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The status of Internet and World Wide Web use in the elementary schools of Gloucester County, New Jersey

Christine A. Rohrman
Rowan University

THE STATUS OF INTERNET AND WORLD WIDE WEB USE IN THE ELEMENTARY SCHOOLS OF GLOUCESTER COUNTY, NEW JERSEY

by
Christine A. Rohrman

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Professor

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ABSTRACT

Christine A. Rohrman. The Status of Internet and World Wide Web Use in the Elementary Schools of Gloucester County, New Jersey. 1998. (Under the direction of Dr. Holly G. Willett, Program in School and Public Librarianship).

Are schools preparing students for the new age of communication, where the Internet and World Wide Web will be an efficient way to access information? The purpose of this study was to determine the status of Internet use in the elementary schools of Gloucester County, New Jersey. Data was collected using a survey questionnaire sent to the library media specialists of the 48 elementary schools. They were asked if there was Internet access in their school building and if not, were there plans to have Internet access by the year 2001. Other questions about the Internet involved computer equipment available, teacher training, funding, specific uses, and personal opinions. These statistics were then compared to national statistics (from 1996) on Internet use from the National Center for Education Statistics. Fifty-six percent of Gloucester County's elementary schools as compared to 61% of elementary schools nationwide have access to the Internet in the building. In Gloucester County, 87% of those elementary schools without Internet access plan to have access by the year 2001 as compared to 85% of elementary schools nationwide (in 1996). Thus, this study showed that the status of Internet access in Gloucester County's elementary schools is good and will be improving over the next couple of years.

MINI-ABSTRACT

Christine A. Rohrman. The Status of Internet and World Wide Web Use in the Elementary Schools of Gloucester County, New Jersey. 1998. (Under the direction of Dr. Holly G. Willett, Program in School and Public Librarianship).

To determine the status of Internet use in the elementary schools of Gloucester County, New Jersey, a survey questionnaire was sent to the library media specialists. Comparison to a 1996 national survey showed that Gloucester County's elementary schools had a similar percentage of Internet access as elementary schools nationwide, about 56% currently and 92% planning access by the year 2001.

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Chapter One

The Problem

Introduction

In the past few years, the Internet has become the centerpiece of the telecommunications revolution. Daily, millions of people all over the world communicate with electronic mail. Television networks, newspapers, corporations, governments, nonprofit organizations, public and private schools and individuals have "home pages" on the World Wide Web.

What are the Internet and World Wide Web and how are they related to education and library media specialists? The World Wide Web is the graphical component of the Internet, which is defined as a worldwide network of computers that have the ability to share information with each other. Since so many kinds of current information are available on the World Wide Web, it is a rich resource for educators. One role of the library media specialist, as defined by the American Association of School Librarians (AASL) and the Association for Educational Communications and Technology (AECT) in their publication, *Information Power* (1988), is that of information specialist. An information specialist must be knowledgeable about this new source of information, popularly referred to as the "Information Superhighway."

Although traditionally education has lagged behind in major trends, the use of this new technology in schools is encouraging. Over half of all public schools are using the

Internet according to a 1996 survey from the National Center for Education Statistics (Heaviside, Riggins & Farris, 1997). Even though secondary schools were shown to have greater access than elementary schools, these statistics are changing rapidly. Therefore, teachers and library media specialists at all levels of education need to know how to utilize this new tool to enhance students' learning.

New statewide and national educational standards, such as New Jersey's Core Curriculum Content Standards (1996), GOALS 2000 and AASL/AECT's Information Literacy Standards revision (1997), are putting additional pressure on school districts to include in their curriculums this new technology and the information skills needed for the twenty-first century. New Jersey's Core Curriculum Content Standards contain five cross-content workplace readiness standards which apply to all areas of instruction and have particular relevance for the library media center.. Number two states: "All students will use technology, information, and other tools" (1996, p. 9). AASL/AECT's Information Literacy Standards revision defines the information literate student as one who can: access information efficiently and effectively, evaluate information critically and competently, and use information effectively and creatively. The Internet and World Wide Web are two new sources of information that students will need to learn to access, evaluate, and use.

Current educational philosophy, rooted in the Progressive and Reconstructionist movements, emphasizes a curriculum that is based on student's interests and active involvement, problem solving, and use of a wide variety of materials and activities. The Internet and World Wide Web can be efficient and effective tools for this style of

curriculum.

Purpose of the Study

The 21st-century is right around the corner. Electronic communication, including the Internet and World Wide Web, will be the efficient way to access information. Are our schools preparing students to enter this new age of communication? The focus of the this study was on the current status of Internet and World Wide Web use at the elementary school level. The study examined current use of the Internet and World Wide Web and future plans for including this technology in the curriculum. This study asked elementary school library media specialists to respond to questions about Internet and World Wide Web use, including: Is there access to the Internet in the school building? How many computers are available for Internet use? Who is using them? How are they being used? How often are they used? What are the future plans for Internet use?

A basic assumption of this study was that there is very limited use of the Internet in elementary schools now, but most schools districts have a technology plan as part of GOALS 2000 and plan to include access to the Internet in all their buildings, including elementary schools. Another assumption was that there was a wide disparity among schools in their physical readiness for Internet access: computers, cabling, networks, etc.

Limitations of the Study

The study was limited to elementary schools in Gloucester County, New Jersey, which have a library media center and library media specialist. It involved schools that do and do not have access to the Internet in the building in order to include a school's

future plans for access. Gloucester County's 28 school districts have from one to six elementary schools; some have one library media specialist per school; some have a shared library media specialist; others have no certified library media specialist in their elementary schools.

Definition of Terms

Acceptable Use Policy (AUP): A parental permission form for granting student access to the Internet.

Address: A unique identification that identifies an Internet site. The three types of addresses in use are e-mail, internet, and hardware addresses (Barron & Ivers, 1996).

American Association of School Librarians (AASL): National organization of school librarians. A revision committee (from AASL and AECT) prepared new information literacy standards for students in 1997.

Association for Educational Communications and Technology (AECT): National organization of educators.

Connect time: The length of time a user is connected to and using an online service.

Download: To transfer a file from a remote computer to your own.

E-mail: Electronic mail, messages that are sent via a computer network, i.e. electronically. The messages are stored until the addressee accesses the system and retrieves the message.

GOALS 2000: Educate America Act: Public Law 103-227, signed by President Clinton in March 1994 designed to prepare students for life in the 21st century.

Home page: The introductory page of a World Wide Web site.

Hypermedia: A program that contains links to other media, such as audio, video, or graphics files (Barron & Ivers, 1996).

Hypertext: Any text that contains links to other documents or files (Barron & Ivers, 1996).

HyperText Markup Language (HTML): Coding language used to create hypertext documents to be posted on the World Wide Web. HTML documents are viewed with a Web browser (Barron & Ivers, 1996).

Internet: An internet is a network; the term internet is usually used to refer to a collection of networks interconnected with routers. The Internet (with a capital I) is the largest internet in the world (Barron & Ivers, 1996).

Internet Service Provider (ISP): A company or other group that provides access to the Internet through dial-up, SLIP/PPP, or direct connection.

Listserv: A common type of automated mailing list distribution system, developed originally on BITNET, but now common on the Internet. Subscribers receive all messages posted to that list (Barron & Ivers, 1996).

Local Area Network (LAN): A computer network limited to a building or area of a building.

Login or Logon: A procedure used to enter a computer system. Usually an identification name and password are required.

Logoff: A command that notifies a host computer that the user is exiting the system.

Modem: A device that enables a computer to transmit and receive data from another computer through a phone line by converting the data into sound.

