Chair), Dr. Martha Bruckner, Dr. Don Uerling (Member), Dr. Neal Grandgenett (Member), Dr. Jack McKay (Member) and Dr Gary Hartzell. I sincerely thank them for their time, advice, patience, support and understanding during the completion of this research project.

A special acknowledgment is given to Dr. “Rusty” Crawford, Coordinator, Vice Chancellor Academic Affairs at the University of Nebraska at Omaha, for his tireless and ever cheerful assistance with the statistical analysis. Special thanks go to Ms. Vickie Stone, the Administrative Technician in the Office of International Studies and Programs, University of Nebraska at Omaha, for proofreading the manuscript through its various stages. Dr. Ward Sybouts, University of Nebraska Lincoln and Mrs. Joanie Horwich, secretary, Department of Educational Administration, University of Nebraska at Omaha assisted in proofreading and formatting the dissertation.

Thanks, also to Dr. Vance Valerio, the Assistant Vice Chancellor for Student Services and Enrollment Management and Dr. Mary Mudd, the Vice Chancellor for
Student Services and Enrollment Management, for their encouragement and support in my studies and program.

Special thanks also are appropriate for my colleagues Ms. Susan McNeill, Mr. Richard Brady and Dr. Franklin Thompson for their support and encouragement.

I wish to thank the principals who were most gracious in returning my questionnaire, especially the fifteen principals who shared with me their comments on the educational use of the Internet.

Finally, my appreciation is extended to thank my friend, pastor and spiritual mentor Rev. Dr. Darrel E. Berg, former UNO Campus Pastor and to my best friends, Rev. Morris Hurd, L.C. Spencer and Jay Eason of Ida Grove, Clarion and Battle Creek, Iowa, respectively, for providing the opportunity to an African schoolteacher and pastor to further his education in the United States of America.
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CHAPTER I

Introduction

This century will likely go down in history as the age for new information technology. Never before has there been so much information available in so many formats, rapidly and widely accessible to such a variety of audiences. The ability to gain access to valuable, accurate, relevant, and timely information is empowering. Information becomes power as one acquires the skills to gather, process, store, and distribute it. The power associated with information comes as a result of one’s ability to better utilize information in order to network, make informed decisions, and become more resourceful, knowledgeable, and current.

The use of computers has made it easier for more information to be distributed and stored. The use of microcomputers in schools preceded the Internet. Wishnietsky (1994, p. 20) noted,

When the first personal computers were unveiled in the 1970's, few people recognized the profound effect computers and computer-based technology would have on society. Not only did technology proliferate into all areas of business, industry, and education, the U.S. economy shifted from an industrial to an information society. Between 1950 and 1990, the number of people involved in the information industry jumped from 17% to about 70%.

Computers in Education

Computers were first used in education to perform administrative tasks. They were used to handle repetitive jobs such as payroll, personnel records, student records,
and clerical operations. Although the computer has served as an effective administrative tool for many years, its operation had been limited to clerical and computational duties. Currently, principals require more sophisticated technology to help manage information in order to make better decisions and to remain competitive. The computer has proven to be a valuable tool for principals.

Computers have progressively evolved over time. They had a very humble beginning, with the design of the first electronic digital computer in the winter of 1937-38, by Dr. John V. Atanasoff and his assistant, Clifford Berry. The Atanasoff-Berry Computer (ABC) provided the foundation for the next advances in electronic digital computers. At that time, computers were primarily used to store mathematical data. First-generation computers were large, costly, and prone to break down due to the use of vacuum tubes in their construction. A vacuum tube would fail approximately every 15 minutes and would generate a great amount of heat.

Advances in computer technology were so rapid that by 1958, the second generation of computers was being built with transistors. These computers were smaller, faster, and less costly than their predecessors. In 1964, the third generation of computers was introduced, with their controlling circuit stored on chips. In 1989, the Intel 486 became the world's first 1,000,000 transistor microprocessor. It crammed 1.2 million transistors on a sliver of silicon that measured 0.4 inches by 0.6 inches and executed instructions at 15 MIPS (million instructions per second), which was four times as fast as its predecessor, the 80386 chip. In 1995, Intel introduced the Pentium Pro microprocessor, the successor to its widely used Pentium chip. The Pentium
microprocessor contains 5.5 million transistors and is able to perform 250 million instructions per second (Shelly, Cashman, Waggoner & Waggoner, 1996).

As computers became more popular and powerful, their uses became more diversified. The military and private businesses were the first to take advantage of computer technology. School principals began to realize the important role that computers could play in the schools. Knezevich (1969) noted that school personnel have always used available technology to enhance administration. In the early part of the twentieth century, processing data related to pupils, including accounting, enrollment and other types of school records was handled efficiently by well-organized manual labor because the machines in existence at that time were cumbersome and costly. These manual administrative approaches were fairly satisfactory since enrollment was modest, change was relatively slow, social problems were fewer in number and intensity, and people's expectations were reasonable. By the early 1950's, the systems approach to administration became popular. A scientific dimension of administration was attempted with the introduction of "systems thinking." Taylor (1967) saw the scientific approach as a way of organizing every branch of the business to its highest state of excellence, with minimum waste and maximum efficiency. Sophisticated technology to assist principals in their daily duties was needed in the scientific approach to management. This soon developed into machine or computer-assisted administration.

In 1987, Plyler (1994) surveyed 164 Alabama public school principals from 62 school districts to determine the attitude of principals concerning microcomputers and the use of microcomputers as related to administrative tasks. The sample included responses from high schools, junior high schools, and elementary schools. Plyler found:
• Most principals did not employ microcomputers for administrative tasks.
• School principals who used microcomputers had been trained to use microcomputers.
• The microcomputer training opportunity most frequently used was school in-service.
• Most principals generally had a positive attitude toward using microcomputers.
• Principals at first felt uncomfortable using microcomputers.
• School principals did not have time for microcomputer training.
• Computers were not expected to increase administrative effectiveness.
• Only a small number of principals had microcomputers for use at home.
• More whites than non-whites used microcomputers for administrative tasks, and
• Principals with 1-5 years of experience were the least likely to use a microcomputer (p. 19).

Plyler (1994) and Knezevich (1969) noted that before the existence of the Internet, principals had regularly used microcomputers for: (1) attendance, (2) student scheduling, (3) student records/data, (4) word processing, (5) viewing district budgets, (6) report cards/grades, (7) school-to-home reporting, (8) site budgeting, (9) school lunch menu planning, (10) school transportation, (11) utility-cost resource allocation, and (12) efficient file management.

According to Knezevich (1969), other early benefits of computer-assisted administration include:
• improvements in decision making
• increased number of facts and alternatives available for sound decisions
• improvements in handling of problems
• better detection of mounting pressures on the school system, both internally and externally
• foreseeing future problems in time to prepare possible courses of action
• making available many alternative strategies and solutions to anticipated problems
• improvement in long range planning
• greater acceptance of innovations
• freeing principals' time for innovative thinking
• provision of means for evaluating innovations that are presented
• improved efficiency of the total operation of the school system
• monitoring of the total school system
• obtaining accurate feedback
• establishment of "flag points," i.e., points at which corrections should be made and
• improvements in communications within the school system and between the school and the community.

Summing up the initial importance of microcomputers in schools, Bird (1984) noted that the sensible use of microcomputers will (1) save time, (2) improve efficiency, and (3) improve the quality of information needed to make good management decisions.
The Internet

The Internet provides its users with a nearly inexhaustible source of information. The availability of relevant, timely, and accurate information is a necessary basis for good decision making. Teachers have discovered that the use of the Internet in the classroom is not only informative, but also exciting.

The Internet could be described as a global network of computers. It is an outgrowth of a project from the 1970’s by the Advanced Research Projects Agency (ARPA) of the United States Department of Defense. The ARPANET, as it is called, was designed to be a reliable network service for computer communications over a wide area. The original ARPANET has since been expanded and replaced, and today its descendants form the global backbone of what is now called the Internet (Carey & Ambrosia, 1995; Hahn & Scout, 1994).

The Internet allows its users to collaborate easily and quickly through messaging, discussion groups, and conferencing. Users are able to discover and gain access to people and information, distribute information, and experiment with new techniques and services. The Internet has become a truly global infrastructure for education, research, professional learning, public services, and businesses.

Born in the mid-70’s, the Internet has expanded commercially and internationally and is now estimated to be operable in more than 155 countries worldwide. Over 27 million users are now served, with new hosts being added at a rate of at least one every 30 minutes. The Internet-based World Wide Web system is evolving even more rapidly.
A recent Management Information Technology (MIT) study suggested that there were as much information passed over the Web in 15 minutes in 1994 as in all of 1992 (Topp, Grandgenett, Mortenson & Ostler, 1996).

Classroom resources have expanded dramatically through use of the Internet by making resources from all over the world (including original source materials) readily available to teachers and students. It almost instantaneously brings information, images, and computer software into offices and classrooms from places otherwise impossible to reach. With just a mouse-click, students from any part of the world can gain access to information and see pictures. For example, students can take an electronic field trip that combines broadcast, on-line, and print resources to help them understand eighteenth century juvenile justice. Learning becomes exciting and experiential, and students are placed in the "driver's seat" of their learning experiences.

The Internet is a very effective communication tool. School principals can use it to communicate with their internal and external publics. The Internet is fast, cheap, direct, personal, convenient, and reliable. The elimination of "telephone tag," the ability to save messages and send messages to many receivers simultaneously, the reduction of long distance telephone charges, and the capacity to gain access to an enormous quantity of information electronically makes the Internet a valuable resource for the school principal.

The number of Internet users worldwide is increasing rapidly. Carroll and Broadhead (1995) estimated that approximately 100 to 200 million people would be on the network by the end of the century. To be hooked to the Internet is to be connected

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with the rest of the world. People from all walks of life are now discovering the benefits of networking through the use of the Internet.

The benefits of connecting to the Internet and using it in schools are enormous. Carroll and Broadhead (1995 p. 162) noted, "as we enter the information age, computer literacy skills and, in particular, skills to locate, access, evaluate and analyze information, are becoming increasingly important in our workforce." if students are to properly prepare to compete in the global economy, they need to be able to use the Internet.

Use by Students

Researchers (Carroll, et al. 1995; Barron, et al. 1996) noted that some of the benefits of the Internet in the classroom included:

- bringing the world to the classroom or; students can find timely information and communicate with experts and peers worldwide;
- enabling students to learn by doing or; research has now confirmed that children who are actively engaged in learning, learn more. The effects are particularly noticeable among students who are not high achievers under more traditional methods;
- using the Internet can significantly increase the quality of students' writing and self-esteem;
- helping students develop proficiency in the basic technological skills needed to succeed in the workplace;
- including disabled students into the educational mainstream;
- encouraging students to become lifelong learners who can access, analyze, and synthesize information;
facilitating global research;
linking students with mentors;
enabling students from all races, cultures, abilities, genders, and religious beliefs to interact freely with one another;
enabling students to access on-line educational resources;
providing opportunities for tutorial-based learning;
fostering creative writing skills, typing skills, and critical thinking;
cultivating on-line research skills;
accessing job and career information;

Use by teachers

Carroll et al. (1995) noted that some of the benefits of the Internet to teachers included:

- reducing time spent on record-keeping;
- improving communication between teachers all over the world;
- assisting in guiding and coaching students, rather than be "instructing them";
- improving communication between teachers and students; Teachers can use E-mail to open two-way communication between themselves and their students;
- correcting assignments could be done via E-mail;
- acting as a repository of lesson plans from all over the world, and teachers can borrow ideas;
- advancing educational or policy reform or; as educators begin to communicate, they generate ideas on how to improve their schools;
• keeping up-to-date with current research, policies, and laws;
• reducing the potential for human error;
• creating the potential for collaboration to further professional development among teachers;
• becoming lifelong learners;
• becoming mentors;
• individualizing instruction or; teachers are better able to meet the individual academic needs of their students. The Internet promotes student-directed learning rather than teacher-directed learning.

Use by Parents

Carroll et al. (1995, p. 207) noted that some of the benefits of the Internet to parents included:

• keeping informed of school events, activities, policies and issues;
• becoming active partners in their children's education by providing suitable Web sites for their assignments or projects;
• becoming involved in fund-raising, class projects, and volunteer activities;
• viewing television by children can decline when the Internet is available at home;
• networking with other parents enables parents to learn from one another as they share knowledge.

Use by Educational Organizations/Principals

In recent years, the role of the principal has become increasingly diverse and complex. Principals deal with many issues, including, but not limited to, curriculum
implementation, teacher negotiation, staff evaluation, student due process, student files, discipline, book and Internet censorship, merit pay for teachers, increasing school programs, conflict resolution, fluctuating enrollment, working with school board members, school funding problems, working with parents, community and business leaders. Some of these tasks require networking, communication, and interpersonal skills. The use of the Internet can be valuable in handling some of these communication tasks. Carroll et al. (1995, p.181) noted that some of the benefits of the Internet to principals included:

- aiding in administrative tasks. Through the use of the Internet, school principals can collaborate with other principals and streamline many of the administration's functions;
- streamlining admission through E-mail registration;
- promoting by advertising schools to parents and prospective students through the school's home page;
- facilitating interdepartmental communication;
- creating a virtual classroom (through the use of multi-user simulation environments) that allows students in different locations to interact with each other by using their computer keyboards. It also allows professors to hold lectures and seminars and coordinate group projects;
- promoting distance education through the use of E-mail, discussion groups and the World Wide Web which allows students to complete courses electronically without having to be present in a classroom;
• expanding student services such as counseling and student activities, by making students aware of these services through the Internet;
• expanding alumni services by enabling school officials to keep in touch with alumni in any part of the world;
• facilitating the exchange of student records between schools;
• keeping in touch with parents and community interest groups in a faster and cheaper way.

Use by the Community

Barron and Ivers (1996, p. 25) noted that some of the benefits of the Internet to the community included:

• transmitting student projects and information about school activities through the school web page;
• participating by making suggestions to the improvement of schools through the use of E-mail;
• enabling senior citizens and people who lack mobility to share their experiences and lives with students.

School principals, staff members, teachers, and students now have a faster, cheaper, and more convenient way to communicate with peers, researchers, parents, and state and federal representatives across the country and beyond.

Since civilization has progressed from an agricultural to an industrial base and is currently being transformed into a global information society, school officials face an even greater challenge to prepare students to be productive in the information driven global economy. This calls for a total overhaul of the curriculum and administrative
styles. Thornburg (1995, p. 70) noted, "Our challenge as school principals is not to do things differently, rather, it is to do different things."

