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Use of the Internet as an Information Source by Iowa K-12 Public School Library Media Specialists

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Use of the Internet as an Information Source
by Iowa K-12 Public School Library Media Specialists

A Graduate Research Paper

Submitted to the

Department of Curriculum and Instruction
Division of Library Science

in Partial Fulfillment

of the Requirements for the Degree

Master of Arts

UNIVERSITY OF NORTHERN IOWA

by
Patricia Moore
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This Research Paper by Patricia Moore

Use of the Internet as an Information Source by Iowa K-12 Public School Library Media Specialists

has been approved as meeting the research paper requirements for the Degree of Master of Arts.

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Abstract

This research study surveyed Iowa school library media specialists in order to assess their use of the Internet as an information source. It also tested the importance of training and location of the Internet connection as contributions to the use of the Internet as an information source.

This study provides a status report on the number of Iowa school library media specialists using the Internet as an information source. The research reached four conclusions: 1) the majority (79.78%) of Iowa school library media specialists with Internet connections in their schools use the Internet as an information source, 2) the majority (59.78%) of these Iowa school library media specialists who use the Internet as an information source have an Internet access point in the media center, 3) only a minority (8.17%) of these Iowa school library media specialists who use the Internet as an information source had some formal college or university Internet training, and 4) just under a majority (44.52%) of these Iowa school library media specialists who use the Internet for information are using the World-Wide Web regularly to daily.

This study, using Iowa data for comparison, provides school personnel with background for the creation and support of those training and Internet conditions most likely to result in information use of an Internet connection.

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Chapter 1

Introduction

School library media specialists with Internet skills are gaining access to an enormous array of information and reference sources, gaining experience in using computer networks for education and business, helping local researchers and augmenting the local library collection. The Internet, originally the Advanced Research Projects Agency (ARPANET) of the U.S. Department of Defense, was developed in 1969 as an experimental project to support military research. In the late 1970s the National Science Foundation (NSF) became involved and developed six supercomputer centers around the United States. As scientists were encouraged to access the supercomputers in the 1980s, the groundwork was laid for colleges and universities to connect to the Internet. In 1991 President Bush signed legislation known as NREN, the National Research and Education Network, which included the goal of a national computer network that would serve the education and research community (McClure, 1993, p. 161). President Clinton promised in "Technology for America's Economic Growth, a New Direction to Build Economic Strength," that access to the Internet and developing NREN "will be expanded to connect university campuses, community colleges, and K-12 schools to a high-speed communications network providing a broad range of information resources" (Clinton and Gore, 1993, p. 14). For its part, the state of Iowa put into effect the Iowa Communications Network that seeks to

provide an Internet connection for every school and library (Iowa Communications Network, 1995).

Information Power (American Association of School Librarians...), the 1988 national guidelines for media specialists, dovetails with current national and state legislation. Media specialists are to "ensure that students and staff are effective users of ideas and information," including "intellectual access to information through systematic learning activities which develop cognitive strategies for selecting, retrieving, analyzing, evaluating, synthesizing, and creating information at all age levels and in all curriculum content areas." This includes "access to information and materials outside the library media center and the school building" (p. 1). Media specialists are "to provide leadership, instruction, and consulting assistance in the use of instructional and information technology" (p. 2).

Repeatedly, in a variety of ways, professional media publications have encouraged librarians to look outside their own buildings for resources to meet the needs of their patrons. In 1990, an American Library Association Reference committee published guidelines stating that all libraries "have an inherent obligation to provide information service to support the educational, recreational, personal, and economic endeavors of the members of their respective communities." This information service "should encourage user awareness of the potential of information resources to fulfill individual information needs" (American Library Association Reference..., p. 262). The guidelines further demanded that the "library's building should not be a boundary to its

information services. It should identify and employ external databases, agencies, and services to help meet the information needs of its community" (p. 263).

Librarians are being challenged professionally to learn what they can about the Internet, just as they would learn about any new information source. <u>Library Literature Index</u> started using "Internet" as a subject heading in April, 1992, and there were already 18 citations by August, 1992 (Stabler, 1994, p.17). March 1995, had 499 citations with the single heading "Internet (Computer Network)" and many more citations under various subheadings. The need for this librarian expertise was stated simply in <u>Zen and the Art of the Internet</u>: "The largest problem people face when first using a network is grasping all that's available" (Kehoe, 1992, p. 5). This is where media specialists come in. John Pollitz (1994) was sure the Internet would become easier for everyone to use, "but it is the vast scope of information that calls out for involvement by librarians. . . ." He continued:

> Our job as reference librarians has always been to connect people with the information they need. If electronic information available on the Internet best fulfills that requirement, we must know where the information is and how to retrieve it. . . . It is our knowledge of all formats of information that will make us valuable to the people we serve. (p. 136)

Daniel P. Dern quoted Marian Bremer, a former public librarian, as saying the Internet "has accelerated changes in our concepts of information resources and ways to get them." Dern includes Bremer's summarization:

> The Internet is (among other things) a GIANT library, rapidly becoming a viable information delivery system for all its users. For information which is on-line, all libraries are rapidly becoming your local library. Already, many once-separate resources can be explored as one large distributed resource, with a single keystroke or click of a mouse. . . . We all need saving from a world with too much information. The Internet's geometrically growing seas of data need [librarians] more than ever, to help guide the organization and labelling of the 'virtual stacks,' and to develop sensible strategies for incorporating its resources into those already proven. Otherwise you can wander for hours without finding what you're looking for. (Dern, 1994, p. 443)

No one is sure how many Internet users are educators. The U.S. Department of Education does not keep such records nor do individual state offices concerned with educational technology. Although there are few published statistics and research projects, evidence abounds that use of the Internet as an information source by media specialists is an issue worthy of study. LM_NET (School Library Media & Network Communications), an international listserv for school library people, serves as one source for the posting of librarian reference successes. Stories of success by librarians using the Internet have been collected by Internet user Karen Schneider. She posted 22 Internet reference success stories on LM_NET in September 1993 (1994a). In June 1994, she posted 25 more examples of reference success stories (1994b). She included a third volume of Success Stories at her own WWW site (1995). She concluded that "the Internet provided information that would otherwise have been inaccessible. In some cases, currency or speed

of retrieval made the Internet the best resource to turn to." In her initial posting she noted that e-mail and telnet were the premiere document search and retrieval tools; listservs and gophers were the top applications within these media (1994a). In her second posting, Schneider noted "the evolution of Internet reference behavior." Answers to her second posting included skilled use of subject-oriented discussion lists where librarians often tapped the brains of other librarians. She collected the success stories as "proof that librarians can use the Internet to answer reference questions" (1994b).

The largest library in the United States, the Library of Congress, went online with a gopher site in the summer of 1993 making its 21 million catalog records, citations to federal legislation since 1973, copyrights since 1978, Braille materials and legal references available to anyone with access to a computer ("LC Now. . ." 1993, p. 16). The Library of Congress also added a reference librarian function where people can send questions and receive answers with e-mail. In 1994, the Library of Congress, aware of access changes on the Internet, opened its own WWW site, thereby remaining current in Internet information retrieval and further expanding their service.