Online: Communications via a modem or network to a host system; the time the user is actually logged into the host.

Server: A computer, or software package, that provides a specific service for client software running on other computers. For example, a World Wide Web server provides clients access to the Web (Barron & Ivers, 1996).

Uniform Resource Locator (URL): Addressing scheme used to identify World Wide Web sites.

Web browser: The software used on the computer to access and retrieve information from the World Wide Web.

Web site: A Web server and a collection of Web documents that can be accessed through a web browser.

World Wide Web (WWW): The network of hypertext servers which allow text, graphics, and sound files to be mixed together and accessed through hyperlinks (Barron & Ivers, 1996).

Organization of the Study

This study presents data from a survey questionnaire sent to the elementary school librarians of Gloucester County's elementary schools. That data is then compared to data from a national survey on Internet use. Thus, an assessment is made of the status of Internet use in Gloucester County's elementary schools.

Chapter Two

Literature Review

Included in this chapter are the aspects of Internet use that relate to the thesis topic. Among these are: the history of the Internet and World Wide Web; internet use for educational purposes; controversial information, Acceptable Use Policies, and Filtering Software; evaluation of Internet sources; current educational projects using the Internet; and research and statistics on Internet use in education.

History of the Internet and World Wide Web

The history of the Internet begins at the height of the cold war in the 1960's, according to the series "Life on the Internet," (Public Broadcasting System [PBS], 1997) an online exploration of how and why the Internet came about. Military thinkers, especially those at the Rand Corporation, the foremost think tank, were concerned about maintaining communications during times of nuclear attack. Paul Baran, one thinker on the project, conceived the idea of a communication network that was not linked point-to-point. His ideas were not used by the Pentagon at that time. But in 1969 four university campuses used his design and funding by the U.S. Department of Defense to create a small network (ARPANET) to share research information. By 1971 the ARPANET grew to 23 university and research centers around the country. In 1972 a group was formed to govern the growing network (The InterNetworking Group) and Vinton Cerf was elected

chairman of the group, thus becoming known as the "Father of the Internet." Then, in 1973, the ARPANET went international.

The networked computers went commercial in 1974 when Telenet was created. E-mail was the most popular application of the network and USENET newsgroups were formed in 1979 as discussion groups for users all over the world.

The term "Internet" was used for the first time in 1982. William Gibson coined the phrase "cyberspace" in his 1984 novel *Neuromancer*. Corporations began to use the Internet to communicate with each other and customers and the number of hosts exceeded 1,000 by 1986 and 10,000 by 1987.

By 1990 the ARPANET was decommissioned, leaving only the vast network-of-networks called the Internet and the number of hosts exceeded 300,000. A team at the University of Minnesota created "gopher," the first point-and-click way to navigate the files of the Internet in 1991. In that same year Tim Berners-Lee, in Switzerland, posted the first computer code of the World Wide Web in a newsgroup, "alt.hypertext," illustrating the ability to combine words, pictures, and sound on Web pages. By 1993 traffic on the Internet was expanding at an annual rate of 341,634%. Users in almost 150 countries around the world, with computer hosts approaching 10 million and growing steadily, were connected to the Internet by 1996.

Within 30 years, the Internet has grown from a military communications project during the Cold War, to the Information Superhighway. The Internet is revolutionizing all aspects of society, including education, as schools begin to use the Internet as a vast electronic library resource.

Internet Use for Educational Purposes: Pros and Cons

As schools invest more time and money into Internet use, the question arises: Do the advantages of the Internet and World Wide Web outweigh the disadvantages? Stephen Power and Karel Holloway (1996) examined some of the objections that parents and others have to the Internet in schools. They found that parents' anxiety sometimes stemmed from misunderstandings about the Internet and some parents worried that the Internet would expose students to pornography and bomb-making manuals. In addition, some taxpayers worry about the cost of Internet-related equipment that could be outdated in five years. One outspoken critic, Clifford Stoll, in his book, *Silicon Snake Oil: Second Thoughts on the Information Highway* (1995), argued that Internet use detracts from teacher-student interaction and encourages students to spend more time in front of a computer instead of reading books. Other critics voice concerns about equal access to the Internet and World Wide Web (Power & Holloway, 1996).

Despite these concerns about Internet use, most educators recognize the vast benefits for students, teachers, library media specialists, administrators, and the community. Barron and Ivers (1996) summarized the unique ways that telecommunications can be beneficial for students: "The Internet can provide students with new, exciting, and challenging resources. It opens doors to multicultural education, establishes real-world learning experiences, invites higher-order thinking skills, and can help to increase motivation and writing skills" (p.4-5).

Telecommunications provides teachers with access to research, curriculum sources, lesson plans, online experts, discussion groups and teacher forums. The Internet

offers opportunities for teacher collaboration and professional growth. It provides library media specialists with additional data resources (which take up little shelf space), more timely information, a tool for teaching research skills, and a convenient way to communicate with colleagues. At the administrative level, telecommunications offers reduced paper handling and faster communications. "Telecommunications can provide administrators with access to immediate, up-to-date information on the latest educational research, conferences, and state initiatives" (Barron & Ivers, 1996, p.7).

Telecommunications is an excellent way to involve the community. Parents have the opportunity to become electronically involved with their children's homework or even tour a school electronically. Senior citizens or people lacking mobility can share their experiences with students through online communication (Barron & Ivers, 1996).

Doug Johnson (1995) from Minnesota's Mankato State University views Internet access as crucial to students' success: "Success in education, employment and civic involvement increasingly demand the ability to use technology to access, process and communicate online information" (p.8). In his article in *Emergency Librarian* he defined full access to the Internet as consisting of two components: physical access and intellectual access. Physical access to the Internet includes the availability of computers at home and at school, adequate time online, appropriate skills instruction, the availability of online resources (e-mail addresses, etc.), the capability to download files and adequate print resources. Intellectual access he defines as the intellectual ability to use the information from Internet sources productively. The learner must: decode, select and evaluate the data; organize the data; and use the information meaningfully. Johnson

(1995) believes that the skills necessary for intellectual access require a wide variety and large number of learning opportunities; therefore,". . . this makes Internet access as important to primary students as it is to high school and college students" (p. 10).

"For school library media programs the challenge is to use technology in general and the Internet specifically as a means to an end and not as an end in itself. Let's call this the 'Internet Challenge'," says Michael B. Eisenberg (1996, p. 5), Professor in the School of Information Studies at Syracuse University, co-owner of LM_NET, and Director of the ERIC Clearinghouse on Information & Technology. He feels that this "Internet Challenge" provides library media specialists with tremendous opportunities to focus on their primary functions of information specialist and information skills instructor.

Politicians, as well as educators, are aware of the importance of Internet use. On the national level, Vice President Al Gore has been pushing for a National Information Infrastructure (NII) and a Global Information Infrastructure (GII). He has been credited with coining the phrase "Information Superhighway." Work on the NII is being done by the Information Infrastructure Task Force in conjunction with the Commerce Department's National Telecommunications and Information Administration (Wresch, 1997). The Telecommunications Act signed by President Clinton in 1996 has opened up additional resources for Internet access (Cafolla, Kauffman, & Knee, 1997).

Every state has some venture being developed between telephone companies, the government, and public schools to get Internet access into the schools. Even volunteer efforts are being organized to promote Internet access. One example is NetDay 96, a volunteer effort to connect California's schools to the network (Wresch, 1997).