School leaders who understand the benefits of the Internet for students are more likely to support instructional changes that integrate the Internet into the classroom. With the introduction of the Internet, education, government and business will never be the same. School principals may need to learn to "surf" the net as their business counterparts have in order to remain competitive. Business executives are increasingly turning to the Internet to advertise, explore new markets, improve customer relations, monitor consumer discussions and attitudes, conduct market research, improve public relations, reduce distribution costs, and achieve cost saving and efficiency (Carroll & Broadhead, 1995). Schools are businesses of a different type. With a decrease of funding to schools, school principals, like business entrepreneurs, are attempting to minimize waste without sacrificing the quality of student services and instruction.

School administration is becoming an increasingly challenging career in the information age. Principals should be encouraged to use any form of technology that will enable them to keep in touch with both their internal and external publics. The Internet provides such an opportunity.

Embracing the Benefits and Managing the Concerns

Even as one applauds the opportunities the Internet brings to schools, government, communities and businesses, there are also concerns. Some of the concerns that have surfaced include the following.

School principals are reminded constantly to remember to do their jobs. The Internet is so loaded with information that it can keep one busy for hours. Those principals who
subscribe to on-line magazines and newsgroups could find their E-mail filled with excesses of "junk E-mail."

Parents, teachers, and principals are concerned that children may gain access to inappropriate material via the Internet or other networks, or come into contact with dangerous people through on-line communications.

The Internet is not completely free. It may be cheaper than paying for a long distance telephone line, but it takes money to purchase the hardware and software. There is also the possibility of the system crashing. The Internet is expanding at a very fast pace. Presently, no one person or organization actually controls or owns it. If something is not done to streamline its operations, the Internet may become too large or too slow to meet the needs of the public.

For the "technically challenged," the Internet has created another problem. One is expected to master the computer before he or she can send a simple message to a friend across the street. Although computer manufacturers are trying to make computers as user friendly as possible, some people continue to refuse to touch a computer.

Problem Statement

In a world characterized by rapid social and technological changes, schools are under continuous pressure from politicians, parents, and industries to supply skilled labor, and to keep up to date on technological advances, among other things. School principals are called upon to be agents of change for technology. This study examined the perceptions of school principals about the use of the various aspects of the Internet, such as E-mail, Newsnet, and the World Wide Web in the school environment.
This study was designed to ascertain the attitudes and beliefs of school principals in Nebraska towards the use of the Internet as an administrative device. The topics investigated included:

1. Principals' attitudes towards the use of communication devices such as E-mail and the World Wide Web.

2. Principals' perceived benefits in the use of the Internet.

3. Principals' ability as an instructional leader in the school to be able to obtain Internet resources to share with teachers and students.

4. Principals' concerns regarding the use of the Internet in their schools.

5. The frequency of Internet use by principals.

6. Policies implemented by principals with regards to use of the Internet.

The above six topics opened up several issues related to principals' attitudes towards the use of the Internet. Do school principals believe the use of the Internet will make them more efficient and responsive to teachers', students', and parents' needs? Are school principals willing to give up some of their time to be trained in the use of the Internet? Are school principals willing to seek funds to link their schools with the Internet? Do school principals perceive the Internet purely as a teaching device or one that also has administrative uses? Do principals encourage their staff and students to use the Internet?

Purpose of the Study

The primary goal of this study was to discover the perceptions of principals towards the use of the Internet for administrative purposes.
Students, teachers, parents, business executives and school principals live and work in a world dominated by technology, where access to information is a key to success. Research by Kleinsmith, Anderson, and Hanley (1997, p. 10) confirmed that teachers and students were very interested in learning and using the Internet for research and communication. The majority of the principals in the study were also interested in encouraging their teachers and students in gaining access to the Internet but saw no real use for the Internet in their professional lives. Goldman (1995, p.30) noted that, “the paucity of school principals on the Internet was no different than CEOs in other fields.” His research further revealed that 25% of the school principals had virtually no keyboarding skills and also that slightly less than half of the staff using computers administratively in schools had formal training. In conclusion, he noted that “...School principals will have to really see some valuable use before they will be willing to put in the time to learn” (Goldman, 1995, p. 30).

Research Questions

This study attempts to bring attention to a vital issue in educational administration: What is the current use and perceptions of the Internet by school principals?

In addition to demographic information, the following questions were used to help in the gathering of data for the study.

Questions Regarding Principals’ Attitudes

- How important is E-mail to principals?
- How important is the World Wide Web to principals?
- How important are newsgroups to principals?
Questions Regarding Policies

- Do principals encourage their staffs to attend in-service training in the use of the Internet?
- Do principals encourage teachers to share good websites with each other?
- Do principals encourage teachers and students to develop Web Pages?
- Do principals allow teachers time to “surf the net” in order to find good lesson plans?

Questions Regarding the Benefits of the Internet

- Do principals use E-mail to communicate with students, teachers and parents?
- Do principals use the World Wide Web to access and share instructional ideas?
- Does the school have a Web Page?
- Do principals use the World Wide Web to gain access to information from federal and state governments?
- Do principals use E-mail or Newsgroups to get in touch with colleagues around the world?

Questions Regarding Frequency of Use of the Internet

- Do principals have access to the Internet?
- How frequently do principals use E-mail?
- How frequently do principals use the World Wide Web?
- How frequently do principals use Newsgroups?

Questions Regarding Experience in the Use of the Internet

- For how long have principals used the Internet?
• How many hours of formal Internet training have principals received?
• For what purposes do principals use the Internet?
• What Internet tools do principals use most often?

Questions Regarding Problems and Issues in the Use of the Internet

• Do principals consider the cost of Internet-related software to be very high?
• Do principals consider the cost of Internet-related hardware to be very high?
• Do principals consider it hard to locate meaningful materials in the Internet?
• Are principals concerned about privacy issues in the Internet?
• Are principals concerned about students gaining access to inappropriate materials in the Internet?

Significance of the Study

Most of the research on the use of the Internet in schools has focused on its importance to teachers and students. This study focused on the attitudes of school principals related to the use of the Internet. The findings from this study will be used to determine future areas of study regarding school principals and the Internet.

As we enter the information age, computer literacy skills and skills to locate, gain access to, evaluate and analyze information are becoming increasingly important in our workforce. Antonoff, Fisher, Langreth, and O'Malley (1994) estimated that more than two-thirds of all jobs in America are "information related" (p. 122). Carroll et al. (1995, p.159) concluded that, "a university or college graduate of the 90's who cannot use a computer to create documents, analyze numeric data and communicate with people worldwide by sending electronic mail messages, is as poorly prepared for life and for
earning a living in the twenty-first century as one who cannot compose a paragraph, balance a checkbook, read a book or use a library.”

Teaching students to use the Internet may be a step in the right direction. A study by Topp et al. (1996:24) noted that the support of the principal is crucial to the success of improving education through innovative and creative uses of the Internet. In the past few years, many K-12 schools and school districts have acquired access to the Internet. This opens new opportunities to students, teachers, and principals as they interact with colleagues and mentors throughout the world.

Limitations of the Study

The following limitations pertained to the conduct of the study:

1. The population for this study was limited to public school principals within the state of Nebraska.

2. Principals’ responses were affected by their accessibility to the Internet.

Definition of Terms

For the purpose of this study, the following definitions will be established.

The Internet

The Internet is a structure made up of millions of interconnected computers whose users can communicate with each other and share information; more than three million users are hooked into the Internet. The physical structure of the Internet uses fiber-optic cables, satellites, phone lines, and other telecommunications media to send data. Any user whose computer can be linked to an Internet site can be a part of the worldwide Internet community.
E-mail

Electronic mail (e-mail) is a messaging system that allows one to send
communiqués and reports to users on the Internet. The message is transmitted at the
speed of electricity to the other host. When one gets an Internet account, an E-mail
address is assigned to the individual, which facilitates communication with other online
users. Typically this consists of the recipient's user name, the @ symbol, and the domain
name of the host on which he or she has an account (for example, 
emolindo@cwis.unomaha.edu). With E-mail, it is also possible to create group mailing
lists, whereby mail sent to one address will be distributed to all members of the group. 
Mailing lists are a very efficient way to disseminate textual information, such as office
memos and reports to a number of people at one time.

Gopher

The Internet Gopher is a very basic menu-based system that provides
interconnected links between files on different computers around the Internet. These files
appear to be linked as a series of directories around the Gopher menu that are actually
located on other computers. Gopher provides access to text documents. Graphics and
digitized vocal annotations can be included in compound documents that have to be
downloaded to the local computer and then viewed with a different program. Gopher
also allows access to a few of the other Internet services, such as Telnet, for remote
connectivity. One of the great advantages of Gopher over other tools in the Internet is its
ease of use. Instead of remembering commands, by starting Gopher, the user is presented
with menus that list options.
World Wide Web

The World Wide Web has a similar mission to Gopher, namely, to organize the vast resources of the Internet in order to allow users easy access to information. However, whereas Gopher uses a menu system to organize Internet resources, the Web uses hypertext documents. A hypertext document contains elements that one can select, usually by clicking a "mouse," to call up another document. The act of moving from one page to another is called jump. The part of the document that activates the jump is called a link. Links can be either textual or graphical. The Web is one of the most effective methods to provide information because of its visual impact and advanced features. Web application programs can access many of the other Internet services, such as Gopher, Usenet news, file transfer, and remote connectivity.

Newsgroups

Usenet is made up of over 5,000 discussion groups called Newsgroups. Each Newsgroup focuses on a single topic, such as botany, rain forests, or Shakespeare’s literary works. As one can imagine, with so many Newsgroups, just about every conceivable topic is covered. In Usenet terminology, messages sent to Newsgroups are called articles, and the act of sending an article is called posting.

Telnet

Telnet is an Internet tool that allows users to log on to other remote Internet hosts. This capability allows users to work on computers halfway around the world almost as easily as one would on a computer across the room. Computers across the globe let users view reports on many topics, such as the local weather conditions, or access on-line catalogs of a distant library.
CHAPTER II
REVIEW OF LITERATURE

Introduction

A teacher who won't have a computer in the classroom is like a ditch digger who
won't learn to use a steam shovel... Computers cannot replace teachers, but they
can increase the power a teacher can apply to a learning situation.

Echternacht Lonnie; Ehlert, Mark & Henrikson, Mary (1985, p. 99)

This review of the related literature is divided into five sections. The sections
include: (1) business and education partnership, (2) internet benefits for school principals,
(3) E-mail benefits for school principals, (4) administrative computer applications and (5)
Internet training model for principals. School principals' attitudes toward and actual use
of current administrative technologies, such as E-mail, Usenet and the World Wide Web,
are discussed throughout the five sections beginning on page 38.

Throughout human history, people of all cultures have developed systems of
preserving their past in the form of paintings, songs, and writings. Communication
between tribal peoples had taken the form of the talking drums of Africa, the horn
blowing of the Middle East, and the smoke signals of Native Americans. All of these
peoples realized very early in human history that human beings need to utilize elements
within their environment to enhance communication and their quality of life. With the
help of technology, human beings can live longer and healthier, they can communicate
with one another anytime and anywhere, and transport themselves to any part of the
world.
The question is often asked, if technology can be so beneficial, why can it not be adapted to benefit school administration (Knezevich, 1969, p. 13).

Administrative-assisted technology is any tool used in schools to help principals keep accurate records, communicate better with peers and parents, and to meet the academic needs of their students.

Administrative technology, as used in educational administration, may be divided into two groups: (1) intellectual or personal technology and (2) physical or institutional technology (Knezevich 1969, p. 22). Intellectual or personal technology can be demonstrated by the administrator's charisma; listening skills; conflict resolution skills; human relation skills; humor; ability to delegate power; decision-making skills; ability to communicate his or her vision effectively to students, teachers, parents, and supervisory authorities; ability to help students and teachers learn more, better and faster; ability to create an appropriate academic environment suitable for learning; and ability to motivate both teachers and students.

Physical or institutional technology refers to any hardware or software that will enable the school principal to perform his or her duties well. Some of these duties include:

- advertising to a greater number of parents and students;
- facilitating the process of admission;
- maintaining good student records;
- exchanging student records with other institutions;
- communicating with experts around the world;
- communicating with teachers, parents, and students;
• being aware of what is going on in the community and participating in the life of the community;
• ability to get information in order to enhance staff development, research and publishing.

Computers are used in almost all aspects of school administration. They have become faster and more accurate. They can even be used to examine the viability of alternatives and evaluate the options open to an administrator.

Administrative information technology deals with the preparation, storage, processing, and retrieval of student, staff, and other personal records; fiscal records; operational records; and planning records. Currently, the term “management information system” is used frequently in educational administration to describe the preparation, procedures, processing techniques, storage media, and retrieval approaches for data pertinent to administrative decision making (Knezevich, 1969).

Increased administrative effectiveness is possible if the physical technology is used to complement the intellectual technology. For example, good decision making is a combination of good listening skills, the ability to get the necessary information and data, and the ability to be fair and to take risks. School principals can easily be frustrated in the discharge of their duties when pertinent information is poorly processed or organized, tardy in arrival, irrelevant in terms of assigned responsibilities, or simply not available. School principals have much to gain from computerized assistance.

The burdens placed on schools are growing in number and complexity. Knezevich (1969) noted that technological advancement most often develops faster than human development is capable of implementing it. This creates the propensity for people
to cling to the old and familiar technology rather than to accept and utilize new
technology. Schools are continuously trying to catch up with the latest technology in
order to deal with complex social problems. No school administrator can afford to ignore
the realization that society is currently teaching and working in an age where information
is so vital. This requires that school principals adopt new attitudes and skills in order to
better interact with students, staff, parents and the community.

The Internet is one tool that enables people to interact with each other in the
information age. "Many K-12 schools and school districts are now showing considerable
interest in being a part of the Internet and its related telecommuting activities" (Topp et al. 1996, p. 3). Students can now use the Internet to fill out application forms,
talk with teachers, school counselors, and principals or register through the school World
Wide Web homepage prior to admission.

The Internet is here to stay, and it is presently influencing the way business is
done, government is run, and schools are administered. Currently, one of the burning
issues in education is how to prepare students to compete in a global economy where
information plays a very important role.