More evidence that the Internet is an important information source is the addition of courses to some college curricula. Since 1991, the Kennedy Library at California's Polytechnic State University has offered a 10-week, one-credit course for undergraduates that focuses on accessing library catalogs and full-text databases through the Internet. Ilene Rockman (1993)

addressed the history of this course: "As these electronic tools continue to proliferate, reference librarians have an obligation, and what may seem to be an overwhelming challenge, to keep up and to stay current with both network and resource developments" (p. 66).

Doug Johnson (1994a) created a set of Internet rubrics for a 30-hour graduate level Internet class for library media professionals in Minnesota. The rubrics contain four levels of mastery in each of 10 general areas. He reported that his first class began with only six of the forty students starting at the highest three and four levels, but the class concluded with all 40 students at levels three and four. None of the forty students began at level four, but 16 finished at this level (1994b). These university offerings are evidence of the growing interest in the Internet as an information source.

Iowa media specialists, aware of the professional impetus from Information Power and other guidelines, have been expanding their awareness of the Internet too. It is being added as a research tool and class offering at universities and schools across the state. Iowa media specialists participate in professional listservs, exchange e-mail with colleagues and explore the Internet for information relevant to their patrons' needs. What is happening around the world to professional media specialists is also happening in the state of Iowa.

Problem Statements

This research study was designed to survey Iowa school library media specialists in order to assess their use of the Internet as an information source and to identify training and location of the Internet connection as contributions to the use of the Internet as an information source. The following questions were answered:

1) How many Iowa-employed school library media specialists at schools with Internet connections were using the Internet as an information source?

2) Where were Internet connections located in relation to these media specialists' work areas in schools when the Internet was used as an information source?

3) What kind of Internet training was present when these Iowa school library media specialists used the Internet as an information source?

4) Which specific Internet tools were being used most often by these Iowa school library media specialists?

Hypotheses

The hypotheses of this study were:

1) The majority of Iowa school library media specialists with Internet connections in their schools were using the Internet as an information source.

2) The majority of these Iowa school library media specialists who used the Internet as an information source had an Internet access point in the media center.

3) The majority of these Iowa school library media specialists who used the Internet as an information source had some formal college or university Internet training.

4) The majority of these Iowa school library media specialists who used the Internet for information were using the World-Wide Web (WWW) regularly to daily.

Assumptions

An assumption was made that libraries were seen as an important link between their patrons and the Internet. A second assumption was that the Internet had information resources that could be used in school libraries. A third assumption was made that students were capable of using Internet information services. A final assumption was that schools were willing to make a commitment to provide Internet connections because of their potential information value.

Limitations

This study was limited to K-12 Iowa-endorsed and Iowa-employed public school library media specialists who had access to an Internet connection in their school district. School library media programs included in this research were identified as possible Internet users by their Area Education Agencies. This study looked only at whether the media specialist was using the Internet to access information. Districts with more than one media specialist were represented more than once, but comparisons were not made among districts. The research focused on the number of media specialists in Iowa who were currently using the Internet as part of their job responsibilities. It compared location of Internet

connection and Internet training of media specialists who did and did not use the Internet, but it did not compare elementary, middle school, junior high or secondary users to one another. It did not evaluate the information that was accessed. It did not look at the barriers to Internet use. It did not research curriculum uses of the Internet. It did not research nor attempt to evaluate the use of particular tools. Issues of site authority or censorship issues were not studied. This study looked only at training of the media specialist and location of the Internet connection as factors contributing or inhibiting use of the Internet by media specialists. Limitations of survey instrumentation applied. Results were dependent on respondents returning the surveys. Although terms used were common on the Internet, they may have been unknown to new users. The definition of "occasionally" and "regularly" may have varied from respondent to respondent. Schools identified by their AEA as not having Internet access did not receive surveys; no verification of this AEA information was made. The relevance of the statistics gathered was limited because of the continuing expansion of Internet access by Iowa schools.

Definition of Terms

The following definitions apply:

An *information source* is any use of the Internet that connects a library user to information available through the Internet. Use of the Internet as an information source is synonymous with use of the Internet as a reference source.

A *reference source* is a depository of information.

The **public school library media specialist** is a person who has met the educational requirements of an Iowa-approved endorsement program, both in education and school library media and who is assigned as the director of a public school library media center.

The **Internet** is a computer-to-computer network that interconnects hundreds of computer networks around the world (Berger, 1993, p. 1).

A **tool** is any of the processes, search engines or information sharing services that connect an Internet user to information. Examples of tools are bulletin boards, e-mail, FTP, gopher, listservs, news groups, telnet and the World-Wide Web.

Bulletin board systems are an Internet service, usually government, commercial or community-sponsored, that posts information about their particular interest for users to access (Diaz, 1994, p. 9).

A **news group** is an Internet service that posts messages at a particular address to those users with interests in that subject (p. 6).

E-mail (electronic mail) is the process of sending and receiving messages from one computer to another (Berger, p. 8).

A **listserv**, also called a discussion group, is an Internet service that posts messages to a group of subscribers with interests in a particular subject (p. 8).

Gophers are a research tool that provides a hierarchical menu system for locating directories and files at one Internet site or at remote Internet sites (Diaz, p. 10).

Telnet is the process of connecting one computer to a remote computer (Berger, p. 9).

FTP is a process used to transfer information from one computer site to another (p. 8).

WAIS (wide area information service) is a search system for indexed databases (Diaz, p. 12).

WWW (World-Wide Web) is a hypertext search tool that features text, graphics, sound and video while it allows users to move from one document, site or information service (gopher, WAIS, FTP and news groups) to another with a variety of interconnected links (p. 12).

Significance of study

This study provides a status report on the number of Iowa school library media specialists using the Internet as an information source and data about training and Internet connection conditions affecting that information use. This study also provides comparison information for Internet research conducted in other states, guides other school personnel in the creation and support of those training and Internet conditions most likely to result in information use of an Internet connection and supports the idea that it is important for libraries and media specialists to be involved in Internet use.

Chapter 2

Review of Related Literature

A number of preliminary surveys and projects identified the
need for research about how the Internet was being used. Several
survey questions had been posted to the Internet listserv LM_NET. A
collaboration project between the University of California and Davis
Senior High School provided information about the successes and
problems associated with connecting schools to the Internet. Two
surveys had been published on Internet use; Honey and Henriquez
(1993) profiled the overall usage of educational technology and
Ladner and Tillman (1992) talked specifically about special
librarians' usage of the Internet.

Research questions specifically about the Internet began to
appear as soon as users felt comfortable with the technology. Peter
Milbury (1993), co-founder and facilitator of LM_NET, asked
questions of subscribers seven months after his listserv operation
began. He wanted to know how subscribers had gotten involved in
the Internet, what use they were making of Internet resources as
librarians, what impact that use had on their librarian role or their
library program, whether Internet involvement had influenced
library services and whether subscribers had taught or introduced
the Internet to students and faculty. He contributed information
from these questions to the very broad research done by Charles R.
McClure, William E. Moen and Joe Ryan in their book Libraries and

the Internet/NREN: Perspectives, Issues, and Challenges (1994).
Milbury (1994) posted results to an informal survey he took on
LM_NET asking school librarians what they thought the top two or
three critical Internet issues were. Gaining regular, reliable
access--including service availability, telephone lines and budget
support--was the most important issue according to 89% of those
responding. The second most important issue cited by 69% of the
respondents was training in Internet use.