Internet Use: Acceptable Use Policies and Filtering Software

With the growth of the Internet and World Wide Web and increased use by students, there has also been legislative efforts to limit or control the web. The best known federal attempt to legislate online material was the Communications Decency Act, a small component of the Telecommunications Act of 1996. The Communications Decency Act imposed prison terms of up to two years and fines of up to $250,000 on people who spread "indecent" material on the Internet. Unfortunately, the act made it possible for Internet service providers to be liable for "indecent" material transmitted through their service. Also, since there are no set standards to define what constitutes "indecent," this made enforcement of the law difficult. A restraining order against the Communications Decency Act was granted almost immediately after it was passed and in June, 1996, the Supreme Court ruled that the Communications Decency Act was unconstitutional (Robin, Keeler, & Miller, 1997).

The American Library Association has endorsed a policy of unrestricted access to electronic resources as they continue to lobby for freedom of speech (Simpson, 1996). Educators who have studied this issue feel that the responsibility for policing the Internet belongs to parents, teachers, and students. According to Robin, Keeler, and Miller (1997):

> By teaching students how to seek, evaluate, and analyze the information they need and avoid information that's inappropriate and irrelevant, we're doing far more to promote strong analytical skills and good citizenship than if we attempt the impossible legislative task of turning the Internet . . . into a completely child-safe

environment." (p. 147)

The most appropriate way to accomplish that is through the use of an Acceptable Use Policy (AUP) to lay down the boundaries of acceptable and unacceptable behavior on the Internet. AUPs make the rules of Internet use clear to everyone, including parents, students, and teachers. AUPs provide procedures for students to follow if they encounter inappropriate material and AUPs limit the schools' legal liabilities (Robin et al., 1997). Barron and Ivers (1996) believe,

> If you have a selection policy (or other school policy) that describes the materials that students may or may not bring into school . . ., you also have the basis for telling students that they cannot bring images of naked women up on the screen, or access advertisements for booze and tobacco. (p. 49)

AUPs have four primary components. The first includes the definition of the Internet and how it will be used. The second component states the rights, responsibilities and risks involved in the students' use of the Internet. The third component sets the penalties for students who fail to follow the guidelines and the procedures that will be followed. The last portion of the AUP releases the school from liability and requires the signature of parent and student (Palgi, 1996).

The general procedure for developing AUPs begins with forming a committee to draft the policy. The committee decides on the objectives of the school and how the AUP will be implemented. Next, the committee reviews existing AUPs of other schools and districts; there are some AUPs available online. Finally, one person is chosen to write a draft of the policy for the committee to approve (Robin et al., 1997).

Another approach to limiting Internet access is to install filtering software. Internet filtering programs such as SurfWatch, Cybersitter, Net Nanny or Cyber Patrol restrict access to some sites. Once installed on a computer, the filter activates when a user attempts to access an "inappropriate" site or search a restricted term. Some filtering programs notify the user when he types in a restricted address. Some filtering programs filter newsgroups and electronic mail (e-mail). Other programs use formulas to identify "dangerous" sites. Many of the vendors of these programs will not reveal what criteria they use to select appropriate or inappropriate sites (Simpson, 1996).

One problem with filtering software is that the "inappropriate" sites frequently change their addresses to avoid the filtering. Also, if filters are used on all computers, the teachers will be restricted along with the students. Frequent updates are necessary if the filtering software is to be effective and they could be costly or inconvenient to install. Carol Simpson (1996), editor of *Technology Connection* believes, "Nothing short of unplugging the computer will guarantee that a student can never access inappropriate material on the Internet. Don't live with a sense of false security . . . by assuming that a filtering program will do all the work" (p.18).

Evaluation of Internet Information Resources

Information sources have traditionally been evaluated using specific criteria. Some of the same criteria can be used to evaluate Internet sources. Determining which of the traditional criteria is most useful for evaluating Internet sources was the purpose of a 1992 OCLC Office of Research study. Describing the most relevant conclusion of the study, the importance of access, Edmund F. SantaVicca (1994) wrote:

"In a virtual world of Internet information, access becomes the sine qua non of the universe. If one cannot access the information, one cannot evaluate the information; and certainly, one cannot use the information. Consequently, this single criteria [sic] takes precedence over all others" (p. 231).

This study also revealed a major flaw with Internet sites, the lack of descriptive information concerning the sources of the retrieved information (SantaVicca, 1994).

Others have attempted to help school librarians identify and evaluate Internet Web sites. Carolyn Caywood, Virginia Beach Public Librarian, was one of the first to write criteria assessing Web sites for library use. The American Association of School Librarians' ICONnect task force, chaired by Pam Berger, has published an Evaluation Criteria Rating System for Web sites on its site (Symons, 1997). Another source of information about evaluating Internet sources can be found online at a Web site created by Alastair Smith (1997) from the Department of Library and Information Studies, Victoria University of Wellington, New Zealand.

"Librarians have always used evaluative criteria to select materials. The Web is no different," states Ann K. Symons (1997, p. 24). She provides a list of selection criteria from A to Z: accessibility, accuracy, affiliation, appropriateness of links, attention from reviewers, audience, authority, clarity/readability, content, cost, currency, curriculum support, depth/breadth, design, diversity of viewpoint, duplication, interaction, navigation, performance, purpose, searchability, and uniqueness.

Symons (1997) describes two ways to find Web sites that meet the needs of

students and teachers. The first is to read reviews written by colleagues. Some of these include: *Library Journal*'s "Web Watch" column and Web site, *School Library Journal's* column called "Surf For," *College & Research Libraries News* "Internet Reviews" column, and James Rettig's monthly column, "Rettig on Reference" available online. The second way to find useful sites is to visit sites rated by commercial rating services and look at the home pages of school and public libraries for lists of additional sources.

Educational review sites available online can be another evaluative source. Two examples are the University of Saskatchewan's "Evaluation of Interactive Educational Systems" site and the "WebReview" site created by educators at the Institute for Learning Technologies at Columbia University's Teachers College (Robin et al., 1997)

Several recent books written as guides for educators on Internet use include descriptive reviews of Web sites of interest to educators: Robin, Keeler, and Miller's *Educator's Guide to the Web* (1997), Barron and Ivers' *The Internet and Instruction: Activities and Ideas* (1996), Valauskas and Ertel's *The Internet for Teachers and School Library Media Specialists* (1996), Cafolla, Kauffman and Knee's *World Wide Web for Teachers: An Interactive Guide* (1997), and Wresch's *A Teacher's Guide to the Information Highway* (1997).

LION (Librarians Information Online Network) (1997) provides a list of Internet-related magazines that will be of interest to school librarians and teachers looking for ways to effectively use and evaluate the Internet. Some are available online and in print version; others are only available in print.

Internet Use: Current Educational Projects

The Internet and World Wide Web are currently being used by educators in several different areas. Telecommunications (e-mail), research, curriculum-based and online projects, lesson plans, and even creation of home pages are happening in elementary as well as middle and high schools across the country.

One telecommunications project, an idea from Scholastic Network, called Sister Cities Online involves students exchanging information with students from another city. An example of this was the November, 1996, activity, which required the students to list 24 "signs of the season" where they live and e-mail the list to the class in their sister city (Garner & Gillingham, 1996).

Another telecommunications project, entitled "Pennies" Around the World originated in Honolulu, Hawaii. The Internet was used by fourth graders to communicate with students in other countries in order to exchange information about their currencies, especially their "pennies" or lowest denomination (Tomomitsu & Tamaru, 1995).

Other telecommunication ideas include exchanging information about nutrition and dietary habits, environment, food prices, physical fitness scores, favorite books and book reviews, reading lists, tourist attractions and historical sites, round-robin stories, playground descriptions, and favorite things (Barron & Ivers, 1996).