Business and Education Partnership

The evolution of human enterprise has always put a burden on schools to supply
skilled labor to maintain and develop it. In the early twentieth century, industries in
America were instrumental in pushing for universal schooling, with emphasis on science
and vocational education. Industry needed skilled managers and technicians in order to
remain competitive, and turned to schools to supply skilled labor. Today, businesses are
interested in a computer and information-literate workforce. Once again, businesses are turning to schools to supply qualified personnel.

There is an increasing number of teachers and students who use the Internet on a regular basis for educational purposes. One problem that must be solved is how to train principals to be Internet literate in an information age. The knowledge available on the Internet will become valuable and even indispensable as principals continue to make informed decisions and weigh options. Antonoff, Fisher, Langreth, and O'Malley (1994, p. 122) estimated that more than two-thirds of all jobs in America are "information related". As the United States economy continues to shift from manufacturing to service, the Internet will play a big role. Antonoff et al, (1994) noted that presently many people can bank, manage investments, transfer money, or shop in "the electronic mall" by using their personal computers.

Experience has shown that although several benefits of a particular school program can be enumerated, the support of the building principal is very necessary for its successful implementation. Regarding technology integration in the classroom, Bennett (1995, p. 20) noted, administrative leadership and continuing interests and support are essential to the success of any program introduced in the school. In other words, the more school principals become involved with the use of the Internet and realize its enormous educational potential and cost saving nature, the more likely school principals will support its use within their buildings.
Internet Benefits for School Principals

Preparing students for the information age requires a great deal of attitude and strategy changes in terms of what one is comfortable doing and what is going to be beneficial to students.

Schools are not immune to the technological changes taking place in society. School principals need to remain current and even be the architects of these changes. In the past, school principals have benefited from the use of computer-assisted administration techniques. Principals have found it easier to manage (1) payroll personnel records; (2) planning and programming budgeting; (3) student attendance, grade reporting, and inquiries concerning student records; (4) student directories, rosters, and reports; (5) staff file reports and inquiries; (6) facilities and materials accounting; (7) school time-tabling; (8) financial accounting; and (9) salary negotiations (Plyler, 1994, p. 20).

Barнетson (1988) noted that as principals face a decline in financial support while expectations rise and output is expected to improve, most principals are turning to the Internet as a tool to help keep the cost of education low while increasing performance. The costs of attending seminars can be reduced by videoconferencing; participants can discuss issues and even see each other, while in their offices thousands of miles away from one another. Instead of a principal calling parents, teachers, and board members one by one to inform them that a meeting is canceled, a single E-mail message can be sent to everyone at once. It is estimated that more than 20 million individuals are linked into the Internet, and this number is growing at a rate of 10 percent every month. (Barнетson, 1988 p. 29).
School principals need accurate and timely information to make good decisions that will save money and improve the student learning environment and performance. School principals could benefit from the Internet in the following ways:

**Personal contact with students**

Through the use of e-mail, the school administrator could theoretically reach all students at the same time. E-mail also opens direct lines of communication between the principal and the students, which could give the principal important information. This medium of communication may encourage shy students to directly communicate with the principal. It will also enable the principal to communicate with students on a one-to one-basis.

The E-mail or any other administration-assisted technology should not replace the principal’s visibility on campus and her involvement in student programs.

**Expert advice and help**

The Internet gives school principals a broader network base and the ability to seek advice from other principals and superintendents, both within and outside the country. New principals can also benefit from the Internet by posting questions and receiving suggestions from other principals. Some retired school principals who possess a great wealth of knowledge and experience can be assets to new principals.

**Recruit new employees**

The Internet has many job lists and résumés on-line for prospective employers. In order to recruit the best teachers from the best schools, the Usenet is a valuable option. More and more, businesses are using the Internet to recruit skilled and experienced manpower (Carroll et al. 1995).
Rapid information access

Accessing information over the Internet is much faster on most occasions than transmissions and transfers via fax or postal courier services. With the click of the mouse, an administrator can scan through information in archives and libraries around the world. Principals who are research-oriented do not need to leave the office in order to review articles or discuss them with other professionals.

Wide scale information dissemination

School principals need to constantly communicate with the external and internal publics. The principal's internal publics include students, teachers, counselors, custodial staff, food service staff, and board members. External publics include parents, congressmen, police, researchers, publishers, and banks. The administrator can use the Internet to reach everyone on his or her mailing list almost instantly.

Peer communications

With the use of the Internet, school principals are able to discuss a wide range of issues with colleagues and other professionals. Communication with peers allows people to share their ideas, frustrations, and solutions with one another. As principals open up lines of communication with peers, they benefit from the experiences and lend assistance to one another. Such networking usually benefits all involved. Through the use of the Internet, educators understand that no school is an island and no administrator should be alone.

Rapid communication

Contacting others through E-mail has provided a new method of communication that has the speed of telephone conversations while providing the semi-permanence of
postal mail. E-mail can be sent from just about anywhere there is an Internet service provider. E-mail is fast, convenient, and cost effective. Through teleconferencing, several individuals in different parts of the world or country can conduct a meeting and see and listen to each other as though they were sitting in the same room. An administrator attending a conference in another country can still keep in touch with teachers, students, and parents. In fact, with the present level of technology, "distance administration and supervision" will soon become a possibility. School principals may be able to run their schools, send memos, observe teachers in classrooms, and offer suggestions while on vacation.

E-mail Benefits for School Principals

"Electronic mail software, also called E-mail, allows users to send and to receive messages from other computer users. The other user could be on the same computer network or on a separate system reached through the use of communications equipment and software. Each E-mail user has an electronic mail box with an address to which the mail can be sent. To make the sending of messages more efficient, E-mail software allows one to send a single message to a distribution list consisting of two or more individuals." (Shelly et al. 1996, p. 72). E-mail is not a creation of the 1990's; computer professionals have been using it for decades. It has recently become more widespread, and although it is still not universally available, its uses are expanding rapidly. For school principals, electronic mail is a valuable tool to use in communicating with their internal and external publics. The communication can be personal, business-related, research-related, or informational. School principals who have mastered the use of
E-mail can reach a teacher in the same building as easily as they can reach a board member in the same city or a researcher they have not met and who lives in another continent. West (1994) noted: E-mail enables individuals to place public and private messages and memoranda on the network. E-mail also permits school-based staff to communicate with district principals and with each other.

Cartwright and Kovacs (1995) observed that E-mail is an increasingly useful tool to academics because of its cost, convenience, and rapid interchange of information with individuals around the world.

**Convenience, cost, and speed**

The use of E-mail enables school principals to bypass the post office and send messages quickly over the Internet to other users.

The E-mail may be used seven days a week, twenty-four hours a day, with no fear that the message will not reach its destination or that delivery will be delayed due to public holidays or weekends. It can also be distributed instantaneously to thousands of people throughout the world. School principals will sometimes need a convenient tool like E-mail to enhance their effectiveness. Although E-mail is no substitute for a telephone conversation, it eliminates telephone tag; unlike a telephone conversation, a hard copy of the information can be produced by E-mail. Also, in contrast to telephone conversations, E-mail messages tend to be shorter, more to the point, and directed to a single or very few topics.

The main expense involved with the use of E-mail is the purchase of the individual hardware. Students do not have to pay for Internet access. The institution covers the network access at annual costs ranging from $5,000 to $22,000, depending
upon the size of the institution (Cartwright & Kovacs, 1995). Also, institution users lessen the expenses of envelopes, paper, and postage stamps.

Another advantage of E-mail is its speed. Computer operations occur through the use of electronic circuits contained on small chips. When data flow along these circuits, they travel close to the speed of light. The electronic mail uses similar technology. E-mail has a capability of almost "simultaneous" communications, which means people in different parts of the world using their computer terminals may send and receive messages at the same time at the speed of electricity. Everything being equal, E-mail takes a few minutes from one user to the other, irrespective of distance. Paper correspondence, even at its most efficient rate, takes a few days to be received within the country and months in some remote parts of the world. The E-mail system makes the world a true global village.

Communication/Research

The use of E-mail as a communication medium is changing. The traditional use of E-mail includes private discussion groups, public announcements, access to expert opinions, group work, and even "socio-emotional" applications, where company employees use electronic mail as a type of "gripe board" to discuss issues (Thach, 1995). E-mail can also be used to collect data from several individuals. The results of these data can be used to help principals cut out or add programs to improve students' educational outcomes. E-mail survey research is the collection of data on a specific topic of interest using computer questionnaires via E-mail. With the growth of on-line networks around the world, it is feasible there will be an increase in the use of E-mail survey research, not only by school principals but by students and teachers as well.
The use of E-mail allows principals who may have difficult issues to deal with, such as discipline, teaching styles, staff development, and conflict resolution, to subscribe to a Newsgroup or simply post a question on the electronic bulletin board. Taking into consideration its relatively low cost and worldwide audience, this form of communication can yield enormous benefits. E-mail has the potential to become the school principal’s best communication tool.

**Administrative Computer Applications in Education**

The use of technology in education has focused primarily on helping students learn. For this purpose, slide projectors, filmstrips, overhead projectors, charts, maps, graphs, microscopes, telescopes, VCRs, radios and televisions were common sights in our schools.

Hanna, Rose-Ganguly, and Katz (1995, p. 5) noted that “We know teachers need technological know-how not only to keep up with their students but to guide them in the process of synthesizing subject matter at increasingly complex levels of cognition.”

Administrative tasks such as payroll, attendance, accounting and student academic reports once were done manually with very little technological assistance, but as schools grew larger and data became more complex, the need arose for some form of technology to store and compute numbers. Witten (1990) completed a survey of principals in Kentucky and noticed that most principals were poorly trained in use of computers for administrative purposes.

districts did not venture seriously into the computer age until the late 1960's. There were still some school districts that avoided computer use until the early 1970's. But by the mid-1970's, almost all school districts were involved in computer use, at least in support of basic administrative functions such as payroll, finance reporting, accounting, and record keeping."

Research findings by Hanna et al. (1995) revealed that some school principals are reluctant to acquire computer skills. Responses from school principals were placed in five categories:

- My assistant is a computer whiz. I rely on her/him to take care of all computer-related issues. I am an administrator, not a data input clerk.
- I have intended to learn to use computers for years, but you have no idea how pressured my schedule is. With the demands of my job, I cannot find the time.
- The technology keeps changing so fast. Once it settles down, I'll learn it. But I don't want to have to re-learn it in six months.
- When is someone going to write software to meet all my complex needs, but which is easy for my staff and me to learn?
- I am planning to take a course on computers...next year. That is soon enough.

Though there is an undeniable kernel of truth in each of these reasons, in the final analysis, all can be seen as statements by professionals somewhat "in denial" about their technophobia.
Hanna et al. (1995 p. 8) noted that, "It can be unnerving for professionals to admit their techno-ignorance to their staff, their computer and software vendors, their superintendents and boards. It is even hard to admit it to themselves."


Putting the computer to work in assisting in these areas will free up considerable time for the administrator to help concentrate on supervision and creating a conducive learning environment for all students.

Internet Training Model for School Principals

The review of literature indicates that the explosion of information in today's world requires school principals to become Internet proficient. Plyler (1994, p. 33) noted, "If we do not train our principals to be computer literate, how can we expect them to relate to computer literate students, teachers and parents?". Because of the speed, convenience, and cost of the Internet, school principals can use the Internet to communicate with a wider public than could otherwise be possible. In terms of effectiveness, Plyler (1994 p. 17) noted:

"... these technologies reduce paper to digitized images so documents zip through the organization instantly, rather than from in-basket to in-basket. That
can increase productivity by 20% to 60% in a bank or other paper-intensive business”.

Research findings by Plyler (1994) revealed that school principals in Arkansas are lagging behind principals in the corporate world in their use of E-mail in administration. Gallo (1993) and Bragg (1986) found that teachers who were introduced to the Internet as an instructional tool went through several transitions that included changes in attitudes towards education and computers and changes in teaching behavior and classroom dynamics. (Gallo, 1993; and Bragg, 1986) noted that the following guidelines helped in the training of teachers and principals in the use of the Internet:

- defining goals and objectives by assessing the needs of the trainee.
- reducing anxiety by giving trainees a more global perspective of how the Internet works.
- showing teachers and principals the usefulness of the Internet.
- giving trainees access to home and school Internet resources.
- preparing trainers to adjust to the trainees' learning styles.
- allowing for maximum hands-on orientation.
- providing trainees with support materials.
- following-up and continuing assistance.
- encouraging group training and peer teaching.
- encouraging the use of the mentoring and apprenticeship approach in training.
- using the coaching approach rather than the classroom/instruction model.
- accepting failure as part of the learning process.
These findings could also help school principals as they look for ways to incorporate the Internet in their administration. There is a need for school principals to keep pace with the changing world of the Internet. Information technology changes very rapidly and this calls for continuous training on the part of the school administrator. Powers (1992) believed practicing principals should have workshops and classes available to make Internet literacy a required competence.

Summary

Much has been written about the benefits of the Internet in the classroom. Students have the opportunity to see, talk to, learn, and even teach other students from around the world. Teachers have access to a multitude of resources and can seek counsel from experts in any part of the world. Bragg (1986) noted that computers would be to the human mind what the industrial revolution was to the human muscles. Curriculum, administration, and student expectations are based on the needs of an industrial economy. The economy is moving away from the industrial age to the information age. School principals are encouraged to be agents of this change. Arch (1986) commented that the authors of A Nation at Risk recommended every high school student be required to take a computer science course. He advocated a curriculum that merged computers into all aspects of student life, from academics to recreation.

The Electronic Learning Task Force (Bragg, 1986), established by former Secretary of Education Bell, agreed that technology was a tool for achieving excellence in education. The task force also recommended the use of technology at all levels and in all areas of education including administration. The purpose of this study then, was to
examine principals’ use and perception of one very important technology, the Internet.

The methodology of this study is described in the next chapter.
CHAPTER III

If we do not train our school administrators to be computer literate, how can we expect them to manage computer literate students and teachers.

Dennis John Plyler (1994, p. 33)

PROCEDURES AND METHODS

Population and Sample

Five hundred questionnaires were mailed to principals of selected class 3,4 and 5 schools in Nebraska. Both elementary and secondary schools were included in the sample. Class 3 schools are those located in any school district with territory having a population of more than one thousand and less than one hundred thousand that maintains both elementary and high school grades. Class 4 schools are those located in any school district with territory having a population of one hundred thousand or more, and less than two hundred thousand inhabitants that maintains both elementary and high school grades. Lincoln Public Schools are included in class 4. Class 5 schools are those located in any school district with territory having a population of two hundred thousand or more that maintains both elementary and high school grades. The Omaha Public Schools are included in Class 5. The primary selection procedure utilized random methods intended to ensure that substantial numbers of questionnaires would be sent to and obtained from principals of schools in each classification category. 308 principals (response rate=62%) responded. Statistical analyses included only those surveys (n=292) containing complete data.
Questionnaire

The items selected for inclusion in the questionnaire were determined through a review of the related literature. The questionnaire was field tested and revised before it was sent to respondents. Selected doctoral students in the Department of Educational Administration and Supervision at the University of Nebraska at Omaha participated in the pilot test.