Matthew Kollasch (1993), a Cedar Falls, Iowa, school librarian,
asked several survey questions of LM_NET subscribers after he had
been using the Internet for two and a half years. He asked how users
gained access to the Internet, how they trained students and staff in
the use of the Internet and how they managed their Internet time
with the other duties they had as school librarians This informal
survey brought a variety of responses.
(p. 65). These questions were an indication of the early kinds of
questions asked of school library media specialists about their use
of the Internet.

Universities collaborating with high schools provided another
indication of the use of the Internet and the need for further
research. One case study was the Internet project that took place in
California that included the University of California at Davis (UCD),
Davis Senior High School (DSHS) and Pacific Bell. They formed a
partnership that set up a data link from DSHS to the UCD campus and
provided the high school's computer lab with access to the Internet
through the UCD network. DSHS wanted to answer the question: Was
it worthwhile to attempt this type of connection for a secondary

school and to develop a prototype low-cost system to support the effort? DSHS wanted to establish programs to teach computer literacy for job market or university studies. In addition, DSHS wanted to enlarge the library reference resources because two-thirds of those resources had copyright dates before 1979. Since the project's inception, 50 of 70 teachers and 300 students were trained to use the system and their reactions were favorable. Innovative teaching was encouraged and use of computers by teachers increased. Students at all levels of achievement, of both sexes and all ethnic groups, used the computers regularly. The major problem was caused by the overabundance of materials. Students loved to explore the Internet and were often sidetracked from their original goal. Teachers lacked the time to explore. Meizel (1992) concluded:

> Few innovations have the potential importance in the intellectual and vocational development of students as learning to use the facilities provided by the Internet connection. And few shared resources have the breadth and depth of the Internet. It is imperative, however, that educators view such an issue not as a "frill" or as a resource for the privileged few, but as instrumental in the establishment of an educated populace, a necessary component to cope with the challenges of the information age. (pp. 139-140)

The most comprehensive survey about computer use that has been done was by Honey and Henriquez for the Center for Technology in Education in 1993. Although it involved all areas of telecommunications technology by all K-12 educators, many of the questions used and conclusions drawn can be projected to specific

Internet use by school library media specialists. This survey represented the first large-scale description of educators' nationwide telecommunication practices. Honey and Henriquez explained: "While there exists a wealth of descriptive information on the kinds of projects that are being carried out, there has been no systematic analysis of the range and type of telecommunications activities being conducted by teachers for either professional development or student learning" (p. 2). This remark about the status of telecommunications research in 1990 could describe the status of Internet research in 1996.

Honey and Henriquez defined telecommunications as computer-based information systems using modems hooked up to computers, which allowed communication to take place over telephone lines. The purpose of their research was to "adequately inform school officials, policy makers, service providers, and educators themselves about strategies for the creative use of this technology" (p. 2).

The survey sample was collected by posting on-line announcements on more than 50 educational, commercial and state-run telecommunications networks within the United States. Honey and Henriquez also solicited respondents through mailing lists, conferences, state education departments and professional contacts. As a result, the sample was completely voluntary. Eleven hundred educators responded to the initial posting and 50% (550) participated by returning the 27-page questionnaire. Since the study was the first to be undertaken, no comparable data about use of the Internet were available.

The researchers interpreted the findings by comparing them to demographic data from the National Center for Education and the Center for Technology in Education. They compared their self-selecting sample's demographics to the national averages collected by the Center for Education Statistics. Size, type, ethnic and economic representation of respondents' schools reflected national averages. Although the respondents were from 48 states, their geographic locations were concentrated in the mid-Atlantic and Pacific regions with under-representation in the East South Central, West South Central and South Atlantic regions. The sample educators had been teaching longer and completed more advanced degrees than the national averages. The respondents were on average older, and almost entirely Caucasian. More men than women were represented in the sample. The sample included 25% elementary teachers, 23% computer teachers and 14% library/media specialists, "a new and growing specialty in which technology and telecommunications activities are taking place" (p. 6).

Honey and Henriquez conceded that their sample of telecommunicating educators was heavily concentrated in jobs that were directly related to using technology in instruction. "Among this group, it is the technologically knowledgeable computer and library media specialists who are taking the lead for telecommunications activities, serving as resource people and facilitators for colleagues in their schools" (p. 34). Nearly half of the respondents, 43%, had been using computers for nine or more years. This was in contrast to a 1990 Center for Technology in Education survey of accomplished users of educational technology

that found only 23% of its respondents had been using computers for that long. Three-fourths of the respondents had computers and modems at home and were self-taught. Many attended conferences and workshops and took advantage of a range of other available computer training. Respondents said that 44.8% of the teachers in their schools used computers in their teaching. A little more than half of the schools' computers were connected through local area networks. Almost half of those networks were in single room computer labs and probably used for printing and accessing software. Only about a quarter of the networks were connected to a wide area network. Respondents had been using telecommunications professionally for more than four years.

These educators were driven by personal interest and self-motivation rather than school initiatives. Very few, 13% of the respondents, were able to take courses in telecommunications sponsored by their district and even fewer, 8%, took those courses in their own school buildings. "The survey results strongly suggest that support for telecommunications activities at the school and district levels is virtually nonexistent" (Honey and Henriquez, p. 12).

The educators in the survey used electronic mail and information retrieval services for information and collegial exchanges an average of once a week and mostly from their own homes. One of the most persuasive findings of this survey as it pertained to information use of the Internet was that the respondents believed one of the most important benefits of using this technology with students was its impact on students' higher order thinking skills, developed when students used the technology

to support research, communication and analysis. Educators felt that working with telecommunications skills broadened students' perspective on the world, and provided access to information that would not otherwise be available in classrooms. In terms of the Internet, only half of the respondents, described as "technologically sophisticated," reported having access to the Internet. Those that did were connected through a university computer or an educational telecommunications service. The survey found the Internet was used more frequently for professional purposes than for student learning projects.

A second comprehensive survey was completed by Sharyn Ladner (1994), an assistant professor and business librarian with the University of Miami, and Hope Tillman, Director of Libraries at Babson College. They summarized their research in the June 1992, Canadian Library Journal and the January 1993, Online magazine. Their survey was the only complete and published survey that dealt specifically with librarians and their use of the Internet. Ladner and Tillman focused on special librarians because they were readily available online and through their professional organization. Although special librarians worked only in specific subject areas and thus did not experience the scope of information that many public and school librarians did, Ladner and Tillman thought their experience represented at that level the experience of other librarians, while providing a basis for further research in broader library settings. They concluded that the "Internet is changing the ways in which reference librarians and information specialists serve their clientele" (Ladner and Tillman, 1993, p. 45).

All data for their survey were obtained over the Internet by a "Call for Participation" announcement to nine computer forums and publication in the SpeciaList, a monthly newsletter of the Special Libraries Association (SLA). Their findings also included examples from reference-oriented computer lists that they monitored over a six-month period, from January through June of 1992. Some examples were obtained by reviewing list archives and extracting postings dealing with reference queries or issues.