Valauskas and Ertel (1996) describe telecommunication projects that have been successful in schools across the country. Where On the Globe is Roger? is a project which involved students communicating with Roger Williams, a retired U.S. Marine Corps combat pilot who was driving around the world and invited students to travel along

with him via the Internet. Geogame from the Global SchoolNet Foundation requires students to provide geographic information about their community and answer a questionnaire before solving a geographical mystery.

The Internet and World Wide Web offer a unique approach to research projects. In order for students and teachers to use the Internet effectively, it is the library media specialist's responsibility to identify, evaluate, and "collect" the good Web sites as bookmarks for research. Barbara Ripp Safford (1996a) suggests,

> If you are truly dedicated to making the Internet information sources which closely match your curriculum easily accessible to your teachers and students, you will create a hyperlinked subject list of most-researched topics and integrate the list into your regular reference skills lessons and services (p. 49).

She labels this list a ready-reference home page and suggests keeping the list to one screen (1996b).

One of the specialized research techniques which has been used successfully with the Internet is the I-Search Paper developed by Ken Macrorie. Macrorie defines the I-Search as a research project in which a person conducts a search to find out something he needs for his own life and records his progress and thoughts in a journal (Joyce, 1995).

A group of educators in Virginia have taken the I-Search technique one step further with their research projects called Major Views. Students choose a topic of personal interest to them, use a graphic organizer to organize their thoughts about their topic, research their topic, and present their information, including opinions, in video form (McConnell et al., 1996).

Eisenberg and Berkowitz provide an information problem-solving model, the Big Six, which can be adapted for teaching Internet skills. It includes six information skills: task definition, information-seeking strategies, location and access, use of information, synthesis, and evaluation (Eisenberg, 1996).

Internet-based curricular projects have become popular as teachers participate in online collaborations with others to exchange educational information. One example is the JASON project, founded in 1989 by Dr. Robert Ballard after his discovery of the RMS Titanic. It demonstrates how students and teachers can interact with scientists in an ongoing electronic field trip. Another well-known educational project on the Web is MayaQuest. Lesson plans, classroom activities, teacher resources, online discussion groups, and archives of materials can be found at their Web site. The Gulf Stream: A Global Investigation is a cross-curricular study of the Gulf Stream presented by the New Jersey Networking Infrastructure in Education program. A source of further information about this type of project can be found at the Web site entitled Pitsco's Launch to On-Line Collaborative Projects (Robin et al., 1997).

Some schools have taken use of the Internet a step further. "Not only are students and teachers in the school users of Internet services..., but they are also information providers, introducing an entirely new dimension into the use of the Internet in educational settings," according to Anne Clyde (1995, p. 52). This new dimension is the school home page, where students participate in creating resources that are on the Internet.

Another significant educational use of the Internet is as a source for lesson plans.

Many Web sites provide lesson plans for teachers, some with step-by-step instructions, and others with basic outlines. These lesson plans cover all areas of the curriculum (Barron & Ivers, 1996).

The Internet and World Wide Web are being used by schools nationwide in countless different ways. This study will attempt to determine how the elementary schools in Gloucester County, New Jersey are using the Internet to enhance their curricula.

Internet Use in Education: Research and Statistics

Every new technology requires evaluative study to determine how effectively it is being used, the Internet included. A 1995 doctoral dissertation study of Tennessee K-12 educators was conducted to determine, "what factors influence educators to use the Internet in classroom activities or in their own professional development" (Davenport, 1995, p. 1323A). A random sampling was done of 325 educators in Tennessee with surveys received from 198 educators. Findings indicated that the Internet was used most by educators who had attended Internet workshops or seminars and e-mail and gopher were the tools most often used.

Another doctoral dissertation study was done in West Virginia on Internet use in the rural school. This study involved ten teachers from a rural area of West Virginia, who were instructed in Internet use and then their levels of concern and usage of Internet resources were measured. Findings of the study did show the Internet to be a valuable tool in the rural classroom (Baugh, 1994).

The purpose of another doctoral dissertation was to analyze the content of a

random sampling of 1,140 Web sites. The analysis of the sites indicated that public relations and advertising were the dominant information categories for the three types of Web sites studied. It concludes that the Internet and World Wide Web "would be an important part of the information highway by functioning as a citizen information utility..." (Aikat, 1995, p. 3358A).

Kafia and Bates (1997) conducted a preliminary study of elementary school children in California to determine the skills needed to use the Internet, specifically to produce an annotated directory of Web sites for other children. The general goal of the project, entitled "SNAPdragon," was to build children's information literacy skills. At the completion of the project, all children were able to use Web sites, scroll through a site and use hypertext links to other sites. Older children demonstrated their ability to use search engines and simple Boolean logic and extract information from the sites for the class projects.

There are numerous sources for statistics related to Internet use in education. An excellent source is the National Center for Education Statistics (NCES). Their latest survey entitled, *The Survey of Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996,* is available online through their Web site. This survey requested information about advanced telecommunications use in schools, specifically Internet access and use. The NCES used its Fast Response Survey System to collect data from 911 regular public elementary and secondary schools. The results were weighted to produce national estimates for all regular public schools. They found that 65% of U.S. public schools had access to the Internet in fall 1996. More secondary

schools had access than elementary schools. Large schools were more likely to have Internet access than smaller schools. Suburban schools reported higher rates of Internet access than rural and urban schools. Also, 87% of public schools that did not have Internet access had plans to have access by the year 2000 (Heaviside, Riggins, & Farris, 1997).

School Library Journal conducts a biennial survey of school library media specialists that examines specific developments in public and private schools' library media programs. Technology and computer use (including Internet) are tabulated, along with other more traditional aspects of the library media program. The survey from 1993-94 reported that book expenditures were static while spending for technology was increasing. At that time 25% of library media specialists had access to the Internet and e-mail (Miller & Shontz, 1995).

Market Data Retrieval's (MDR) 1996 K-12 technology survey involved 67,000 schools nationwide. They were surveyed utilizing a combination of direct mail and phone techniques. The survey provided information on school demographics, computer use, Internet use, student-computer ratios and types of Internet applications used. Their preliminary findings indicated that almost three-quarters of all school districts have at least one school on the Internet. Forty-three percent of high schools used the Internet compared to less than 30% of elementary schools. The survey did not find any significant differences in Internet use according to metropolitan area or per-pupil spending (Hamilton, 1996).

Although there have been some studies done on the topic of Internet use in

elementary schools, there is still need for additional studies. More information is needed about educational applications of the Internet and how specific school library media centers are handling the access and censorship issues related to Internet use. This study attempted to answer some of these questions as it examined Internet use in the public elementary schools in Gloucester County, New Jersey.

Chapter Three

Methodology

The Survey Questionnaire

The focus of this study was to determine the current status of Internet access and use in the elementary schools of Gloucester County, New Jersey. Data was collected through use of a survey questionnaire. Then the study compared those statistics to national statistics from the National Center for Education Statistics (1996).

Participants

The library media specialists from all elementary schools in Gloucester County, New Jersey were included in this study. Gloucester County, consisting of 329 square miles, is located in the southwestern part of the state of New Jersey. The county, considered part of the Greater Philadelphia Metropolitan Area, borders Camden County on the north and east, Salem County on the south and the Delaware River on the west.

There are 22 school districts in Gloucester County which have elementary schools, and a total of 48 elementary schools in the county. The definition of elementary school differs from one school district to another, but generally is considered to be Kindergarten or Pre-School to grade four, five, or six.