Based on the pilot test, the survey questionnaire was divided into seven sections. Section 1 consists of biographical data concerning the respondents. Section 2 includes questions eliciting the attitudes of respondents towards the use of the Internet. Section 3 deals with potential benefits of the Internet for school principals. Section 4 consists of questions regarding how often respondents use the Internet. Section 5 consists of items dealing with the level of experience school respondents have with respect to the Internet. Section 6 consists of items dealing with policies that respondents have implemented in schools to support the use of the Internet. Section 7 includes items dealing with issues that school principals encounter in the use of the Internet.

A letter of explanation accompanied the survey to explain its purpose and assure participating principals that all responses would be kept confidential. Also enclosed was a signed exemption authorization form obtained from the Institutional Review Board for the Protection of Human Subjects (IRB Exempt Authorization). The Omaha Public Schools required that an additional authorization letter from the Omaha Public School Research Department be enclosed if Omaha principals were to respond to the questionnaire. This was obtained and enclosed.
Each respondent in the sample was asked to supply personal information necessary to generate certain variables pertinent to the study, such as those dealing with his or her age, educational qualifications, years of experience, location of school and the size of the school.

Data Preparation and Analysis

As noted above, the questionnaire contained 50 questions with an open-ended question which allowed principals the opportunity to make comments on the educational use of the Internet. Responses from the 50 questions were tabulated and percentages were calculated based on frequencies of responses with reference to age, experience as a principal, highest level of education attained, size of the school and location of the school. Each questionnaire was self-addressed and stamped.

Descriptive statistics (mean, mode, median, and percentages) also were computed to allow for descriptive analysis of the data. Using analysis of variance, demographic variables, such as years of experience, size of the school and highest educational level attained, were also analyzed to identify statistically significant relationships between these variables and principals' perceptions of possible benefits of the use of the Internet, frequency of use of the Internet, administrative policies and concerns with regards to the use of the Internet.
CHAPTER IV

We agree that the strongest impact on technology integration in classrooms would result from first training principals.

Bennett (1995, p. 20)

PRESENTATION AND ANALYSIS OF DATA

Overview

We live in a time of great change, and schools need to embrace this change in order to remain relevant and competitive. Roth (1989, p. 11) noted that, “Our time is a time for crossing barriers, for erasing old categories- for probing around.” The use of computers and related technology is revolutionizing our classrooms and administration. The central goal of this study is to examine the use of the Internet for administration-related purposes in elementary and secondary schools. Research by Topp et al. (1996), Bennett (1995), and Witten et al. (1990), indicated that teachers and students believe they are best supported by principals who thoroughly understand and model the many uses of instructional technology. They further noted that purchasing and providing technological equipment for the classroom is not enough to motivate students and teachers to master the use of the Internet and consider it a valuable skill.

Bennett (1995, p. 20) noted that, “We agree that the strongest impact on technology integration in classrooms would result from first training principals.” Another study by Johnston et al. (1987), agrees that principals play a pivotal role in generating positive educational outcomes in their schools. Witten et al. (1990), on the other hand, noted that a majority of the principals in their study were uninformed and poorly trained to use computers in the management of their schools. Witten et al. (1990),
further noted that the administrative use of computers is an area that does not attract a lot of research attention. This study intends to help bridge this gap and to throw more light on the perceptions of school principals related to the use of the Internet in Nebraska’s schools.

This study results was divided into seven parts:

Part I

This section looked at demographic issues covering areas including the age of respondents, the number of years they have served as school principals, the number of years in their present position, the size of the school, and geographical location of the school.

Part II

This section covered questions related to attitudes of the school principals related to the use of E-mail, the World Wide Web, and Newsgroups for administrative purposes.

Part III

This section covered principals’ perceived benefits in the use of the Internet for administrative purposes.

Part IV

This section centered on the frequency of use of the Internet by principals.

Part V

This section covered the area of principals’ experience in the use of the Internet.
Part VI

This section covered issues dealing with district and building level policies regarding the use of the Internet.

Part VII

This section covered areas dealing with some of the issues and concerns principals have involving use of the Internet.

Findings

ANOVA analysis was used to help compare the relationships between different subgroups of respondents, while means and percentages were also used to describe the relationships between the demographic data and the other sections.

The questionnaires were mailed to randomly selected principals of Class three, four, and five schools in Nebraska.

Class three schools are those located in any school district with territory having a population of more than one thousand and less than one hundred thousand that maintains both elementary and high school grades. Schools in Class three are located in several school districts.

Class four schools are those located in any school district with territory having a population of one hundred thousand or more, and less than two hundred thousand inhabitants that maintains both elementary and high school grades. Lincoln Public Schools are included in Class four.

Class five schools are those located in any school district with territory having a population of two hundred thousand or more that maintains both elementary and high school grades. The Omaha Public Schools are included in Class five.
The questionnaires were mailed to 500 randomly selected elementary and secondary school principals in Nebraska. A total of 308 principals responded, representing a 61.6% return rate. Of the 308 surveys returned, 16 contained incomplete data. Statistical analyses included only those surveys containing complete data \( n = 292 \) or 58.4%. Of the 292 complete responses, 115 (39.4%) were elementary school principals while 177 (60.6%) were secondary school principals.

The data was analyzed by Statistical Package for the Social Sciences (SPSS) to identify possible relationships between the demographic variables and the attitudes of principals towards the use of the Internet.

There were a total of 195 comparisons. 33 comparisons (17%) appear to have produced statistically significant differences among various subgroups of respondents. The Analysis of Variance (ANOVA) was used to analyze data represented in Table 12 to Table 23. The study focused primarily on the areas that showed significant differences of \( p < .05 \).
Table 1

Description of population by frequency and percentage of specific demographic variable categories

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 39 years</td>
<td>50</td>
<td>17.1</td>
</tr>
<tr>
<td>40 to 49 years</td>
<td>132</td>
<td>45.2</td>
</tr>
<tr>
<td>50 years or over</td>
<td>110</td>
<td>37.7</td>
</tr>
<tr>
<td><strong>Years of experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 9 years</td>
<td>124</td>
<td>42.5</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>86</td>
<td>29.4</td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>68</td>
<td>23.3</td>
</tr>
<tr>
<td>30 or more years</td>
<td>14</td>
<td>0.48</td>
</tr>
<tr>
<td><strong>Years in present position</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 5 years</td>
<td>158</td>
<td>54.1</td>
</tr>
<tr>
<td>6 to 14 years</td>
<td>92</td>
<td>31.5</td>
</tr>
<tr>
<td>15 to 24 years</td>
<td>32</td>
<td>11.0</td>
</tr>
<tr>
<td>25 or more years</td>
<td>10</td>
<td>03.4</td>
</tr>
</tbody>
</table>

(table continues)
### Demographic variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.A.</td>
<td>1</td>
<td>00.3</td>
</tr>
<tr>
<td>M.A.</td>
<td>179</td>
<td>61.3</td>
</tr>
<tr>
<td>Specialist</td>
<td>78</td>
<td>26.7</td>
</tr>
<tr>
<td>Doctorate</td>
<td>34</td>
<td>11.7</td>
</tr>
<tr>
<td><strong>Level of School</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>115</td>
<td>39.4</td>
</tr>
<tr>
<td>Secondary</td>
<td>177</td>
<td>60.6</td>
</tr>
<tr>
<td><strong>Enrollment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below 250</td>
<td>75</td>
<td>25.8</td>
</tr>
<tr>
<td>251 to 500</td>
<td>143</td>
<td>49.1</td>
</tr>
<tr>
<td>501 to 800</td>
<td>44</td>
<td>15.1</td>
</tr>
<tr>
<td>801 or over</td>
<td>29</td>
<td>10.0</td>
</tr>
<tr>
<td><strong>School location</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>49</td>
<td>16.8</td>
</tr>
<tr>
<td>Suburban</td>
<td>58</td>
<td>19.9</td>
</tr>
<tr>
<td>Rural</td>
<td>185</td>
<td>63.3</td>
</tr>
<tr>
<td><strong>Internet access at school</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>291</td>
<td>99.7</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>00.3</td>
</tr>
<tr>
<td><strong>Internet Access at Home</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>126</td>
<td>43.2</td>
</tr>
<tr>
<td>No</td>
<td>84</td>
<td>28.8</td>
</tr>
</tbody>
</table>
The age distribution of respondents was as follows:

The age distribution shows that principals who are 39 years or under constituted 17% of the respondents. Principals between the ages of 40 to 49 years constituted 45%, while those 50 years or over constituted 38%.

Distribution regarding the number of years that respondent has served as a school principal.

The distribution shows that 42.5% of the principals have spent nine years or less as principals and only 4.8% of these principals have spent more than 30 years as a principal.

Distribution regarding the number of years that respondent has served as a school administrator in the present position.

The distribution shows that 54.1% of principals have spent one to five years in their present positions, while only 3.4% of principals have spent 25 or more years in their present position.

Distribution regarding respondent's highest educational level achieved

The data showed that 61.3% of the principals have earned only a Masters' degree, while 26.7% have earned a Specialist degree and 11.7% have earned a Doctorate degree.
Distribution regarding level of school

The data showed that 39.4% of the schools surveyed were elementary schools while 60.6% of the schools were secondary schools.

Distribution regarding size of school

49.1% of the schools had a population of (251-500 students), while 10% of the schools had populations of 801 or over.

Distribution regarding area where school is located

The survey showed that 63.3% of the principals surveyed served in rural schools while only 16.6% of the principals worked in urban schools.

Distribution regarding Internet access at school

Regarding access to Internet at school, 99.7% of the principals responded that their schools were connected to the Internet.

Distribution regarding Internet access at home

Regarding access to the Internet at home, 56.8% of respondents noted that they do not have access to the Internet in their homes.

Distribution regarding whether school had a Home Page

Regarding the issue of whether the schools had a Web page, 71.2% of respondents noted that their schools maintained a Web page.
Table 2

Distributions regarding attitudes of respondents toward use of the Internet

Percentages of respondents related to the importance of the Internet applications to their jobs at present were as follows:

<table>
<thead>
<tr>
<th>Internet Application</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Of Little Importance</th>
<th>Unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail</td>
<td>52.4%</td>
<td>36.3%</td>
<td>7.2%</td>
<td>4.1%</td>
</tr>
<tr>
<td>World Wide Web</td>
<td>24.3%</td>
<td>59.9%</td>
<td>13.7%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Newsgroup</td>
<td>17%</td>
<td>47.9%</td>
<td>27.8%</td>
<td>7.3%</td>
</tr>
</tbody>
</table>

88.7% of the principals identified E-mail as very important or somewhat important.
Table 3

Distributions regarding importance of the Internet to principals five years from now.

Percentages of respondents related to the importance of the Internet applications to their jobs five years from now were as follows:

<table>
<thead>
<tr>
<th>Internet Application</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Of Little Importance</th>
<th>Unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail</td>
<td>86.3%</td>
<td>12.7%</td>
<td>0.7%</td>
<td>0.3%</td>
</tr>
<tr>
<td>World Wide Web</td>
<td>59.9%</td>
<td>37.7%</td>
<td>2.4%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Newsgroup</td>
<td>37.5%</td>
<td>49.3%</td>
<td>10.8%</td>
<td>2.4%</td>
</tr>
</tbody>
</table>

99% of the principals felt that E-mail will be important in the next five years while 97.6% of the principals felt the World Wide Web will be important in the next five years, and 86.8% of principals felt that Newsgroups will be important to principals in the next five years.
Table 4

**Frequency of communicating through the use of E-mail.**

<table>
<thead>
<tr>
<th>Principal’s E-mail Communication</th>
<th>Very often</th>
<th>Often</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use E-mail to communicate with students</td>
<td>3.8%</td>
<td>6.8%</td>
<td>36.3%</td>
<td>53.1%</td>
</tr>
<tr>
<td>Use E-mail to communicate with parents</td>
<td>0.7%</td>
<td>4.8%</td>
<td>39%</td>
<td>55.5%</td>
</tr>
<tr>
<td>E-mail to teachers within the school district</td>
<td>38.7%</td>
<td>30.1%</td>
<td>18.5%</td>
<td>12.7%</td>
</tr>
<tr>
<td>E-mail to teachers outside the school district</td>
<td>25.0%</td>
<td>39.7%</td>
<td>23.3%</td>
<td>12.0%</td>
</tr>
</tbody>
</table>

In general, school principals do not use E-mail to communicate with students or parents. They do, however, show an inclination to communicate with teachers inside and outside the district through E-mail.
Table 5

**Frequency of communicating through the use of the World Wide Web.**

<table>
<thead>
<tr>
<th>Principal's use of the WWW</th>
<th>Very often</th>
<th>Often</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain access to Instructional materials</td>
<td>9.2%</td>
<td>38.7%</td>
<td>39%</td>
<td>13%</td>
</tr>
<tr>
<td>Gain access to Information From state and Federal Government</td>
<td>6.5%</td>
<td>29.1%</td>
<td>45.2%</td>
<td>19.2%</td>
</tr>
</tbody>
</table>

Principals vary substantially in their use of the Internet to gain access to information. It is not used “very often” by them to gain access to information from the state and federal governments; however, some do use it often.
Table 6

Frequency of communicating through the use of Newsgroups.

<table>
<thead>
<tr>
<th>Principal's use Of Newsgroups</th>
<th>Very often</th>
<th>Often</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I use Newsgroups to communicate with teachers within the district</td>
<td>1.4%</td>
<td>10.7%</td>
<td>33.8%</td>
<td>54.1%</td>
</tr>
<tr>
<td>I use Newsgroups to communicate with teachers outside the district</td>
<td>2.8%</td>
<td>13.8%</td>
<td>33.1%</td>
<td>50.3%</td>
</tr>
</tbody>
</table>

54.1% of principals have never used Newsgroups to communicate with teachers within their district while 50.3% of principals have never used Newsgroups to communicate with teachers outside the district.
Table 7

Frequency of use of Internet tools.