They defined reference service as "the provision of information upon request, independent of format or medium" (p. 45). They included the transmitting of reference requests and answers via the Internet as reference service even though the Internet might not have been the source of the information. They explained their Internet research purpose: "While there has been a veritable explosion of articles in recent years on libraries and the Internet, there has been a singular lack of published research on how the Internet is actually used by librarians" (Ladner and Tillman, 1992, p. 211). Their research was limited to use of the Internet and implications of that use for the library of the future. Their research included an investigation of the Internet training librarians were receiving. Their findings serve as a basis for subsequent research into how information professionals use electronic communications technology within the modern organization, including how these technologies affected the role and position of the information professional within the organization. No attempt was made at sampling as the purpose of the research was to discover ways in which the Internet was used, not the extent of use.

Initial announcements were answered by 113 special librarians and 54 of those returned the five-page questionnaire. The responses were from 35 academic libraries, 32 science-technology areas and another 5 computer industry for-profit corporations. People in management positions accounted for 34% of the responses and 55% of the respondents were subject specialists. The respondents worked in libraries ranging in size from a single person library to larger academic libraries with several hundred employees. Almost all, 93%, were located in the United States.

The median experience level on the Internet was two years. When asked how long they had used the Internet, 16 had used it for 12 months or less, 19 reported 13 to 36 months' experience and an additional 19 had accessed the Internet for more than three years. When asked who paid for access to the Internet, most respondents reported that their parent organizations paid. Approximately 20% of the respondents did not know who paid for their connections.

Ladner and Tillman concluded that the longer librarians had used the Internet, the more likely they had been responsible for their own instruction. When asked to check types of training they had received, 65% had taught themselves, 59% had learned from a colleague and 39% learned from formal training, sometimes as short as an hour in length. Several respondents said they learned from asking questions on the Internet and from the documentation of their local computer center. Respondents identified specific knowledge that they thought was needed in training. This included coverage of both theory and basic training techniques, history and philosophy of the Internet, file transfer, remote login, mail and Netnews,

addressing algorithms, proper etiquette, security rules, how to connect, how to keep up with developments and changing resources, how to manage the flow of information and how access differs with different connections, how to identify information nodes to locate and access forums and publishers of relevance, how to make the best use of increased connectivity to library procedures and how to persuade vendors to provide e-mail access.

In terms of the level of use of the Internet, no trends were found by type of library, subject emphasis or experience level. Electronic forums, bulletin boards and listservs were used by 61% of the respondents. The 54 respondents subscribed to an average of 3.3 listservs each. Telnet was used by 39% to search remote databases, 37% used FTP for data exchange, 22% used the Internet for research and publications and 11% were using it for personal communication and leisure activities. Remote databases were accessed by 39% and 80% of those searched other library catalogues for availability of materials, identifying ownership, collection development and reference. Those librarians who transferred data with FTP were the more experienced users. Fifty percent of those with more than two years of experience sent or retrieved files compared to only 25% of those with fewer than two years of experience.

All 50 respondents who listed a major advantage of the Internet mentioned electronic communications. Work-related e-mail communication was used by 93% of the respondents. Reducing geographical distance and the speed of communication were important factors in this choice. This parallels the experience of early users of the ARPANET, which when originally designed, added

electronic mail as an afterthought and then watched it become the most popular feature of the network because it provided a forum for researchers to communicate with each other. Of the 54 librarians and information specialists surveyed by Ladner and Tillman, over half responded with "most interesting or memorable experiences." Many surveyed indicated that they used the Internet "to enhance the quality of reference service they offer to their clientele" (1993, p. 45).

Ladner and Tillman's study emphatically concludes:

> Librarians, as a result of their training and knowledge of information processes and information organization, can go beyond using the Internet as a resource and use their skills to help make it less chaotic. The people who communicate on the Internet provide meaning and understanding--they create a synergy that is not possible with human-machine linkages alone. . . . It is people that ask questions and people that answer questions and people that discuss issues--and it's people who develop files ready to be retrieved from central depositories. . . . The emerging global community created by these systems is more democratic and less hierarchical than conventional systems. (1992, p. 215)

Chapter 3

Methodology

This research study was conducted in order to describe some of the conditions surrounding Iowa school library media specialists who were using the Internet as an information source. A survey was the most effective way to collect data from media specialists across a specific state. A survey instrument was designed by the researcher. The survey instrument (Appendix A) sought to confirm that each district did have an Internet connection. The instrument then sought information about the number of Iowa media specialists who were using those Internet connections in their school district. The survey instrument included questions about the district's closest access point to the media center and whether each licensed media specialist used that particular Internet connection as an information source. These questions were followed by questions about the media specialist's Internet training and use of specific tools. Respondents were asked to give a phone number if they were willing to talk by telephone about their specific uses of the Internet.

A request for LM_NET subscribers who were willing to pretest the survey instrument was posted to the LM_NET listserv in February 1996 (Appendix B). LM_NET was chosen because it was the largest listserv worldwide designed specifically for school library media specialists and there was a precedence for survey posting on this list. As of February 24, 1996, it had over 5600 subscribed members (Milbury, 1996). The survey instrument was sent to thirteen

interested people for comments. Feedback from this group was used in editing the survey instrument for clarity and validity and for practice in interpreting the statistical results.

The survey population was K-12 Iowa public school library media specialists, who confirmed they were fully endorsed as Iowa media specialists and who were employed in schools identified by the state Area Education Agencies (AEA) as having Internet connections . The researcher sent a letter to each AEA Media Director asking for a list of school districts in that region with Internet connections. Those AEA Media Directors who did not respond were telephoned. When an AEA Media Director did not know whether a particular district had an Internet connection, that district was included in the survey population. When an AEA Media Director did not respond to queries, all the districts in that area were included in the survey population. Each media specialist in the identified districts was sent a copy of the survey instrument. Appendix C describes the information provided by the AEA media directors.

The survey instrument was sent out in early March 1996. Of the total 384 public school districts in Iowa; 77 were identified by their AEA as not having Internet connections. An additional 17 districts did not qualify for the research study because they did not employ endorsed media specialists. The survey instrument was sent to a total of 779 media specialists in the qualifying 289 public school districts. An explanation of the significance of this study, an offer to make results available to respondents, a confidentiality agreement, a stamped return envelope and a "Libraries Compute"

(1996) bookmark were included. Appendix D was the cover letter that was sent with the survey instrument.

Chapter 4

Analysis of the Data

Of the 779 surveys sent, 565 were returned, for a return percentage of 72.66%. From this population of media specialists with probable Internet connections in their districts, 50 returned the surveys saying they did not have or did not know if there were Internet connections in their districts. An additional 50 respondents were not endorsed as Iowa media specialists. The remaining 465 respondents were endorsed Iowa media specialists and knew of Internet connections in their districts. The resulting survey population was 59.69% of all surveys sent and 82.16% of the surveys returned. Bar graphs in Table 1 illustrate these results.

Table 1.