Survey Questionnaire Construction

The first step in the process of using a survey questionnaire to obtain information

is to construct an appropriate questionnaire. Using *The Practice of Social Research* (1998) by Earl Babbie as a guide, a self-administered questionnaire was created to be mailed to the elementary school librarians. Since the data obtained from the Gloucester County elementary school librarians was going to be compared to the statistics in a national survey from the NCES, most of the questions (Questions Number One through Ten) for this survey were patterned on the questions from the national survey entitled *The Survey of Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996* (1997), which was published on the Internet and downloaded on November 29, 1997. The researcher also included additional questions which she felt were appropriate to a discussion about Internet use in the elementary schools.

The questions were designed to be short and clear (see Appendix A). They were to be answered with a check in the box in front of one appropriate or all applicable answers from a choice of two to eight possible answers. The questionnaire was spread out and uncluttered. The respondent was asked to supply name, school and school district, but told that information would not be used in the thesis or any published report of the thesis. The purpose of the identifying information was to facilitate the mailing of reminder postcards after two weeks to respondents who did not return their survey questionnaire. The questions were ordered in such a way that respondents who answered **no** to having Internet access were not required to answer any further questions except to answer whether the school would have Internet access by the year 2001. Respondents were also given the opportunity to put a check in a box if they wanted the results of the study sent to them.

After the questionnaire was constructed, it was tested by several elementary school librarians for clarity, submitted to the thesis advisor for further suggestions for improvement, and then revised.

The revised questionnaire had 14 closed-ended questions (10 of which were directly related to the national survey) and two open-ended questions involving an opinion about the Internet and research projects currently being done with the Internet. The questionnaire was printed on two pages (see Appendix A).

Survey Questionnaire Distribution

In order to mail the survey questionnaire to the elementary librarians, addresses were needed. A list containing pertinent information (grades and professional staff size, as well as addresses) about all schools in Gloucester County, New Jersey was obtained from the Gloucester County school superintendent's office.

A letter explaining the purpose and methods of the study (see Appendix B) and a copy of the survey questionnaire were mailed to the Gloucester County school superintendent. Then, the two-page questionnaire, a cover letter stating the purpose of the study (see Appendix B), and a self-addressed stamped envelope were mailed on February 4, 1998. Forty-eight elementary schools were mailed surveys addressed to the elementary school librarian.

A tally was kept by the researcher of the dates the survey questionnaires were received in order to determine if there was a pattern in response rates.

Survey Questionnaire Analysis

In order to facilitate entering the data received from the survey questionnaires into

a computer database, a codebook was constructed to convert the data items into numerical codes. Codesheets were created with answers from one question from the survey questionnaire per page. For clarity, a decision was made to use only the information from the surveys that answered **yes** for Internet access for questions number four through fourteen. Some library media specialists had attempted to answer these questions after answering **no** for Internet access.

The data obtained from the survey questionnaires was entered into a database using WordPerfect 6.0 on an IBM ThinkPad computer and was used to organize the information, record opinions about the Internet, and create a list of research projects currently being done using the Internet. WordPerfect was used to create graphs depicting the results.

Finally, a comparative analysis was done. Further graphs were used to compare the data obtained from questions number one through ten of the survey with the national statistics from the NCES survey. These graphs show how the elementary schools in Gloucester County compare with schools across the country in Internet access and use.

The researcher expected the statistics from the elementary schools in Gloucester County to be comparable with the national statistics. Internet use in Gloucester County's elementary schools should be equal or even above (because of rapid advances in technology) the Internet use reported in the 1996 national survey.

Chapter Four

Survey Results

Survey Response Rates

Surveys were sent to the library media specialists of the 48 elementary schools in Gloucester County on February 4, 1998. Reminder postcards were mailed on February 24, 1998, to 12 library media specialists who had not yet responded. A total of 34 surveys (a response rate of 71%) were returned in this order:

February 6: 3	February 12: 4
February 7: 12	February 18: 3
February 10: 8	February 24: 1
February 11: 2	February 28: 1 (returned after postcard was sent)

Survey Responses - Demographics

Question Number One and Number Two dealt with school size and percentage of minority enrollment. In order to facilitate comparisons, both questions used the same numbers and categories as the survey from the National Center for Educational Statistics entitled: *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996.* Of the 34 responding schools, 25 (or 74%) have 300 to 999 students; seven (or 21%) have fewer than 300; one (or 3%) has 1,000 or more students and one survey had no answer. Of the 34 schools, 15 (or 44%) have less than 6%

minority enrollment; nine (or 26%) have 6 to 20%; five (or 15%) have 21 to 49%; and five (or 15%) chose not to respond to this question.

Survey Responses - Internet Access

Question Number Three asked if there was access to the Internet in the building or plans to have Internet access by the year 2001. Nineteen (or 56%) of the library media specialists answered yes and 15 (or 44%) answered no. Out of the 15 that answered no, 13 (or 87%) responded that there were plans to have access by the year 2001 and two had no answer. Therefore, 94% of the schools responding to the survey have or will have Internet access by 2001, with five (or 38%) of the no's planning to have access by the end of the 1998 school year. Comments (of the no's) were:

By the end of the year.

We hope to be automated (a process now being done) and hooked to the Internet by September 1998.

We are just about there! Lines are in, but we are not 'online' just yet.

We are in the process of installing the Internet now!

We will have access by the end of the year or sooner.

How do the Gloucester County's elementary schools compare to elementary schools nationwide? As of this survey, 56% percent of Gloucester County's elementary schools as compared to 61% of elementary schools nationwide (in 1996) have access to the Internet in the building. In Gloucester County 87% of those elementary schools without Internet access plan to have access by the year 2001 as compared to 85% of elementary schools nationwide (in 1996).

Is there a relationship between school size and whether or not the school has Internet access in the Gloucester County elementary schools? Figure 1 shows the number of schools in each size category that do have Internet access (yes) or do not have Internet access (no).

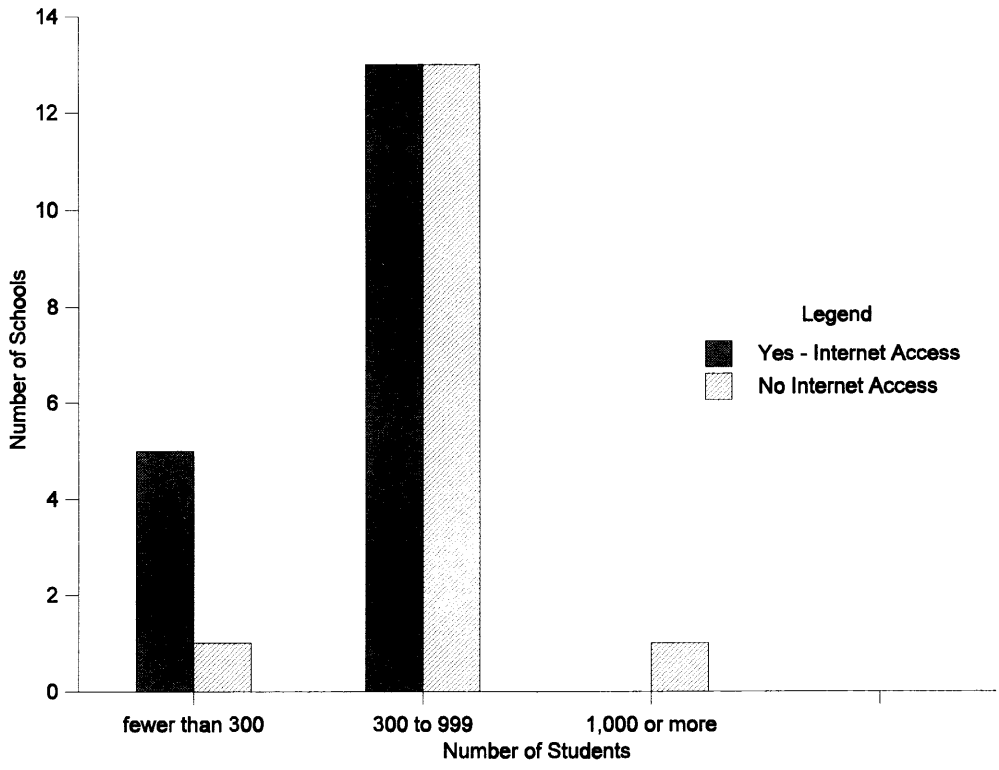

Figure 1. Gloucester County elementary schools categorized by size (total number of students) and how many schools in each category have Internet access (yes) or do not have Internet access (no).