<table>
<thead>
<tr>
<th>Frequency of use of the Internet tools</th>
<th>Every work day</th>
<th>3 to 4 days a week</th>
<th>1 to 2 days a week</th>
<th>Less than 1 day a week</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you use E-mail at Work</td>
<td>59.5%</td>
<td>12.7%</td>
<td>8.2%</td>
<td>12.4%</td>
<td>7.2%</td>
</tr>
<tr>
<td>How often do you use E-mail at Home</td>
<td>7.5%</td>
<td>10.6%</td>
<td>09.6%</td>
<td>12.0%</td>
<td>60.3%</td>
</tr>
<tr>
<td>How often do you use the WWW</td>
<td>15.1%</td>
<td>14.8%</td>
<td>28.9%</td>
<td>32.3%</td>
<td>8.9%</td>
</tr>
<tr>
<td>How often do you use Newsgroups</td>
<td>3.9%</td>
<td>3.9%</td>
<td>14.0%</td>
<td>31.9%</td>
<td>46.3%</td>
</tr>
</tbody>
</table>

59.9% of the principals use E-mail every day at work but only 7.5% of the principals use E-mail at home. 15.1% of the principals use the World Wide Web every workday while only 3.9% of the principals use Newsgroups every workday.
Table 8

**Years of experience in the use of the Internet by school principals**

<table>
<thead>
<tr>
<th>How long have you used the Internet</th>
<th>0 to 1 year</th>
<th>2 to 4 years</th>
<th>5 to 7 years</th>
<th>More than 7 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>22.6%</td>
<td>68.5%</td>
<td>7.5%</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

Most principals have been exposed to the Internet for less than four years. However, Internet access in Nebraska is about four years, which then accounts for the 68% responding that they have used the Internet for about 2-4 years. Since most of them do not have the Internet at home, their total usage is limited.
Table 9

Hours of formal training principals have received in the use of the Internet:

<table>
<thead>
<tr>
<th>Hours of training</th>
<th>None or less</th>
<th>5 hours</th>
<th>6 to 10 hours</th>
<th>11 to 15 hours</th>
<th>More than 16 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>of formal training of principals on the use of the Internet</td>
<td>23%</td>
<td>47.9%</td>
<td>19.5%</td>
<td>4.8%</td>
<td>4.5%</td>
</tr>
</tbody>
</table>

More than half the principals in the survey have received less than five hours of formal Internet training, while about 23% of principals have received no Internet training.
Table 10

Distribution regarding school policies implemented by principals to encourage the use of the Internet.

<table>
<thead>
<tr>
<th>Policies</th>
<th>Very often</th>
<th>Often</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide Internet in-service training for staff</td>
<td>35.3%</td>
<td>54.5%</td>
<td>8.2%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Encourage staff to share Websites with good lesson plans</td>
<td>32.2%</td>
<td>7.3%</td>
<td>16.1%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Encourage staff and students to develop Webpages</td>
<td>15.1%</td>
<td>37.1%</td>
<td>35.4%</td>
<td>12.4%</td>
</tr>
<tr>
<td>Teachers are allowed time to “surf the net” for instructional materials</td>
<td>15.8%</td>
<td>44.3%</td>
<td>32.6%</td>
<td>7.2%</td>
</tr>
</tbody>
</table>

The survey shows that principals do say they encourage Internet in-service training for their staff. Principals also reported encouraging teachers to surf the Internet for instructional materials. While 71.2% of principals noted that their schools maintained a Web page, principals reported they were not very active in encouraging the development of Web pages by students and teachers. This dichotomy suggests principals are not consistent in their support of the use of the Internet.
Table 11

Distribution regarding major concerns of principals related to the use of the Internet in their schools

<table>
<thead>
<tr>
<th>Major concerns of principals</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>High cost of Internet</td>
<td>2.4%</td>
<td>27.7%</td>
<td>32.2%</td>
<td>12.8%</td>
<td>24.9%</td>
</tr>
<tr>
<td>Software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High cost of Internet</td>
<td>8.3%</td>
<td>39.3%</td>
<td>26.6%</td>
<td>7.2%</td>
<td>18.6%</td>
</tr>
<tr>
<td>Hardware</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hard to find meaningful</td>
<td>0.7%</td>
<td>10.3%</td>
<td>52.1%</td>
<td>30.7%</td>
<td>6.2%</td>
</tr>
<tr>
<td>materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very little privacy in the</td>
<td>8.2%</td>
<td>33.3%</td>
<td>36.8%</td>
<td>6.2%</td>
<td>15.5%</td>
</tr>
<tr>
<td>Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students may access</td>
<td>1.7%</td>
<td>10.3%</td>
<td>35.9%</td>
<td>45.2%</td>
<td>6.9%</td>
</tr>
<tr>
<td>&quot;inappropriate&quot; materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students could access</td>
<td>1.4%</td>
<td>14.4%</td>
<td>38.5%</td>
<td>40.2%</td>
<td>5.5%</td>
</tr>
<tr>
<td>lawful school records</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology changes too fast</td>
<td>13.1%</td>
<td>55.5%</td>
<td>23.1%</td>
<td>4.8%</td>
<td>3.4%</td>
</tr>
<tr>
<td>The Internet is more useful</td>
<td>4.9%</td>
<td>30.9%</td>
<td>41.3%</td>
<td>7.4%</td>
<td>5.6%</td>
</tr>
<tr>
<td>to teachers than to principals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

42% of principals are not very concerned that students will access inappropriate materials in the Internet but 41.5% of the principals seem to be concerned about the issue
of student accessing inappropriate materials in the Internet. The area 68.6% of the respondents agreed was on the issue of the rapidly changing world of computer technology. 58.7% of the principals do not think that the Internet is more useful to the teachers and students than to them, but 35.8% of the principals feel that the Internet is more useful to teachers and students than to principals.

Tables 12-23 present data that show significant differences when comparing demographic data with various dependent variables using the ANOVA at the level of significance of $p < .05$. As mentioned above, 33 of the 195 comparisons involved differences that were statistically reliable at or below the 0.05 level. It should be noted that when doing 195 comparisons 10 can be expected to show differences at the 0.05 level due to chance.
Table 12

The Importance of E-mail to principals and school location

<table>
<thead>
<tr>
<th>Location of School</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Schools</td>
<td>107</td>
<td>1.5</td>
<td>0.75</td>
<td>4.97</td>
<td>0.027</td>
</tr>
<tr>
<td>Rural Schools</td>
<td>185</td>
<td>1.71</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals in rural schools do not consider E-mail to be as important as do principals in urban schools.
Table 13

**Predicted future importance of the World Wide Web to principals related to years in present position**

<table>
<thead>
<tr>
<th>Years in present Position</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 5 years</td>
<td>158</td>
<td>1.35</td>
<td>.528</td>
<td>3.22</td>
<td>.023</td>
</tr>
<tr>
<td>6 to 14 Years</td>
<td>92</td>
<td>1.47</td>
<td>.523</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 to 24 Years</td>
<td>32</td>
<td>1.60</td>
<td>.614</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 or more Years</td>
<td>10</td>
<td>1.70</td>
<td>.483</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals who have been in their present positions for less time are more likely to think the World Wide Web will be more important in the next five years than are principals who have spent a longer time in their present positions.
Table 14

Use of E-mail to communicate with teachers and colleagues and the level of school.

<table>
<thead>
<tr>
<th>Level of School</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>115</td>
<td>1.86</td>
<td>1.02</td>
<td>6.49</td>
<td>.011</td>
</tr>
<tr>
<td>Schools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>177</td>
<td>2.18</td>
<td>1.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Elementary school principals use the E-mail to communicate with teachers and colleagues more than secondary school principals.
Table 15

**Use of E-mail to communicate with teachers and school location.**

<table>
<thead>
<tr>
<th>Location of School</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Schools</td>
<td>107</td>
<td>1.77</td>
<td>.882</td>
<td>12.35</td>
<td>.001</td>
</tr>
<tr>
<td>Rural Schools</td>
<td>185</td>
<td>2.21</td>
<td>1.09</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Urban school principals are more likely to use E-mail to communicate with teachers and colleagues than rural school principals.
Table 16

**Encourage staff to attend Internet in-service training and the level of school**

<table>
<thead>
<tr>
<th>Level of School</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary school</td>
<td>115</td>
<td>1.66</td>
<td>0.63</td>
<td>4.96</td>
<td>0.027</td>
</tr>
<tr>
<td>Secondary School</td>
<td>177</td>
<td>1.84</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Elementary school principals are more likely to encourage their teachers to attend Internet in-service training than secondary school principals.
Table 17

Encourage staff to attend Internet in-service training and age of principal.

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39 years</td>
<td>49</td>
<td>1.89</td>
<td>0.714</td>
<td>3.19</td>
<td>0.043</td>
</tr>
<tr>
<td>40 to 49 years</td>
<td>130</td>
<td>1.84</td>
<td>0.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 years or over</td>
<td>109</td>
<td>1.65</td>
<td>0.68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals who are 50 years or older are more likely to encourage their staff to attend Internet in-service than are principals who are younger.
Table 18

Perceptions concerning privacy on the Internet and level of school.

<table>
<thead>
<tr>
<th>Level of School</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary school</td>
<td>115</td>
<td>3.05</td>
<td>1.24</td>
<td>4.65</td>
<td>0.032</td>
</tr>
<tr>
<td>Secondary School</td>
<td>177</td>
<td>2.76</td>
<td>1.08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of secondary schools are more likely to think that there is little privacy in the Internet than are principals of elementary schools.
Perceptions concerning students’ ability to access inappropriate materials on The Internet and years as principal.

<table>
<thead>
<tr>
<th>Years as Principal</th>
<th>N</th>
<th>Mean</th>
<th>Standards Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9 years</td>
<td>122</td>
<td>3.47</td>
<td>0.86</td>
<td>3.28</td>
<td>0.022</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>86</td>
<td>3.48</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>68</td>
<td>3.53</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 years or more</td>
<td>14</td>
<td>2.79</td>
<td>0.98</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals who have spent more time as administrators feel that students are more likely to access inappropriate materials in the Internet. On the other hand, principals who have spent 20–29 years in administration are the least worried about students accessing inappropriate materials in the Internet.
<table>
<thead>
<tr>
<th>Years in present position</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 5 Years</td>
<td>156</td>
<td>3.54</td>
<td>0.78</td>
<td>3.66</td>
<td>0.013</td>
</tr>
<tr>
<td>6 to 14 Years</td>
<td>92</td>
<td>3.43</td>
<td>0.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 to 24 Years</td>
<td>32</td>
<td>3.31</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 or more Years</td>
<td>10</td>
<td>2.70</td>
<td>1.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals who have been in their present position for less time are more likely to think that students do not frequently access inappropriate materials on the Internet than do principals who have been in their positions for a longer time.
Table 21

Perceptions concerning the rapid technological changes on the Internet.

<table>
<thead>
<tr>
<th>Level of School</th>
<th>N</th>
<th>Means</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary Schools</td>
<td>114</td>
<td>2.46</td>
<td>0.99</td>
<td>5.99</td>
<td>0.02</td>
</tr>
<tr>
<td>Secondary Schools</td>
<td>176</td>
<td>2.20</td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of secondary schools are more likely to feel that the Internet changes so fast that it is difficult for them to keep pace with innovations than are principals of elementary schools.
Table 22

Perceptions concerning views that the Internet is more useful to teachers and students than to principals and age of principal.

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39 years</td>
<td>48</td>
<td>3.13</td>
<td>0.89</td>
<td>7.91</td>
<td>0.001</td>
</tr>
<tr>
<td>40 to 49 years</td>
<td>127</td>
<td>3.03</td>
<td>0.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 years or over</td>
<td>109</td>
<td>2.61</td>
<td>0.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals who are 50 years or older are more likely to think that the Internet is more useful to teachers and students than do principals who are younger.
Table 23

Perceptions concerning views that the Internet is more useful to teachers and students than to principals and years as principal.

<table>
<thead>
<tr>
<th>Years in present Position</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 5 years</td>
<td>156</td>
<td>3.54</td>
<td>0.78</td>
<td>3.66</td>
<td>0.01</td>
</tr>
<tr>
<td>6 to 14 Years</td>
<td>92</td>
<td>3.43</td>
<td>0.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 to 24 Years</td>
<td>32</td>
<td>3.31</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 or more Years</td>
<td>10</td>
<td>2.70</td>
<td>1.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals who have been in their present position for a longer period of time feel that the Internet is more useful to students and teachers than to principals, while principals who have been in their present position for less time feel that the Internet is not more useful to teachers and students than to principals.
Summary of differences that were statistically significant

The analyses showed that there were 33 items that showed statistically significant differences at the .05 level. These items involved six categories.

1. level of school (secondary/elementary)
2. location of school (urban/rural)
3. number of years in present position
4. age of principals
5. number of years as principals
6. size of school (population)

Principals' perceptions of the use of the Internet in administration most frequently were related to whether they were principals of either elementary or secondary schools and to the location of the school. The number of years in their present position, the age of the principal, and the number of years as a principal also were related to perceptions in some cases.

Open Ended Responses:

An open-ended item was included to solicit general responses on topics treated in the questionnaire. Respondents were invited to offer comments they felt were appropriate. Respondents offered a variety of diverse comments, some of which were contradictory or even somewhat obscure. These responses were solicited partly to provide possible illustrative material for discussion in the next chapter.

Responses were classified into five major categories:

1. Principals do not have enough time to “surf the Internet.”
2. Principals cannot keep pace with changes in technology.
3. Principals believe the Internet saves time.

4. Principals believe the Internet is not as useful as were led to believe.

5. Principals have developed district policies towards the use of the Internet.

The following comments by respondents could be summarized, “Principals do not have enough time to ‘surf the Internet’.”

“The Internet could be a powerful tool, but time is the biggest roadblock. There simply is not enough time to keep up.”

“As an administrator, I do not have the time I would like to explore the Internet. I have no planning time.”

“Need time to access and browse; time just isn’t there.”

“I use E-mail to mainly discuss school related issues with former teachers, colleagues and other principals in the area. It is often difficult to find specific items on the World Wide Web. I end up ‘surfing the Net,’ which is time consuming.”

“The difficulty of using the Internet as a principal, teacher or student is having the time to do so while still being held to the curriculum of the 50’s. Curriculum must use the Internet, must be built on Internet connections. This will help create the time and need.”

“Time is the greatest factor against me using the Internet. Having a purpose or plan is essential to being successful on the Internet, otherwise you are just wasting time.”