Survey Population

YES/Endorsed	NO/Don't know	Not endorsed	Surveys received
465	50	50	566

Percentages   72.66% of all surveys sent were returned
59.69% of all surveys sent met the criteria for this study
82.16% of all surveys returned have Internet connections and endorsed Media specialists
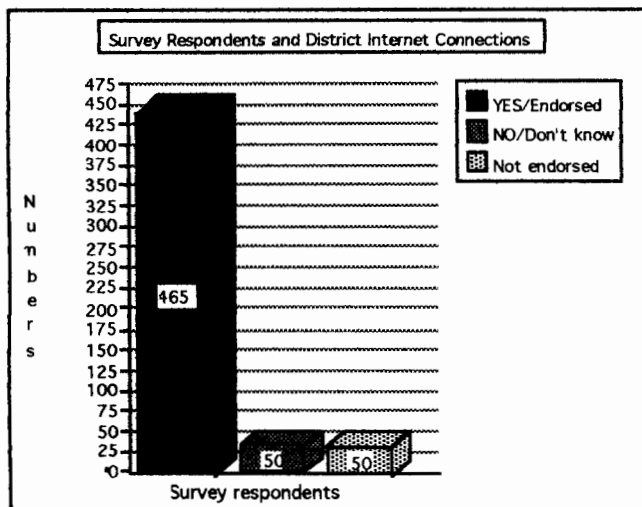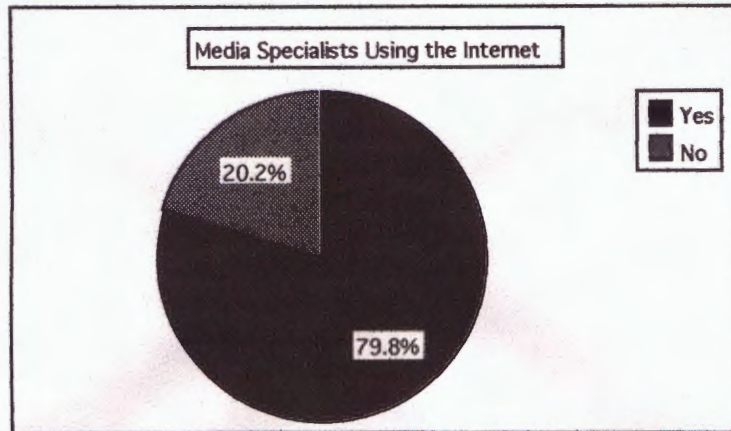
Hypothesis 1 was, "The majority of Iowa school library media specialists with Internet connections in their schools were using the Internet as an information source." Of those 465 endorsed media specialists who knew of Internet connections in their district, 371 or 79.78% were using the Internet as part of their job responsibilities. A pie graph in Table 2 illustrates the numbers of media specialists using their district's Internet connections. Hypothesis 1 was accepted.

Table 2.

Internet location and use statistics

Location	Numbers	Percentage	Use Internet? Yes #'s	Yes %'s	Use Internet? No #'s	No %'s
Diff.Bldg	50	10.75%	10	20%	40	80%
Not Adj.	29	6.24%	12	41.38%	17	58.62%
Adj.	24	5.16%	19	79.17%	5	20.83%
Media Center	278	59.78%	263	94.6%	15	5.4%
Office	60	12.9%	53	88.33%	7	11.67%
Other	24	5.16%	14	58.33%	10	41.67%
Survey population:		Totals	Totals	Totals	Totals	Totals
	465	100%	371	79.78%	94	20.22%

Media Specialists Using the Internet

Yes
No

20.2%

79.8%

Hypothesis 2 was, "The majority of these Iowa school library media specialists who used the Internet as an information source had an Internet access point in the media center." The majority of

district Internet connections used by media specialists, 278 (59.78%), were located in the media center. When the connection was located in the media center, 263 (94.6%) of the media specialists responding were using the connection. Only 15 (5.4%) were not using an Internet connection that was available in the library. Of the media specialists with a connection in their office, 53 (88.33%) media specialists used that connection. The further from the media center the Internet connection was located, the fewer the media specialists with access who used it. When the connection was in an adjacent room, 79.17% usage was recorded; when the connection was in a non-adjacent room, 41.38% usage was recorded and when the location was in a different building, 20% usage was recorded. Table 3 uses a pie graph to illustrate the various locations of Internet connection points.

Table 3.

Internet Location

Location of Internet Connection

- Diff. Bldg
- Not Adj.
- Adj.
- Media Center
- Office
- Other

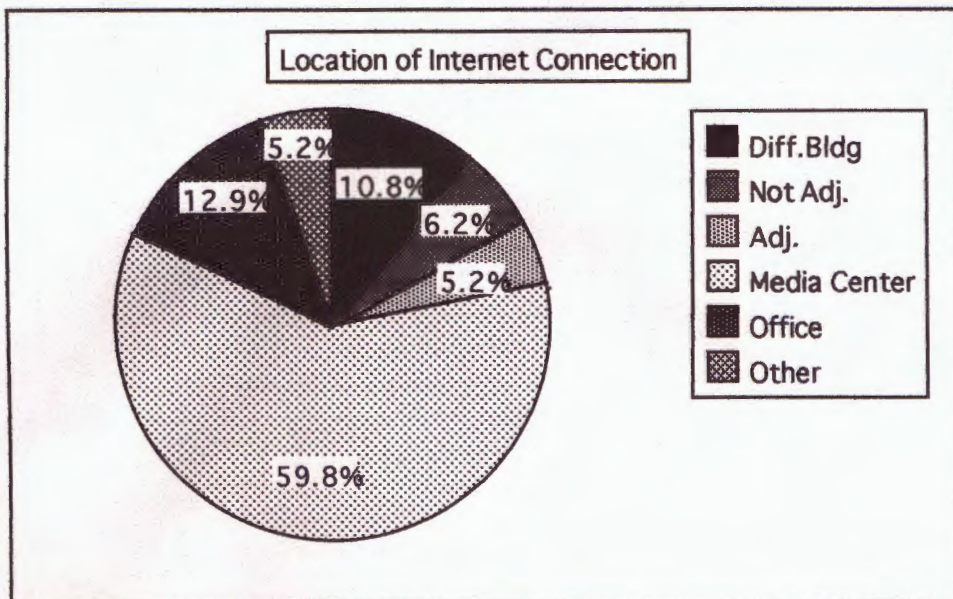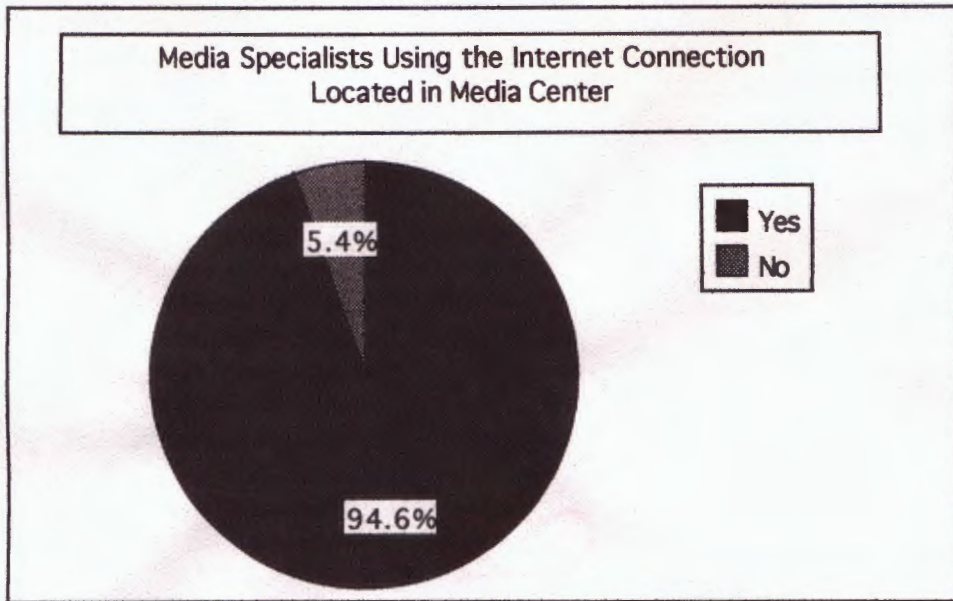5.2% 10.8% 12.9% 6.2% 5.2% 59.8%

Table 4 uses a pie graph to illustrate specifically how many media specialists were using a connection when it was located in the media center. Hypothesis 2 was accepted.