Is there a relationship between the percent of minority students in a school and whether or not that school has Internet access? To determine if a such a relationship exists in Gloucester County, the elementary schools were categorized by percent of minority enrollment (percent of total student population that represents any minority). Figure 2 uses the same categories for minority enrollment that were used in the national survey: fewer than 6%; 6 to 20%; and 21 to 49%. Figure 2 shows the number of schools in each of these categories that have Internet access or do not have Internet access.

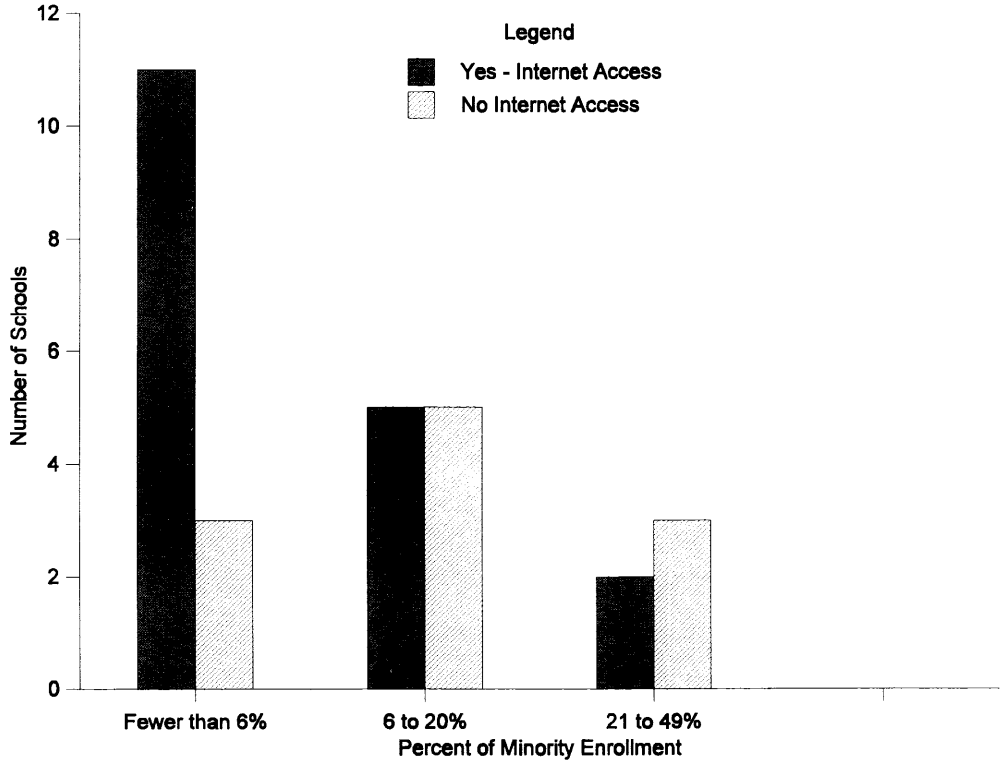

Figure 2. Gloucester County elementary schools categorized by percentage of student population that is minority; showing the number of schools with Internet access.

Survey Responses - Internet Capabilities

Question Number Four in the survey dealt with the type of connection currently being used by the school for their Internet access. The choices were modem, SLIP/PPP, T1, and 56Kb. Of the 19 Gloucester County elementary schools that have Internet access, most have either an ISDN connection (42%) or modem (37%). Two schools (or 10.5%) have a SLIP/PPP connection and two schools (or 10.5%) have a T1 connection. None of the Gloucester County elementary schools have a 56Kb connection. Comparisons with national responses are shown in Figure 3.

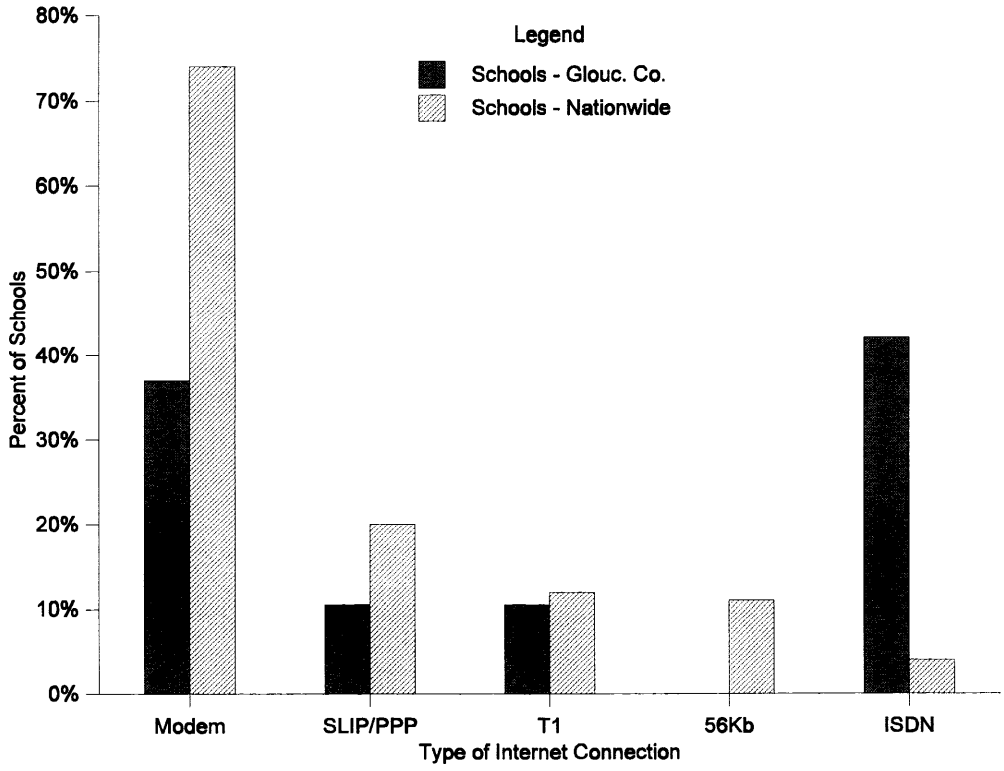

Figure 3. Percentage of elementary schools in Gloucester County (1998) and nationwide (1996) with each type of Internet connection in the building.

In Question Number Five the library media specialists were asked how many instructional rooms (including classrooms, computer labs or library) have Internet access. The response from the 19 elementary schools with Internet access was: 37% have one room; 37% have five or more rooms; 21% have two or three rooms; and 5% have four rooms with Internet access in the school building. One library media specialist commented, "All will eventually be connected." Another comment made was, "NOT library - grrrr!!" Figure 4 shows the comparison of Gloucester County elementary school responses with the national responses.