The following responses could be represented as, “I cannot keep pace with changes in technology.”
"I have had very modest exposure to this technology. Time requirements do not permit much “surfing.” I value the potential, but find that much of the material is valueless. Other information sources remain more valuable as regards accuracy and completeness of information. I expect to expand my horizons significantly in the next five years.”

"I am a ‘slow learner’ in this area. I’m not sure I responded correctly to some terminology. Given the opportunity, many students will seek taboo areas. I think we have this problem under control.”

"If only I had known 5 to 6 years ago that I would have access to all these technological advances and advantages, I would have developed skills, taken training, etc. I wish I were still teaching so I could use the Internet for research to benefit students.”

The following responses suggested that “The Internet saves time.”

"To work at our school, all employees must have E-mail and Internet accounts that are active. All written communications from the office to staff is electronic and paperless.”

"As an educational leader (and a very busy one) I have appreciated the opportunity to communicate with E-mail. This eliminates a lot of wasted time trying to find someone in their classroom or trying to reach them by telephone.”

"We are just now getting ready to access the Internet, E-mail etc. Everyone has been trained, teachers and students.”

"Our district has kept up with technology and the superintendent has been very much involved. For our size of district, I feel the teachers are very much involved.”
"I do not have Internet access in the principal’s office or near proximity. I would use E-mail if in the office area."

The following responses represented the idea that, “the Internet is not as useful as we are made to believe.”

“I am not sure whether the Internet is the greatest development of all times or the greatest scam. I think it is over-rated in its usefulness and in the quality and variety of information.”

“I feel that E-mail is good for certain types of communications but not all communications. We will still need phones, person to person and written documents. The Internet and Newsgroups are a wonderful source of information.”

Finally, the following responses related to policies about Internet use.

“Student supervision by responsible adults is a must.”

“I am strongly against the filtering system imposed by the Omaha Public Schools. We use both a filter and file protectors in our network.”

“Our school doesn’t screen the Internet. We have several classrooms using Internet for class projects.”
CHAPTER V

DISCUSSION AND CONCLUSIONS

This study focuses on principals’ perceptions regarding the use of the Internet for administration-related purposes. It examined their perceptions regarding the potential benefits of the Internet for principals, policies towards the use of the Internet, in-service training in the use of the Internet, and frequency of use of the Internet for administrative purposes. The following research questions were addressed in collecting data for the study:

- How important is E-mail to principals?
- How important is the World Wide Web to principals?
- How important are Newsgroups to principals?
- Do principals encourage staff to attend in-service training in the use of the Internet?
- Do principals encourage teachers to share good websites with each other?
- Do principals encourage teachers and students to develop Web Pages?
- Do principals allow teachers time to “surf the net” in order to find good lesson plans?
- Do principals use E-mail to communicate with students, teachers and parents?
- Do principals use the World Wide Web to access and share instructional ideas?
- Does the school have a Web Page?
• Do principals use the World Wide Web to gain access to information from federal and state governments?
• Do principals use E-mail or Newsgroups to get in touch with colleagues?
• Do principals have access to the Internet?
• How frequently do principals use E-mail?
• How frequently do principals use the World Wide Web?
• How frequently do principals use Newsgroups?
• For how long have principals used the Internet?
• How many hours of formal Internet training have principals received?
• For what purposes do principals use the Internet?
• What Internet tools do principals use most often?
• Do principals consider the cost of Internet-related software to be very high?
• Do principals consider the cost of Internet-related hardware to be very high?
• Do principals consider it hard to locate meaningful materials in the Internet?
• To what extent are principals concerned about privacy issues in the Internet?
• To what extent are principals concerned about students gaining access to inappropriate materials in the Internet?
Summary of Major Findings

Some of the potentially most important conclusions which were supported by data reported in the preceding chapter include those listed below.

1. Nearly all principals reported that their schools are connected to the Internet.
2. Slightly less than half reported that they have Internet access at home.
3. Nearly three quarters reported that their schools maintain a Web Page.
4. Nearly 90% believe that E-mail is important for principals.
5. Nearly three-quarters believe that the World Wide Web (WWW) is important for principals.
6. Nearly 70% believe that Newsgroups are important for principals.
7. Principals are almost unanimous in believing that E-mail, the World Wide Web, and Newsgroups will be more important for principals in five years than is presently the case.
8. Less than fifteen percent of principals reported that they often use E-mail to communicate with students or parents, but 69% reported that they often use E-mail to communicate with teachers.
9. Nearly half reported that they often use the WWW to gain access to instructional materials and about one-third reported that they often use the Web to access government information.
10. Less than 15% reported that they participate often in Newsgroups.
11. Nearly three-quarters reported that they use E-mail at least three times a week at work, but use of the WWW and Newsgroups is less frequent and sporadic.
12. Nearly one-fourth of the principals have received no formal training in use of the Internet, and nearly three-quarters have received less than six hours of training.

13. 80% of principals reported that they often provide Internet in-service training for teacher, while 40% report they often encourage teachers to share websites with good lesson plans. More than half reported that they often encourage development of web pages, and frequently allow teachers time to “surf the net”.

14. Approximately 50% of the principals who had definite opinions believe that Internet hardware is costly, and that there is very little privacy on the Internet. More than half believe that technology is changing too fast to keep pace with innovations. The latter perception is more prevalent among principals of secondary schools than principals of elementary schools.

15. Principals in rural schools do not consider E-mail to be as important as do urban principals.

16. Elementary principals use E-mail to communicate with teachers and colleagues more often than do secondary principals. They also are more likely to encourage their teachers to attend Internet in-service training.

17. Principals who have spent more time as administrators believe that students are more likely to access inappropriate Internet materials, than do principals who are newer to administration.

Discussion of Selected Issues

This exploratory study collected data which involve many important issues regarding schools’ use of the Internet for administration-related and other purposes.
Several of the most important and relevant of these issues are briefly discussed in this section.

**Principals’ availability of time for using the Internet.**

Only about half the principals reported that they frequently use the World Wide Web to access information, and few reported frequent participation in Newsgroups. Reactions in several of the open-ended responses suggest that lack of time is frequently an obstacle to more frequent and productive use of these and other capabilities of the Internet. For example, one respondent stated that he does not “have enough time to explore the Internet”, another stated that time “is the greatest factor against me using the Internet”, and a third stated that “time is the biggest roadblock” hampering his efforts to “keep up with the Internet”.

Responses and data cited above thus suggest that bringing about more frequent and productive use of the Internet by principals depends on development of explicit plans and arrangements to help them find more time to do so.

**Principals’ training to use the Internet.**

Nearly three quarters of the principals in this study have had less than six hours of training in using the Internet. Reactions in the open-ended responses suggest such relative lack of training is an important obstacle to frequent and productive use of the Internet. For example, one respondent stated that he would have participated in much more training had he known years ago how important the Internet would become, and another expressed regret at having been a “slow learner” regarding Internet technology and problems.
Responses and data cited above thus suggest that bringing about more frequent and productive use of the Internet in schools depends on provision of opportunities for principals to participate in appropriate training aimed at helping them understand Internet technology and problems.

**Availability of Internet resources for use by principals.**

Responses to several questionnaire items suggest that lack of availability of and easy access to Internet resources constitute additional obstacles to more frequent and productive use by principals. For example, few principals report using E-mail at home, and less than half even have Internet access at home. In addition, although this study did not collect data regarding the details of principals’ access to the Internet at work, responses indicating difficulties in finding time to use the Internet are compatible with the hypothesis that limited access may be a consideration in generating obstacles involving time limitations. This latter possibility should be examined explicitly in future research.

**Rapid changes in Internet technology.**

More than half the principals in this study believe that technology is changing too fast to keep pace with innovations. Responses on the open-ended items also suggest that principals are having trouble keeping up with rapid-changing Internet technology. For example, one respondent stated directly that he “cannot keep pace” and another stated that there simply is not enough time to “keep up”.

Both the questionnaire data and the open-ended responses support the conclusion that substantial efforts to help principals stay abreast of changes in Internet technology will have to be made if principals are to make more frequent and productive
use of the Internet. Evidence from this study thus agree with a study carried out by Knezevich (1969), which noted that technological advancement most often develops faster than human development is capable of implementing it. This creates a propensity for some principals to cling to the old and familiar rather than accept and utilize the new Internet technology.

**Potential importance of Newsgroups.**

The Internet allows principals who may have difficulties dealing with issues such as discipline, teaching styles, staff development, and conflict resolution, to subscribe to Newsgroups or simply post a question on an electronic or Newsgroup bulletin board. Taking into consideration its relatively low cost and worldwide audience, this form of communication can yield substantial benefits. This study found that nearly 90% of principals rarely or never use Newsgroups. If Newsgroups are to be used frequently and productively, it appears that specific plans need to be developed to attain this goal.

**Policy context of the study.**

The preceding discussion raises a number of questions for both educators and government policy makers. One of President Clinton’s educational goals is to see that all schools get connected into the “information Superhighway.” This vision was eloquently summarized by vice president Al Gore when he said

“Today, we have a dream for a different kind of superhighway that can save lives, create jobs and give every American, young and old, the chance for the best education available to anyone, anywhere. I challenge you…. to connect all of our classrooms, all of our libraries, and all of our hospitals and clinics by the year
Many K-12 schools and school districts are now showing considerable interest in being a part of the Internet. The main emphasis of Internet connectivity is to make American students competitive in the new global economy.

Topp et al (1996, p.3) quoting U.S. Congress Office of Technology Assessment, (1995, b, p. iii) further noted, “We believe that the ability to access information should no longer be considered an educational frill; it should be recognized as a necessary investment in our children’s education and, therefore, an essential item in the regular school budget…..We call on federal, state, and local policy makers in cooperation with the private-sector providers to develop new incentives and strategies so that schools can gain affordable access to communication services. In addition, any strategies that are developed to provide access to schools should ensure that costs are shared equitably.”

Federal, state and local education agencies have invested numerous resources in connecting schools to the Internet and the training of teachers and students. This study found that nearly all Nebraska elementary and secondary school are now connected to the Internet. Also apparent is that principals are encountering various difficulties involving lack of time, lack of training, and other obstacles—that inhibit frequent and productive use of the Internet. Given the fact that there has been virtually no other research on principals’ use of the Internet, the findings from this exploratory study should be helpful to school officials and other decision makers concerned with developing plans and arrangement to improve use of the Internet.
Suggestions for Further Research

This study suggests that Internet usage by many principals is far below levels that many specialists believe to be desirable and attainable. A possible area for further research is to develop and test support services that would fit the schedules of busy principals. Other potentially fruitful themes for research suggested by the data collected in this study include the following:

1. What can be done to improve principals' access to Internet technology?
2. What can be done to enhance principals' usage of Newsgroups?
3. What can be done to broaden principals' usage of E-mail?
4. What type of training on use of the Internet should be provided for principals, and how should it be delivered?
5. What particular policies should be developed and implemented at locations at which principals' use of the Internet is now most limited?

Conclusion

Recent breakthroughs in science and technology will continue to amaze the average person. Our children and grandchildren are going to live and work in a completely different environment from the one in which we now live. Their challenges and opportunities will be immense. School principals are very important in shaping the lives of these children. Giving principals the tools and skills they need to be informed in order to make better decisions is a worthwhile investment. This study does not suggest that less emphasis should be paid to the classroom preparation of children, but rather that principals should receive more help in using the Internet more frequently and
productively to help students and teachers take advantage of opportunities to improve learning. There is a Latin saying “You cannot give what you do not have”. We definitely want to equip principals with the tools they need to prepare students and teachers for the future. The Internet is one of the important tools for doing this.
REFERENCES


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Appendix A

Cover Letter and Questionnaire

Ekoka Andrew Molindo
125 North 39th Street #3
Omaha, NE 68131

September 7, 1997

Dear School Principal,

The enclosed questionnaire has been prepared to assess use of the Internet by public school principals in Nebraska. I am asking you to take a few minutes of your time to complete the enclosed questionnaire. The questionnaire generally takes no more than ten minutes to complete.

All information will remain confidential. Please return the self-addressed stamped questionnaire within five days of receipt.

The questionnaire is divided into five sections. Section one consists of biographical data concerning the school administrator who is responding. Section two consists of questions eliciting the attitudes of principals towards the use of the Internet. Section three deals with the benefits of the Internet to school principals. Section four deals with questions regarding how often principals use the Internet. Section five covers areas dealing with the level of experience school principals have with respect to the Internet.

I welcome any additional comments you may have concerning the topics dealt with in this questionnaire. Please write comments in the space provided at the bottom of the survey. The results of this survey will assist the Department of Educational
Administration and Supervision at the University of Nebraska to plan courses and seminars to meet the future Internet needs of teachers and school principals.

Returning this questionnaire indicates your informed consent, allowing the confidential information to be used in the research study.

The questionnaire has been approved by the Department of Educational Administration and Supervision at the University of Nebraska at Omaha and the Institutional Research Board. If you have any questions, please call me at:
(402) 554-2409 (Work), (402) 556-5829 (Home). Feel free to contact my advisors, Dr. Dan Levine and Dr. Martha Bruckner (402) 554-2721.

Thank you for your cooperation.

Sincerely,

Ekoka Andrew Molindo
QUESTIONNAIRE

Unprecedented social changes and technological innovations are sweeping across our schools, government and communities. Teaching, learning, working and administering in the "information age" require more than books, pencils, paper, talk, chalk, typewriters and calculators. The Internet is quickly becoming a very useful educational tool, yet very little is known about its effectiveness as an administrative tool. The purposes of this questionnaire are:

(1) To gather general demographic and perception information from principals that may provide a means to determine how the Internet may be used more effectively in schools.

(2) To gather information regarding principals’ attitudes towards the use of the Internet.

(3) To gather information regarding principals’ perceptions of benefits of the Internet in administration.

(4) To gather information to determine how often principals use the Internet.

(5) To gather information regarding school principals’ promotion of the Internet.

To gather information to determine the concerns principals have regarding the use of the Internet.

Anonymous and voluntary participation

All data collected in this questionnaire will remain in the strictest confidence. No individual data will be furnished in any report. Information will be analyzed and
described in terms of the sum of the data received. Participation in this survey is
voluntary and much appreciated.

Please indicate the responses to the following questions that best describe your
views and situation:
Part I: Demographics

Please check the box that applies or fill in the requested information.

If you do not have access to the Internet at your school at this time, please answer questions 1-9 and return the questionnaire to the address on the envelope.