Table 4.

Internet Use

Media Specialists Using the Internet Connection Located in Media Center

Yes

No

5.4%

94.6%

Hypothesis 3 was, "The majority of these Iowa school library media specialists who used the Internet as an information source had some formal college or university Internet training." Thirty-eight media specialists, 8.17%, learned to use the Internet from a professional degree program. The majority of respondents, 59.14%, learned how to use the Internet by teaching themselves. This was often done in conjunction with help from others (50.75%), followed by AEA instruction (48.39%), school district instruction (27.74%) and written materials (26.45%). Under 10% of the respondents marked formal college courses (9.46%), professional degree programs (8.17%), the Internet itself (4.09%) or other sources,

including conferences (3.24%) and commercial sources (2.37%). Conferences provided 10 media specialists (2.15%) with some knowledge of the Internet. This was an answer provided by respondents under the "Other" category. The percentages add up to more than 100% because respondents were asked to mark all of the sources of their Internet education. Bar graphs are used in Table 5 to illustrate how media specialists learned to use the Internet. Hypothesis 3 was not accepted.

Table 5.

Learning to Use the Internet

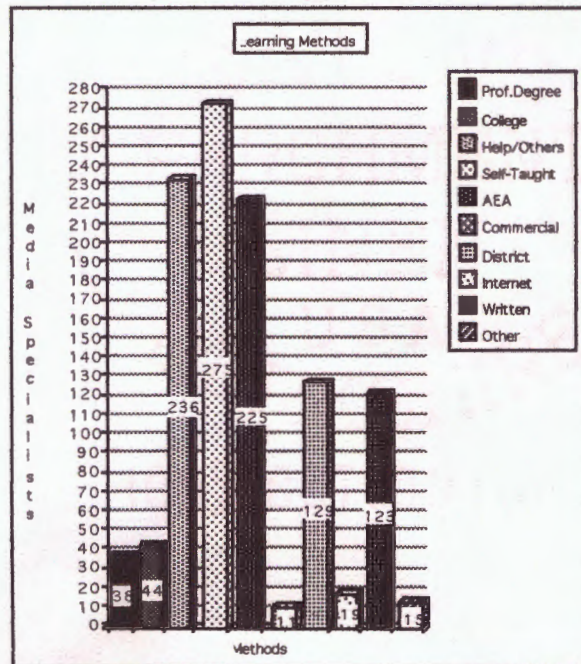| Method	Numbers	Percentages
Prof.Degree	38	8.17%
College	44	9.46%
Help/Others	236	50.75%
Self-Taught	275	59.14%
AEA	225	48.39%
Commercial	11	2.37%
District	129	27.74%
Internet	19	4.09%
Written	123	26.45%
Other		
Conferences	10	2.15%
Adult Ed	1	.22%
Pub.Lib	2	.43%
Summer School	1	.22%
Video	1	.22%

Hypothesis 4 was, "The majority of these Iowa school library media specialists who used the Internet for information were using the World-Wide Web (WWW) regularly to daily." Using a scale of 3 for "regularly to daily" use to 1 for "occasionally to not at all," 207 (44.52%) used the WWW on a "regularly to daily" basis as part of their job responsibility. The percentage of respondents who did not circle any usage criteria was in every case higher than the percentage of respondents who circled "occasionally to not at all." This led the researcher to believe that perhaps not answering indicated "no use" and circling "occasionally to not at all" actually indicated "occasional" use. There was no way to prove this without a polling of the respondents.

This survey looked at the "regularly to daily" answers and made reliable conclusions about tools that were being used on a "regularly to daily" basis. Using the "regularly to daily" responses, e-mail was the Internet tool used by 226 (48.6%) of the media specialists as part of their job responsibility; the World-Wide Web followed closely with 207 media specialists (44.52%) who used it on a "regularly to daily" basis as part of their job responsibility. Usage dropped dramatically to 58 (12.47%) of the respondents who regularly used listservs, and fewer than 10% of media specialists regularly used telnet (7.31%), gopher (4.2%), newsgroups (3.87%), FTP (3.66%) or other (1.3%)tools. "Online subscription services" were frequently provided by the respondents in the "other" category so one could conclude that paid online subscriptions were still providing information that was not available over the Internet. Once again, the percentages totaled more than 100% because media

specialists marked all of the tools they used. A bar graph in Table 6 illustrates how often various Internet tools were used. Hypothesis 4 was not accepted.

Table 6.

Tools Used How Often?

	Not	%age		%age	Daily	%age	No ans	%age
E-mail	67	14.4%	67	14.41%	226	48.6%	105	22.58%
FTP	175	37.63%	75	16.13%	17	3.66%	198	42.58%
Gopher	157	33.76%	107	23.01%	21	4.2%	180	38.71%
Listservs	161	34.62%	69	14.84%	58	12.47%	177	38.06%
Newsgroups	188	40.43%	67	14.41%	18	3.87%	192	41.29%
Telnet	161	34.62%	79	16.99%	34	7.31%	191	41.08%
WWW	46	9.89%	102	21.94%	207	44.52%	110	23.66%
Other	16	3.44%	2	.43%	1	.22%	446	95.91%
Paid online subscriptions	0	0	5	1.08%	5	1.08%	455	97.85%
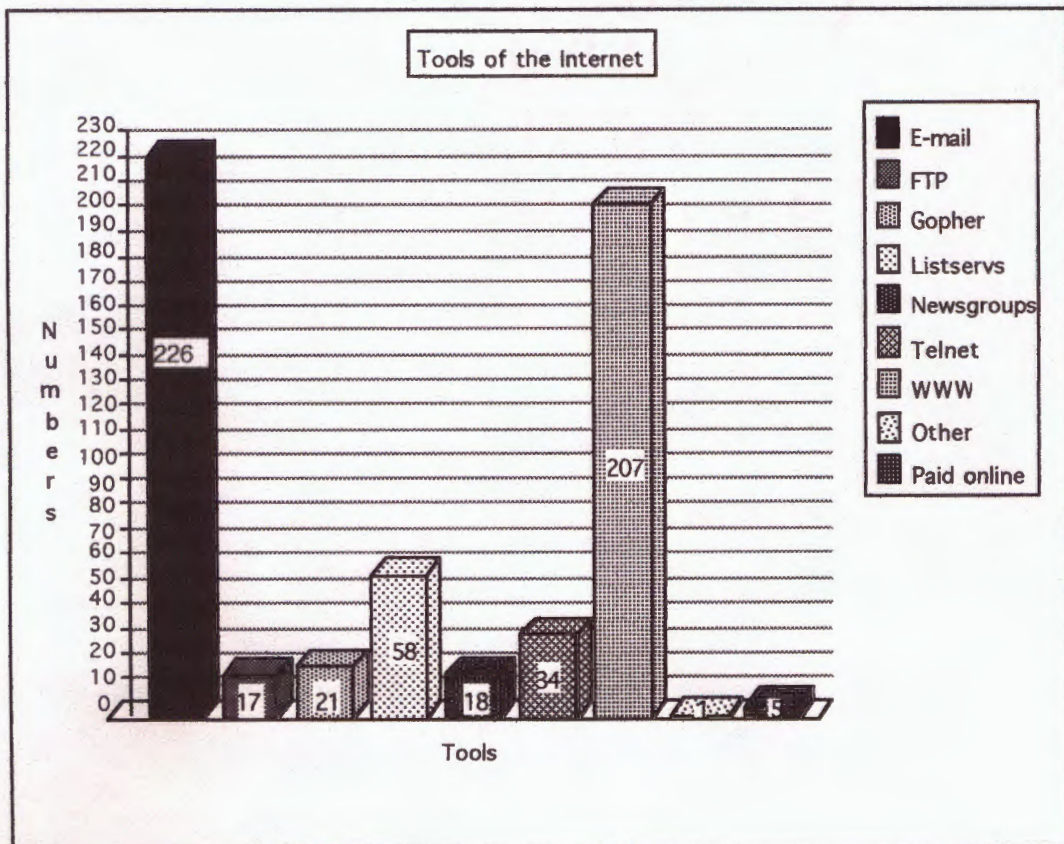
A sample of 779 media specialists provided a survey that was accurate within +/-3%. A return of 465 respondents who confirmed