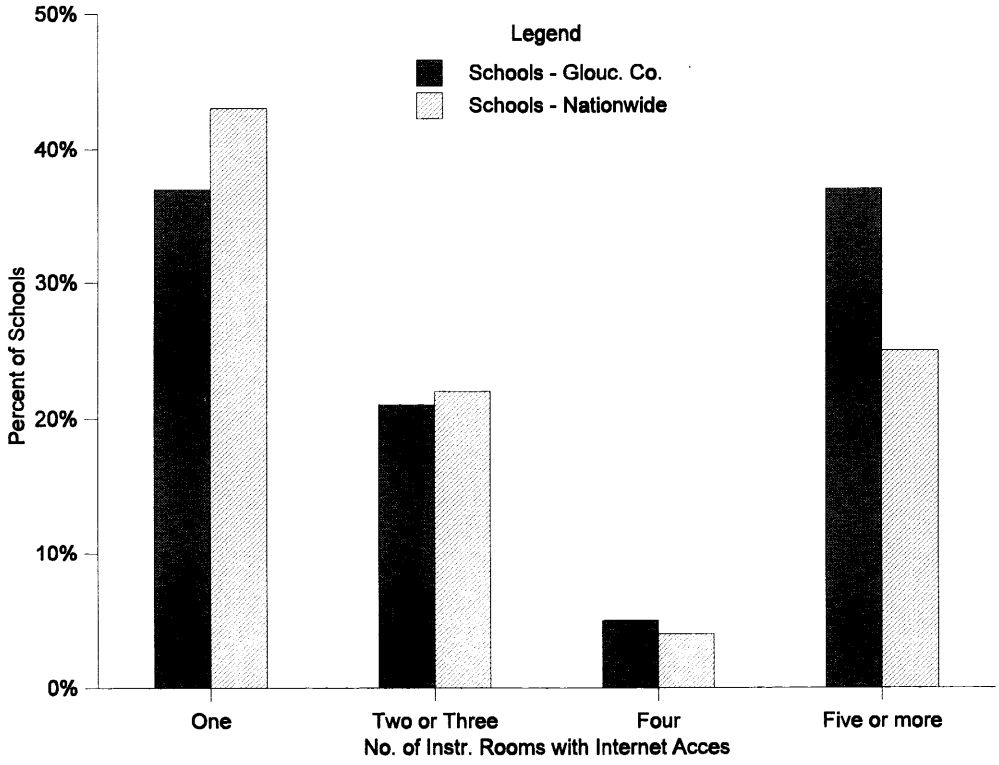

Figure 4. Percentage of elementary schools in Gloucester County and nationwide that have one, two or three, four, or five or more instructional rooms with Internet access.

Question Number Six and Seven asked to which types of Internet capabilities do teachers and administrators in the elementary schools have access. The choices were: e-mail, news groups, resource location services (e.g. Gopher, Archie), and World Wide Web access. Teachers and administrators in the 19 Gloucester County elementary schools with Internet access have access to e-mail and the World Wide Web almost twice as often as access to news groups or resource location services. Figure 5 shows the comparison of Gloucester County elementary school's teachers with teachers in elementary schools nationwide (in 1996) and the types of Internet capabilities available.

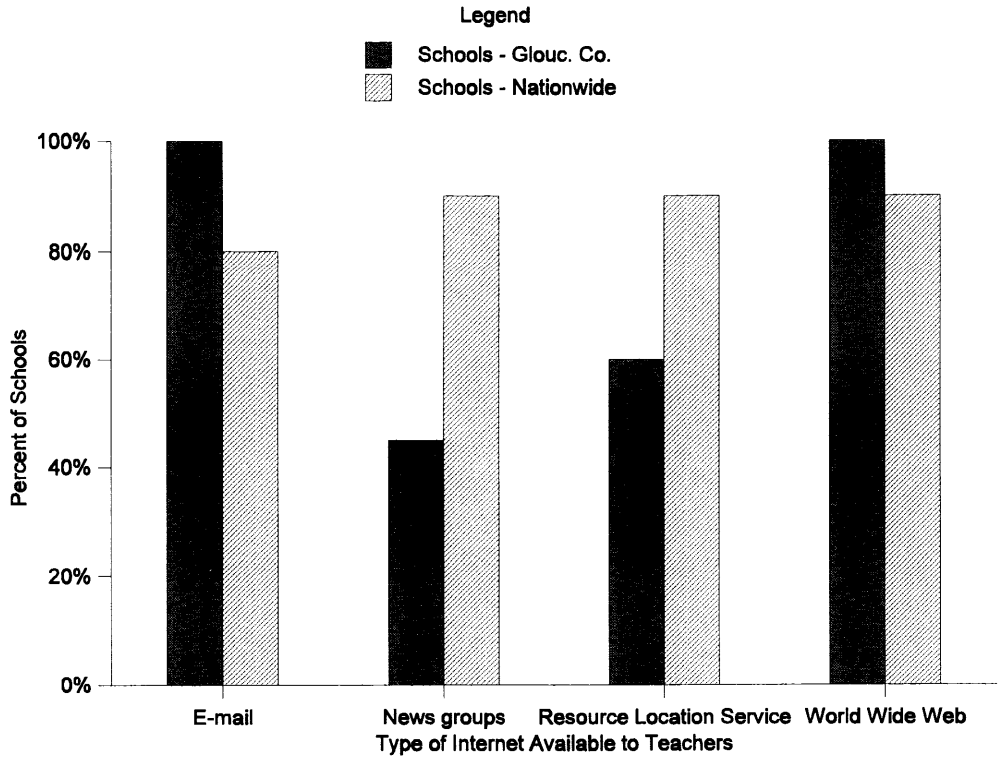

Figure 5. Percent of elementary schools in Gloucester County (1998) compared with elementary schools nationwide (1996) with Internet capabilities available to teachers.

Figure 6 shows the comparison of Gloucester County elementary school administrators with elementary school administrators nationwide (in 1996) and the types of Internet capabilities available to them.

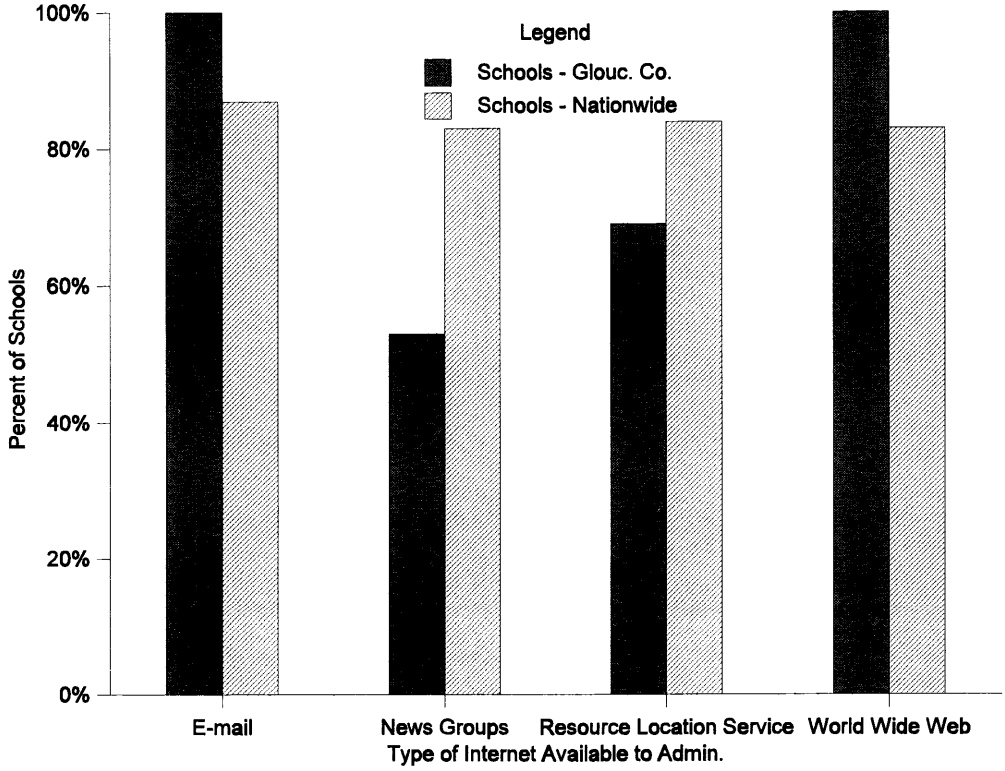

Figure 6. Percent of elementary schools in Gloucester County (1998) compared to percent of elementary schools nationwide (1996) with these Internet capabilities available to administrators: e-mail, news groups, resource location services, the World Wide Web.