Thank you.

1. Do you have access to the Internet at school?
   □ Yes □ No

2. Do you have access to the Internet at home?
   □ Yes □ No

3. Does your school have a homepage?
   □ Yes □ No

4. What is your age? ________________________________

5. How many years have you served as a school administrator?
   _______________________

6. How many years have you served in your current position?
   _______________________

7. What is the highest educational level you have achieved? ________________

8. What is the student population of your school? ________________________

9. Would you consider your school district as being urban, suburban or rural?
   □ Urban school □ Suburban School □ Rural school
Part II: Regarding your attitudes

10. How important is E-mail to you now as a principal?
    □ Very important  □ Of little importance
    □ Somewhat important □ Unimportant

11. How important do you think E-mail will be to principals five years from now?
    □ Very important  □ Of little importance
    □ Somewhat important □ Unimportant

12. How important is the World Wide Web to principals in your position?
    □ Very important  □ Of little importance
    □ Somewhat important □ Unimportant

13. How important do you think the World Wide Web will be to principals five years from now?
    □ Very important  □ Of little importance
    □ Somewhat important □ Unimportant

14. How important are Newsgroups to principals in your position?
    □ Very important  □ Of little importance
    □ Somewhat important □ Unimportant

15. How important do you think Newsgroups will be to principals five years from now?
    □ Very important  □ Of little importance
    □ Somewhat important □ Unimportant
Part III: Regarding the benefits of the internet

For each statement, please circle the letter that best approximates your experience.

<table>
<thead>
<tr>
<th></th>
<th>VO = Very Often</th>
<th>O = Often</th>
<th>R = Rarely</th>
<th>N = Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.</td>
<td>I use E-mail to communicate with students.</td>
<td>VO</td>
<td>O</td>
<td>R</td>
</tr>
<tr>
<td>17.</td>
<td>I use E-mail to communicate with parents.</td>
<td>VO</td>
<td>O</td>
<td>R</td>
</tr>
<tr>
<td>18.</td>
<td>I use E-mail to communicate with teachers and colleagues in my district.</td>
<td>VO</td>
<td>O</td>
<td>R</td>
</tr>
<tr>
<td>19.</td>
<td>I use E-mail to communicate with teachers and colleagues outside my district.</td>
<td>VO</td>
<td>O</td>
<td>R</td>
</tr>
<tr>
<td>20.</td>
<td>I use E-mail to enable me to review employee applications as part of the interview process.</td>
<td>VO</td>
<td>O</td>
<td>R</td>
</tr>
<tr>
<td>21.</td>
<td>I use “smart” software to maintain accurate student records.</td>
<td>VO</td>
<td>O</td>
<td>R</td>
</tr>
<tr>
<td>22.</td>
<td>I use the World Wide Web to gain access to instructional ideas.</td>
<td>VO</td>
<td>O</td>
<td>R</td>
</tr>
<tr>
<td>23.</td>
<td>I use the World Wide Web to gain access to information from federal and state governments.</td>
<td>VO</td>
<td>O</td>
<td>R</td>
</tr>
<tr>
<td>24.</td>
<td>I use Newsgroups to communicate with colleagues in my district.</td>
<td>VO</td>
<td>O</td>
<td>R</td>
</tr>
<tr>
<td>25.</td>
<td>I use Newsgroups to communicate with colleagues outside my school district.</td>
<td>VO</td>
<td>O</td>
<td>R</td>
</tr>
</tbody>
</table>
Part IV: Regarding Frequency of Use  (Check only 1 for each question)

26. In a typical week, how frequently do you use E-mail at work?
   □  Every work day.
   □  At least 3-4 days a week.
   □  At least 1-2 days a week.
   □  Less than 1 day a week.
   □  Never, even though our district does provide it.

27. Do you ever use E-mail on weekends for work purposes?
   □  Yes □  No

28. In a typical week, how frequently do you use E-mail at home?
   □  Every work day.
   □  At least 4-5 days a week.
   □  At least 2-3 days a week.
   □  At least 1 day a week.
   □  Never, even though I have access to E-mail.
   □  Never, largely because I do not have E-mail at home.

29. If you use E-mail at home, do you use it more for work or for personal purposes?
   □  I don’t use E-mail at home.
   □  Work purposes.
   □  Personal purposes.
30. How frequently do you use the World Wide Web?

☐ Every work day.
☐ At least 3-4 days a week.
☐ At least 1-2 days a week.
☐ Less than 1 day a week.
☐ Never, even though our district does provide it.

31. How often do you use Newsgroups?

☐ Every work day.
☐ At least 3-4 days a week.
☐ At least 1-2 days a week.
☐ Less than 1 day a week.
☐ Never, even though our district does provide it.
Part V: Regarding experience

32. For how long have you used the Internet? (Check only 1 for each question)
   □ 0-1 year
   □ 2-4 years
   □ 5-7 years
   □ More than 7 years

33. How many hours of formal Internet training have you received?
   □ None
   □ 1 - 5 hours
   □ 6 - 10 hours
   □ 11 - 15 hours
   □ More than 15 hours

34. What Internet tools do you use? (Please check all that apply)
   □ E-mail
   □ World Wide Web
   □ Newsgroups
   □ None
   □ Other (Please Specify) ____________________________
Part VI: Policies

For each statement, please circle the letter that best approximates your experience.

VO = Very Often  O = Often  R = Rarely  N = Never

35. I encourage my staff to attend in service-training in the use of the Internet.
   VO  O  R  N

36. I encourage teachers to share good Websites with each other.
   VO  O  R  N

37. I encourage teachers and students to develop Web Pages.
   VO  O  R  N

38. Teachers are allowed time to “surf the net” in order to find good lesson plans.
   VO  O  R  N

39. My district has a policy related to Internet use by staff.
   □ Yes  □ No

40. My school has a policy related to Internet use by staff.
   □ Yes  □ No

41. My district has a policy related to Internet use by students.
   □ Yes  □ No

42. My school has a policy related to Internet use by students.
   □ Yes  □ No
Part VII: Issues

For each statement, please circle the letter that best approximates your experience.

SA = Strongly Agree   A = Agree   D = Disagree   SD = Strongly Disagree
DK = Don't Know

43. The cost of Internet-related software is very high. SA A D SD DK
44. The cost of Internet-related hardware is very high. SA A D SD DK
45. It is hard to find meaningful materials in the Internet. SA A D SD DK
46. There is too little privacy in the Internet. SA A D SD DK
47. Students in my school frequently access inappropriate materials in the Internet. SA A D SD DK
48. I fear students may find a way to access school records through the Internet. SA A D SD DK
49. I cannot keep up with the rate of change in the Internet. SA A D SD DK
50. The Internet is more useful to teachers and students than to a principal SA A D SD DK
Feel free to add any comments related to the educational use of the Internet. Again, thank you very much for your participation.
Appendix B

Questionnaire Reviewers

The following individuals reviewed the introductory letter and the questionnaire before it was mailed to principals of elementary, middle and high schools in Nebraska.

The questionnaire was handed to them requesting comments, suggestions or recommendations.

<table>
<thead>
<tr>
<th>REVIEWER</th>
<th>POSITION</th>
<th>ORGANIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Lori Arias</td>
<td>Adviser, International Studies &amp; Programs</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Mr. Richard Brady</td>
<td>Doctoral Student</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Dr. Martha Bruckner</td>
<td>Member, Doctorate Supervisory Committee</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Dr. James Conyers</td>
<td>Chair, Black Studies</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Dr. &quot;Rusty&quot; Crawford</td>
<td>Coordinator, Vice Chancellor Academic Affairs</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Dr. Richard Dierkhising</td>
<td>District Supervisor</td>
<td>Council Bluffs Community Schools</td>
</tr>
<tr>
<td>Ms. Sharon Emery</td>
<td>Adviser, International Studies &amp; Programs</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Dr. Neal Grandgenett</td>
<td>Member, Doctorate Supervisory Committee</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Mr. Franklin Hartranft</td>
<td>Assistant Director for Academic Computing</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Dr. Gary Hartzell</td>
<td>Professor</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Ms. Tara Knudson</td>
<td>Director, Student Activities</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Dr. Daniel Levine</td>
<td>Chair, Doctorate Supervisory Committee</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Dr. Tom Lorsbach</td>
<td>Professor</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>REVIEWER</td>
<td>POSITION</td>
<td>ORGANIZATION</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Mr. Bob Lykke</td>
<td>Principal</td>
<td>Anderson Middle School, Millard</td>
</tr>
<tr>
<td>Dr. Jack McKay</td>
<td>Member, Doctorate Supervisory Committee</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Ms. Susan McNeill</td>
<td>Doctoral Student</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Ms. Patrice Pittman</td>
<td>Staff Secretary II Student Activities</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Ms. Vickie Stone</td>
<td>Administrative Technician International Studies &amp; Programs</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Dr. Franklin Thompson</td>
<td>Teacher Education</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Dr. Don Uerling</td>
<td>Member, Doctorate Supervisory Committee</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Dr. Vance Valerio</td>
<td>Assistant Vice Chancellor</td>
<td>University of Nebraska at Omaha</td>
</tr>
<tr>
<td>Dr. Sybouts Ward</td>
<td>Professor</td>
<td>University of Nebraska Lincoln</td>
</tr>
</tbody>
</table>
Appendix C

Request for the Institutional Research Board (IRB) Exemption Status

Date: August 18, 1997

To: Institutional Review Board Members

CC: Drs. Levine, Bruckner, and Grandgenett

From: Ekoka Molindo

Subject: Doctoral Study Protocol for IRB Exempt Status

RE: REQUEST FOR RESEARCH EXEMPTION STATUS

The attached documents are submitted for your review to determine whether my proposal qualifies for exempt status under 45 CFR 46:101.

Thank you for your attention.

Sincerely,

Ekoka Molindo
125 North 39th Street #3
Omaha, Nebraska 68131
PHONE (402) 556-5829
FAX (402) 554-3515
Protocol for Implementation Study

by

Ekoka Molindo

Purpose of Study

The purpose of this study is to examine the perceptions of school principals towards the use of the Internet for administration-related purposes. This descriptive study will focus on the potential benefits and problems of Internet use by school principals. The research questions will focus on seven areas: demographics, attitudes, benefits of the Internet, frequency of use, experience, policies and issues.

Characteristics of the Subject Population

1. Age range of the subjects is adult school principals from 30 years to 65 years of age.
2. Sex Subjects could be either male or female.
3. There are 292 school principals involved in the study.
4. Subjects were selected by a public mailing list of all principals in K-12 schools in Nebraska.

Method of Subject Selection

The method of selection is based on voluntary participation of the subjects.

Study Sites

The study covers most public schools in Nebraska.
Description of Procedures

Study procedures include responses to a survey questionnaire. A copy of the questionnaire is attached.

Confidentiality

All data collected in the questionnaire will remain in the strictest confidence. No individual data will be furnished in any report.

Informed Consent

A cover letter will explain the study to participants. Their completion of the survey will indicate their consent.

Justification of Exemption

The study is exempt per exempt category one. All of the required conditions are met as follows:

1. All research is conducted based on information from the public schools.

2. Research involves normal educational practices (response to questionnaire on the use of the Internet by school principals).

3. The study procedures do not represent a significant deviation in time or effort requirements from those educational practices already in existence at the study site. The survey took approximately 10 minutes for each of the respondents to complete.

4. The study procedures involve no increase in the level of risk or discomfort attendant normal, routine educational practices.

5. The study procedures do not involve sensitive subjects, this study accesses the use of the Internet by public school principals.
6. Provisions are made to ensure the existence of a non-coercive environment for those principals and vice principals who may choose not to participate. In this case, they simply did not return the survey. Also, all results will be published as aggregate data.

7. Since the school principals are completing the survey themselves, they represent institutional approval.
Appendix D

Exemption Status Authorization Form (Letters)
EXEMPTION FORM

SECTION I: APPLICATION DATA

TITLE OF RESEARCH PROPOSAL: Principals' Perceptions of Administration-Related Uses of the Internet: An Exploratory Study

STARTING DATE: December, 1997

PRINCIPAL INVESTIGATOR: Ekoka Andrew Molindo

SECONDARY INVESTIGATOR(S): /

DEPARTMENT/COLLEGE: Educational Administration and Supervision, UNOmaha

ADDRESS: KH 414 UNOmaha, 6001 & Dodge Street Omaha Nebraska 68182

TELEPHONE: (402) 554-2721

SECTION 2: CERTIFICATION

CERTIFICATION OF PRINCIPAL INVESTIGATOR: Signature certifies that the research project as described will be conducted in full compliance with University of Nebraska Regulations governing human subject research as stated in the IRB Guidelines for the Protection of Human Subjects. It is understood that the IRB will be notified of any proposed changes which may affect the exempt status of the research.

August 6, 1997

Signature of Principal Investigator

Position

Graduate Teaching Assistance, University Division, UNomaha

ADVISOR APPROVAL: Student investigators are required to obtain approval from their advisor. Signature of approval certifies the research proposal has been approved and recommended for submission to the IRB.

August 6, 1997

Signature of Advisor

Printed Name of Advisor

Dr. Dan U. Levine

The IRB requires submission of an original and one (1) copy of the Exemption Form.
August 20, 1997

Ekoka Molindo
Department of Educational Administration - UNO

IRB#: 173-97-EX

TITLE OF APPLICATION/PROTOCOL: Perceptions of School Principals Related to the Use of the Internet in Nebraska Schools

Dear Ms. Molindo:

The IRB has reviewed your Exemption Form for the above-titled research project. According to the information provided, this project is exempt under 45 CFR 46:101b, category 2. You are therefore authorized to begin the research.

It is understood this project will be conducted in full accordance with all applicable sections of the IRB Guidelines. It is also understood that the IRB will be immediately notified of any proposed changes that may affect the exempt status of your research project.

Please be advised that the IRB has a maximum protocol approval period of five years from the original date of approval and release. If this study continues beyond the five year approval period, the project must be resubmitted in order to maintain an active approval status.

Sincerely,

Ernest D. Prentice, PhD
Vice Chair, IRB

EDP:jlg
September 16, 1997

Ekoka Molindo
125 North 39 Street #3
Omaha, NE 68131

Dear Mr. Molindo:

We have received your letter requesting to conduct a survey of selected principals in the Omaha Public Schools. You state that your study is designed to measure the perception of school principals related to the use of the internet.

You indicate your method of data collection consists of a questionnaire containing five sections dealing with biographical information, attitudes, benefits, frequency, and experience related to internet use.