having Internet connections in their district indicated that the working population's responses were accurate within +/-5% (Reidy, 1995). The typical return rate on surveys is from 30 to 40% so a 72.66% indicated a high reliability margin (Coffey, 1995).

Chapter 5

Summary, Conclusions, Recommendations

Summary

Of the 779 surveys sent, 465 respondents were endorsed Iowa media specialists and knew of Internet connections in their districts. Of those 465 endorsed media specialists, 371 (79.78%) were using the Internet as part of their job responsibilities. The majority of these district Internet connections, 278 (59.78%), were located in the media center. Only 38 media specialists (8.17%) learned to use the Internet from a professional degree program. Two hundred seven (44.52%) media specialists used the WWW on a regularly to daily basis.

Conclusions

Since 79.78% of the media specialists who responded were using the Internet as part of their job responsibilities, it appeared that given the opportunity, Iowa media specialists did use an Internet connection. The closer an Internet connection was located to the media center, the more often it was used by media specialists. Iowa media specialists seemed remarkably self-sufficient since the majority of those who used the Internet had taught themselves the necessary skills. The WWW was becoming more important as an Internet tool, but e-mail was the tool used most often by Iowa media specialists.

Recommendations

Since those Iowa media specialists surveyed indicated a willingness to use the Internet as part of their job responsibility, it is recommended that all Iowa school districts provide Internet connections. It is further recommended that at least some of those Internet connections be located in the media center, where they are easily accessible to the media specialist. In addition to being used more often, the Internet connection that is located closer to the media specialist will provide more opportunity for the learning process that most Iowa media specialists are doing on their own. If school districts want to encourage use of the Internet by their media specialists, they must provide an Internet connection as close to the media specialist's work area as possible.

It is recommended that the AEAs continue offering Internet-related courses and that school districts provide more education for their media specialists. Obviously, colleges and degree programs also need to address the issue of providing Internet instruction for Iowa media specialists. Although "conferences" comprised only a few of the learning sources, the fact that it was suggested by respondents indicates that media specialists are open to learning from conferences. It appears that in addition to more college courses and degree programs, conferences might be a good strategy for further promotion of Internet instruction.

Indications are that the process of using the Internet begins with e-mail and then as users learn more about the Internet, they begin using the other tools. A recommendation is made that further

research be done specifically on the uses of e-mail and the WWW as part of a media specialist's job responsibilities. Questions that need to be answered are: Is e-mail primarily a networking tool or is it used as an information source for patrons? What search strategies are media specialists using to access information on the WWW? What criteria lead them to those strategies? Further survey instruments will need to be more specific about how often particular tools are used in order to assess actual use.

Since this research does not address the media center's patrons, a recommendation is made that research be done to assess the use of the Internet by media center users. Questions that need to be answered are: Where are students and faculty accessing the Internet? What are they using the Internet for? Where do they learn how to use the Internet? What are the primary Internet tools students and faculty are using?

A recommendation is further made that research be done on the reliability of Internet use as an information source compared with the traditional media center sources of books, periodicals, pamphlets and CD-ROMs. Asking specific information questions, a researcher could access which sources predict the most reliable answers the most quickly. As Internet use continues to change, more research questions will arise involving the changing search strategies and their prerequisite training: who will provide it, where and when will it be provided and how it will be evaluated?

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Internet Information Use Survey
Patricia Moore
University of Northern Iowa
March 8, 1996

1. Is there an Internet connection anywhere in your school district?

_____ yes   _____ no   _____ don't know

If the answer is "no" or "don't know," please return the survey at this time. Thank you!

----

2. Where is the closest Internet connection in your district located (if in multi-buildings, answer for building with connection closest to you)?

   ❑ different building
   ❑ lab/room not adjacent
   ❑ adjacent lab/room
   ❑ media center
   ❑ media center office
   ❑ other (please specify) _____

3. Are you endorsed as an Iowa Media Specialist ? _____ yes   _____ no

4. Do you use your district's Internet connection? _____ yes   _____ no

If you do not use the Internet connection in your district, please return the survey at this time.
Thank you for participating!

----

5. How did you learn to use the Internet? (check all that apply)

   ❑ As part of a professional degree program
   ❑ Formal college classes
   ❑ Help from others
   ❑ Self-taught
   ❑ Training offered by AEA
   ❑ Training offered by a commercial company
   ❑ Training offered by school district
   ❑ Training offered by online Internet sources
   ❑ Written material
   ❑ Other (please list) _____

Internet Information User Survey

Patricia Moore   March 8, 1996

6. Please circle how often you personally use the following Internet resources for information as part of your professional responsibilities:

	1 Occasionally to not at all	2 Occasionally to regularly	3 Regularly to daily
E-mail	1	2	3
FTP	1	2	3
Gopher	1	2	3
Listservs/discussion groups	1	2	3
News groups	1	2	3
Telnet	1	2	3
WWW (World-Wide Web)	1	2	3
Other (please list)	1	2	3

* If you would be willing to talk with me by phone about this survey, please leave your name and school phone number here:

Name _____

School phone: (_____) _____

* If you would like to receive a summary of the results of this survey, please give me your name and e-mail or school address:

Name: _____

School address: _____

_____

E-mail address: _____

Neither your name nor your school's name will be used in this research without your prior, written permission.

Thank you for your participation!

Patricia Moore
1701 NW Greenwood
Ankeny, IA 50011
(515) 964-8916

Appendix B.

LM_NET Permission for Survey Posting

Date: Wed, 21 Feb 1996 13:50:24 -0800 (PST)
From: Michael Eisenberg <meisenbe@wahoo.sjsu.edu>
To: Pat Moore <moore@chaos.k12.ames.ia.us>
Cc: pmilbury@ericir.syr.edu
Subject: Re: Seeking permission to post a survey

Pat -

It is acceptable for you to ask for volunteers to pretest your instrument. You've done it
the right way - checking with us, giving a full description in the subject line, asking for
response to you, and not including the survey. Thanks for being so thoughtful.

just a couple of other comments -

1 - look over your message for characters that might not have uploaded correctly.

2 - realize that the sample may be a bit biased - those willing to
respond are not really random.

Enjoy!

Mike


```
*================================================================*
    I       Mike Eisenberg  meisenbe@wahoo.sjsu.edu       I
    I Visiting Professor, School of Library & Information Science  I
    I    San Jose State University, San Jose, CA 95192-0029    I
    I          phone: 408/924-2464   fax: 408/924-2476       I

*================================================================*
```

Appendix B.

On Wed, 21 Feb 1996, Pat Moore wrote:

> Dear Peter and/or Mike: I would like to pretest my masters' research
> survey with willing participants from LM_NET. Since I will be surveying
> almost all Iowa media specialists, I must go outside of the state for my
> pretest. LM_NET seems a ready-made population. I would list the subject
> heading so people could easily delete if they were unwilling to
> participate. Please let me know if this is acceptable. Thanks. Pat
>
> Subject: Wanted: Non-IA media specialists to pretest survey
>
> Dear LM_NET members:
>
> I am a graduate student in Library Science at the University of Northern
> Iowa in Cedar Falls, Iowa. I am conducting research in Iowa to assess
> school library media specialists' information use of the Internet and
> identify some factors that contribute directly to that use. I hope that
> information obtained from this study will guide other school personnel in
> the creation and support of those conditions most likely to result in
> information use of an Internet connection.
>
> Since the survey pertains to Iowa media specialists, I want to conduct
> the pretest outside the state and have been given permission by the
> LM_NET list owners to post this request for participation to the list.
>
> If you would be willing to help me by completing a survey and providing
> comments on that survey, please let me know by sending an e-mail message
> to moore@chaos.k12.ames.ia.us. Please DO NOT respond to the LM_NET list
> itself. I will send an electronic copy of the survey to your e-mail address.
>
> Your participation will be greatly appreciated. Thank you.
>
> Patricia Moore, Media Specialist
> North Polk Schools, Alleman IA 50007
> moore@chaos.k12.ames.ia.us
>
> ---

Appendix B.

> The survey follows, but I would only send this to those people who
> responded to me:
>
> Internet Information Use Survey
>
> Patricia Moore, February 21, 1996
> University of Northern Iowa
>
>
> Does your school district have an Internet connection?
>
> yes
>
> no
>
> don't know
>
>
> If the answer is "no" or "don't know," please return the survey at this time.
> Thank you.
>
>
> Where is the Internet connection closest to you located (if in
> multi-buildings, answer for building with connection closest to you)?
>
> o different building
> o lab/room not adjacent
> o adjacent lab/room
> o media center
> o media center office
> o other (please specify)
>
>
> Title/position:
>
> Are you endorsed as a Media Specialist ? yes no
>
> Do you use your district's Internet connection? yes no
>
>
> If you do not use the Internet connection in your district, please return
            > the survey at this time. Thank you for participating.......

Appendix B.

> How did you learn to use the Internet? (check all that apply)
>
> o As part of a professional degree program
> o Formal college classes
> o Help from others
> o No training
> o Self-taught
> o Training offered by area education agency
> o Training offered by a commercial company
> o Training offered by District
> o Training offered by Internet sources
> o Written material
> o Other (please list)
>
>
>
> Please circle how often you personally use the following Internet
> resources for information as part of your professional responsibilities:
>
> 1 Occasionally to not at all
> 2 ....
> 3 Regularly to daily
>
> E-mail 1 2 3
> Ftp 1 2 3
> Gopher 1 2 3
> Listservs/discussion groups 1 2 3
> Newsgroups 1 2 3
> Telnet 1 2 3
> WWW (World-Wide Web) 1 2 3
> Other (please list) 1 2 3
>
>
> Thank you for your participation. I am interested in any feedback you
> may have regarding the wording, format or content of this survey.
>
>
> Patricia Moore
>
>
> Patricia Moore, Media Specialist
> North Polk Jr.Sr. High
> Alleman, IA 50007
> moorep5906@aol.com
> moore@chaos.k12.ames.ia.us
> http://192.188.160.3/
> http://192.188.160.3/Pages/People/Moore.html
> http://192.188.160.3/Pages/Departments/media/MediaCenter.html

Appendix C

AEA Table of Responses

AEA name	Initial contact	Final contact	Response	Sent to # of districts	No connection	No media specialist
Keystone AEA 1	1/4/96	- -	Received list	14	12	0
Northern Trails AEA 2	1/4/96	1/23/96	Received list	16	7	2
Lakeland AEA 3	1/4/96	2/22/96	No response	19	43	1
AEA 4	1/4/96	1/22/96	All connected	14	0	0
Arrowhead AEA 5	1/4/96	1/23/96	80-90% connected	30	0	2
AEA 6	1/4/96	1/23/96	Unsure	15	0	1
AEA 7	1/4/96	1/24/96	No idea	23	0	2
Mississippi Bend AEA 9	1/4/96	2/12/96	All connected	22	0	0
Grant Wood AEA 10	1/4/96	- -	All connected	32	0	1
Heartland AEA 11	1/4/96	- -	Received list	12	0	0
Western Hills AEA 12	1/4/96	- -	Received list	22	1	2
Loess Hills AEA 13	1/4/96	2/22/96	No response	31	0	1
Green Valley AEA 14	1/4/96	- -	Received list	18	0	4
Southern Prairie AEA 15	1/4/96	- -	Received list	11	13	0
AEA 16	1/4/96	2/5/96	Received list	11	1	1
Total districts	384		Totals	290	77	17

Appendix D.

Cover Letter

1701 NW Greenwood
Ankeny IA 50021

March 8, 1996

Dear Media Specialist:

I would like to ask for your help with a survey about Iowa media specialists' use of the Internet. Your school has been identified by your area education agency as possibly having an Internet connection, and I want to assess whether media specialists are using that connection.

Even if there is not an Internet connection in your district or you do not use the Internet, please take the time to answer the questions related to you and return the survey in the enclosed stamped and addressed envelope.

I am a graduate student in library science at the University of Northern Iowa and I hope that the results of this survey will provide information on how many Iowa media specialists are using the Internet, what Internet tools they are using, what kinds of training they have had and where their Internet connection is located. This research may facilitate the creation and support of those conditions most likely to result in information use of an Internet connection in media centers.

The data collected in this survey will be confidential. No respondent will be identified by name nor will any school district be identified by name or location without prior written permission. Please accept the enclosed "Libraries Compute" bookmark as a token of my appreciation.

An addressed and stamped envelope is provided for use in returning the completed survey form. Please make certain you are represented in this survey by returning the form prior to March 31. If you have questions regarding the survey form, please call me at North Polk High School (515-685-3528) or my home (515-964-8916). You may also contact me by e-mail at moore@chaos.k12.ames.ia.us or moorep5906@aol.com.

Your help in completing this project is greatly appreciated. Thank you for your time and cooperation. I look forward to receiving your completed questionnaire. I will, on request, be happy to provide you with a summary of the results of my research.

Sincerely,

Patricia Moore
Media Specialist