We believe your study has merit and permission is granted for you to proceed under the following conditions:

- Principals in affected buildings agree to your study.
- In the reporting of the data schools will not be personally identifiable.
- You will be willing to share results of your study with OPS.

Best wishes.

Sincerely,

Peter Smith
Coordinator of Research

cc: Principals: Bryan Sr., Burke, Central, North, Northwest, South, Beveridge, Bryan MS, Hale MS, King Science Center, Marrs MS, McMillan MS, Monroe MS, Morton MS, Norris MS, Wilson, Belvedere, Blackburn, Parrish, Skinner, King Primary, Belle Ryan, Boyd, Crestridge, Franklin, Hartman, Jefferson, Kennedy, Marrs Elem., Minne Lusa
Appendix E

Demographic Data with Various Dependent Variables Using Standard Deviation at the Level of Significance of > 0.05.

Tables 24–47 represent data that show no significant differences when comparing demographic data with various dependent variables using Standard Deviation at the level of significance of > 0.05.
Table 24

**The Importance of E-mail and Age of Principal**

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39 years</td>
<td>49</td>
<td>1.63</td>
<td>0.81</td>
<td>1.1</td>
<td>0.34</td>
</tr>
<tr>
<td>40 to 49 Years</td>
<td>130</td>
<td>1.55</td>
<td>0.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 Years or over</td>
<td>109</td>
<td>1.71</td>
<td>0.87</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of all ages consider E-mail to be important to administrators.
Table 25

The Importance of E-mail and Size of School

<table>
<thead>
<tr>
<th>School Size</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 250</td>
<td>75</td>
<td>1.68</td>
<td>0.79</td>
<td>0.37</td>
<td>0.77</td>
</tr>
<tr>
<td>251 to 500</td>
<td>143</td>
<td>1.64</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>501 to 800</td>
<td>44</td>
<td>1.52</td>
<td>0.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>801 and over</td>
<td>29</td>
<td>1.62</td>
<td>0.86</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of all school sizes consider E-mail to be important in administration.
Table 26

The Importance of E-mail and years in present position.

<table>
<thead>
<tr>
<th>Years in present position</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 5 Years</td>
<td>124</td>
<td>1.67</td>
<td>0.80</td>
<td>2.05</td>
<td>0.11</td>
</tr>
<tr>
<td>6 to 14 Years</td>
<td>86</td>
<td>1.47</td>
<td>0.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 to 24 Years</td>
<td>68</td>
<td>1.72</td>
<td>0.90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 or more Years</td>
<td>14</td>
<td>1.86</td>
<td>0.86</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals, regardless of the time spent in their present position seem to consider E-mail to be important to principals in the discharge of their administrative tasks.
Table 27

Principals’ Use of E-mail in Communicating With Students and Age of Principal

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39 years</td>
<td>49</td>
<td>3.45</td>
<td>0.68</td>
<td>0.95</td>
<td>0.39</td>
</tr>
<tr>
<td>40 to 49 years</td>
<td>130</td>
<td>3.32</td>
<td>0.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 years or over</td>
<td>109</td>
<td>3.45</td>
<td>0.70</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of all ages rarely or never use E-mail to communicate with students.
Table 28  
**Principals’ Use of E-mail in Communicating With Students and Years as Principal**

<table>
<thead>
<tr>
<th>Years as Principal</th>
<th>N</th>
<th>Mean</th>
<th>Standards Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9 years</td>
<td>124</td>
<td>3.42</td>
<td>0.73</td>
<td>0.68</td>
<td>0.57</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>86</td>
<td>3.30</td>
<td>0.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>68</td>
<td>3.53</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 years or more</td>
<td>14</td>
<td>3.57</td>
<td>0.51</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals, hardly ever communicate with their students through e-mail, regardless of years of experience.
Table 29

Principals' Use of E-mail in Communicating With Parents and Age of Principal

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39 years</td>
<td>49</td>
<td>3.53</td>
<td>0.68</td>
<td>0.20</td>
<td>0.82</td>
</tr>
<tr>
<td>40 to 49 Years</td>
<td>130</td>
<td>3.47</td>
<td>0.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 Years or over</td>
<td>109</td>
<td>3.51</td>
<td>0.63</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of all ages rarely or never use E-mail to communicate with parents.
Table 30

Principals' Use of E-mail in Communicating With Parents and Years As a Principal

<table>
<thead>
<tr>
<th>Years as Principal</th>
<th>N</th>
<th>Mean</th>
<th>Standards Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9 years</td>
<td>124</td>
<td>3.51</td>
<td>0.62</td>
<td>1.35</td>
<td>0.26</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>86</td>
<td>3.43</td>
<td>0.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>68</td>
<td>3.49</td>
<td>0.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 years or more</td>
<td>14</td>
<td>3.79</td>
<td>0.43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals, regardless of years as a principal tend to hardly ever communicate with parents through E-mail.
Table 31

Principals' Use of E-mail in Communicating With Teachers and Colleagues Within the District and Years As a Principal.

<table>
<thead>
<tr>
<th>Years as Principal</th>
<th>N</th>
<th>Mean</th>
<th>Standards Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9 years</td>
<td>124</td>
<td>2.10</td>
<td>1.02</td>
<td>0.72</td>
<td>0.54</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>86</td>
<td>1.92</td>
<td>1.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>68</td>
<td>2.10</td>
<td>1.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 years or more</td>
<td>14</td>
<td>2.21</td>
<td>1.12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals use E-mail to communicate with teachers and colleagues within their own school district relatively often.
Table 32

Principals' Use of E-mail in Communicating With Teachers and Colleagues Within the District and the Age of the Principal

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39 years</td>
<td>49</td>
<td>2.08</td>
<td>0.91</td>
<td>0.98</td>
<td>0.14</td>
</tr>
<tr>
<td>40 to 49 years</td>
<td>130</td>
<td>2.15</td>
<td>0.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 years or over</td>
<td>109</td>
<td>2.36</td>
<td>0.94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of all ages often use E-mail to communicate with teachers and colleagues outside the school district.
Table 33

Principals' Use of E-mail for Employment Purposes and Years as a Principal

<table>
<thead>
<tr>
<th>Years as Principal</th>
<th>N</th>
<th>Mean</th>
<th>Standards Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9 years</td>
<td>124</td>
<td>3.81</td>
<td>0.55</td>
<td>0.65</td>
<td>0.58</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>86</td>
<td>3.86</td>
<td>0.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>68</td>
<td>3.90</td>
<td>0.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 years or more</td>
<td>14</td>
<td>3.86</td>
<td>0.54</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals almost never use E-mail to review employee applications as part of the interview process regardless of experience.
Table 34

Principals’ Use of the World Wide Web to Access Instructional Ideas and Age of Principal.

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39 years</td>
<td>49</td>
<td>2.43</td>
<td>0.76</td>
<td>1.48</td>
<td>0.23</td>
</tr>
<tr>
<td>40 to 49 years</td>
<td>130</td>
<td>2.53</td>
<td>0.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 years or over</td>
<td>109</td>
<td>2.66</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of all ages often use the World Wide Web to gain access to instructional ideas.
Table 35

Principals’ Use of the World Wide Web to Access Information From the Federal and State Governments and Age of Principal

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39 years</td>
<td>49</td>
<td>2.53</td>
<td>0.82</td>
<td>2.75</td>
<td>0.07</td>
</tr>
<tr>
<td>40 to 49 years</td>
<td>130</td>
<td>2.78</td>
<td>0.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 years or over</td>
<td>109</td>
<td>2.86</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of all ages rarely use the World Wide Web to access information from State and Federal governments.
Table 36

Principals' Use of Newsgroups to Communicate With Teachers and Colleagues Within the District and Years as a Principal

<table>
<thead>
<tr>
<th>Years as Principal</th>
<th>N</th>
<th>Mean</th>
<th>Standards Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9 years</td>
<td>124</td>
<td>3.35</td>
<td>0.79</td>
<td>1.72</td>
<td>0.16</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>85</td>
<td>2.35</td>
<td>0.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>67</td>
<td>3.58</td>
<td>0.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 years or more</td>
<td>14</td>
<td>3.43</td>
<td>0.65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals rarely use Newsgroups to communicate with colleagues within their school district.
Table 37

Principals’ Propensity to Encourage Their Staff to Attend Internet In-service Training and Years as a Principal

<table>
<thead>
<tr>
<th>Years as Principal</th>
<th>N</th>
<th>Mean</th>
<th>Standards Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9 years</td>
<td>124</td>
<td>1.86</td>
<td>0.67</td>
<td>1.55</td>
<td>0.20</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>86</td>
<td>1.70</td>
<td>0.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>68</td>
<td>1.74</td>
<td>0.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 years or more</td>
<td>14</td>
<td>1.57</td>
<td>0.51</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals with different years of experience often encourage their staff to attend in-service in the use of the Internet.
Table 38

Principals’ Propensity to Encourage Their Staff to Attend Internet in-service Training and Age of Principal.

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39 years</td>
<td>49</td>
<td>2.12</td>
<td>0.90</td>
<td>1.76</td>
<td>0.17</td>
</tr>
<tr>
<td>40 to 49 years</td>
<td>130</td>
<td>1.92</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 years or over</td>
<td>109</td>
<td>1.86</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of all ages often encourage teachers to share good Websites with each other.
Table 39

Principals' Propensity to Encourage their Teachers and Students to Develop Web Page and the Age of the Principal

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39 years</td>
<td>49</td>
<td>2.45</td>
<td>0.89</td>
<td>0.13</td>
<td>0.88</td>
</tr>
<tr>
<td>40 to 49 years</td>
<td>130</td>
<td>2.49</td>
<td>0.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 years or over</td>
<td>109</td>
<td>2.43</td>
<td>0.89</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of all ages rarely encourage their teachers and students to develop Web pages.
Table 40

Principals' Willingness to Allow Time for Teachers to "surf the net" in order to Find Good Lesson Plans and Age of Principal.

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39 years</td>
<td>49</td>
<td>2.35</td>
<td>0.83</td>
<td>1.03</td>
<td>0.36</td>
</tr>
<tr>
<td>40 to 49 years</td>
<td>129</td>
<td>2.38</td>
<td>0.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 years or over</td>
<td>109</td>
<td>2.23</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of all ages often allow time for teachers to surf the net in order to find good lesson plans.
Table 41

Principals' Perception of the High Cost of Internet Software and Age of Principal

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39</td>
<td>49</td>
<td>3.27</td>
<td>1.23</td>
<td>2.29</td>
<td>0.10</td>
</tr>
<tr>
<td>years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 to 49</td>
<td>129</td>
<td>3.45</td>
<td>1.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 years or</td>
<td>109</td>
<td>3.12</td>
<td>1.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>over</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of all ages do not think that the cost of Internet software is very high.
Table 42

Principals’ Perceptions of Finding Meaningful Materials in the Internet and Years as Principal

<table>
<thead>
<tr>
<th>Years as Principal</th>
<th>N</th>
<th>Mean</th>
<th>Standards Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9 years</td>
<td>123</td>
<td>3.32</td>
<td>0.74</td>
<td>0.70</td>
<td>0.55</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>86</td>
<td>3.29</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>67</td>
<td>3.40</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 years or more</td>
<td>14</td>
<td>3.07</td>
<td>0.83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals, regardless of their time spent as a principal do not think that it is hard to find meaningful materials in the Internet.
Table 43

<table>
<thead>
<tr>
<th>Years as Principal</th>
<th>N</th>
<th>Mean</th>
<th>Standards Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9 years</td>
<td>123</td>
<td>2.94</td>
<td>1.21</td>
<td>0.79</td>
<td>0.50</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>86</td>
<td>2.73</td>
<td>1.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>68</td>
<td>2.97</td>
<td>1.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 years or more</td>
<td>14</td>
<td>2.71</td>
<td>1.07</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals, of all levels of experience do not think that there is too little privacy on the Internet.
Table 45

Principals' Perceptions of the Issue of Students' Propensity to Access Inappropriate Material on the Internet and Age of Principal

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39 years</td>
<td>48</td>
<td>3.48</td>
<td>0.85</td>
<td>1.02</td>
<td>0.36</td>
</tr>
<tr>
<td>40 to 49 years</td>
<td>130</td>
<td>3.29</td>
<td>0.92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 years or over</td>
<td>109</td>
<td>3.33</td>
<td>0.73</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals of all ages do not feel concerned about students in their schools accessing inappropriate materials on the Internet.
Table 45

Principals’ Perceptions of the Issue of Students being Able to Access School Records on the Internet and Years as a Principal.

<table>
<thead>
<tr>
<th>Years as Principal</th>
<th>N</th>
<th>Mean</th>
<th>Standards Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9 years</td>
<td>123</td>
<td>3.31</td>
<td>0.93</td>
<td>0.40</td>
<td>0.76</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>86</td>
<td>3.33</td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>68</td>
<td>3.35</td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 years or more</td>
<td>14</td>
<td>3.57</td>
<td>0.65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals, regardless of their time spent as a principal are not concerned about their students finding a way to access school records through the Internet.
Table 46

Principals' Perceptions of Rapid Technological Changes On the Internet and Years as a Principal

<table>
<thead>
<tr>
<th>Years as Principal</th>
<th>N</th>
<th>Mean</th>
<th>Standards Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9 years</td>
<td>123</td>
<td>2.37</td>
<td>0.94</td>
<td>1.38</td>
<td>0.25</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>86</td>
<td>2.34</td>
<td>0.90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>68</td>
<td>2.21</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 years or more</td>
<td>14</td>
<td>1.92</td>
<td>0.48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals, regardless of their time spent as a principal agree that they cannot keep up with the rate of change on the Internet.
Table 47

Principals’ Perceptions of the Issue of the Internet Being More Useful to Teachers and Students than to Principals and Years as a Principal.

<table>
<thead>
<tr>
<th>Years as Principal</th>
<th>N</th>
<th>Mean</th>
<th>Standards Deviation</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9 years</td>
<td>122</td>
<td>3.02</td>
<td>0.92</td>
<td>1.70</td>
<td>0.17</td>
</tr>
<tr>
<td>10 to 19 years</td>
<td>84</td>
<td>2.82</td>
<td>0.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 29 years</td>
<td>68</td>
<td>2.75</td>
<td>1.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 years or more</td>
<td>14</td>
<td>2.64</td>
<td>0.84</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principals, regardless of their time spent as a principal do not think that the Internet is more useful to teachers and students than to principals.