In Question Number Eight the Gloucester County elementary school library media specialists who had Internet access were asked to indicate how it was used: to access information, communicate with parents, or for some other purpose. All responding elementary schools used it to access information, but only 11% used it to communicate with parents. Twenty-six percent used it for some other purpose. Comments included: "Via our Logan Township Home Page;" "When Internet is ready to go;" and "Will have Web page available." Figure 7 shows a comparison with national statistics.

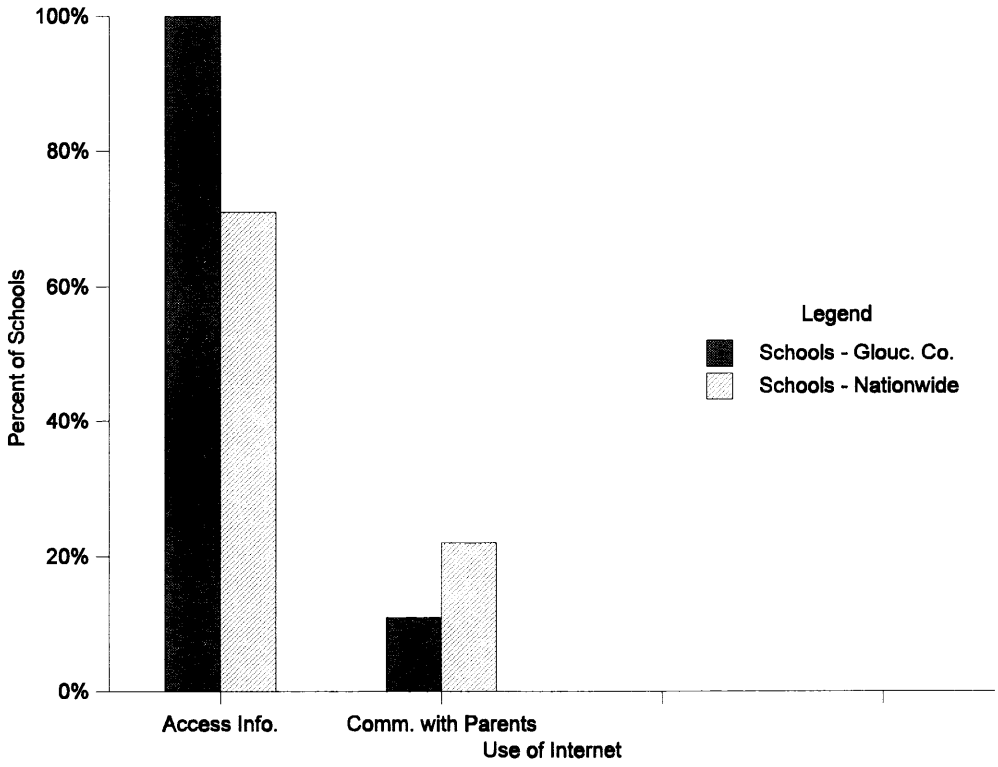

Figure 7. Use of the Internet by Gloucester County elementary schools (1998) and elementary schools nationwide (1996):access information or communicate with parents.

Survey Responses - Internet Training and Funding Sources

Question Number Nine asked for information about how teachers were trained on use of the Internet. Library media specialists were asked to choose from these responses: mandated by school district; encouraged by incentives; left up to teachers to initiate participation; and other. The largest percentage of library media specialists who answered this question (44%) stated that their Internet training is left up to teachers to initiate participation. Twenty-five percent responded that their training was "mandated by the school district." Nineteen percent chose "encouraged by incentives." Twelve percent chose "other."

Comments about this question included the following:

Not available.

Added by administration to some staff's PIPs. (Professional Improvement Plans)

I do not know - perhaps in-service training in individual buildings. I have attended workshops paid for by both the district and myself. Teachers, to my knowledge, have not attended any.

Faculty meeting this month - one one-hour session.

At this point - next year it will be in PIPs.

A comparison with national statistics on Internet training for teachers is shown in Figure 8.

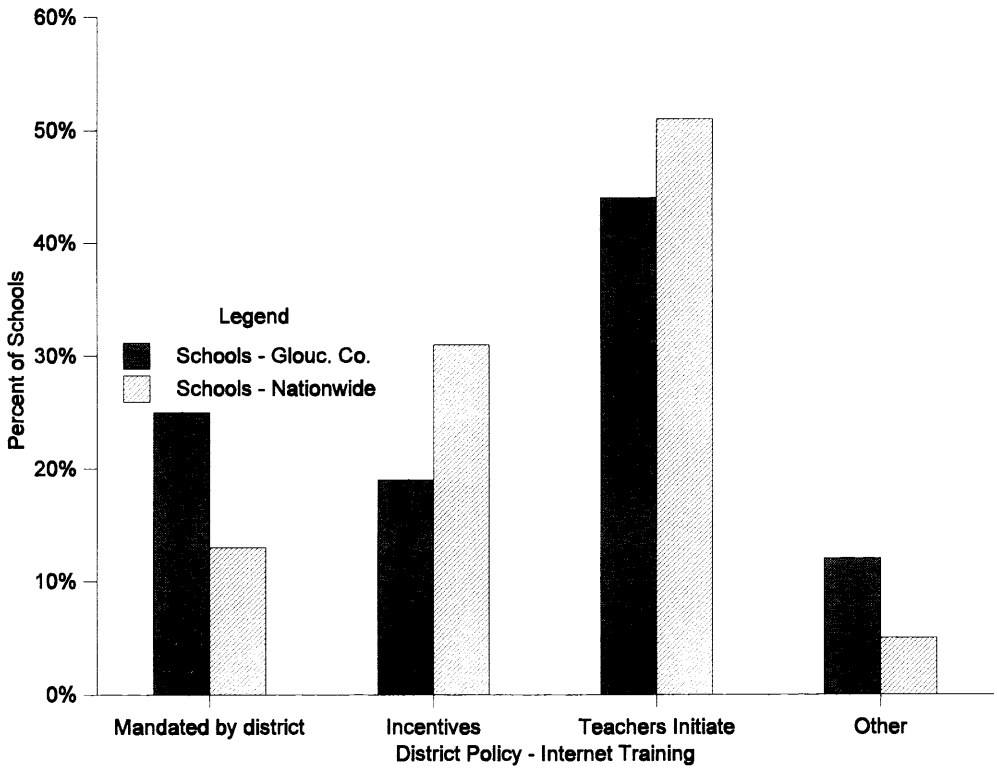

Figure 8. District policy regarding Internet training for teachers in the elementary schools of Gloucester County and nationwide.

In the survey, Question Number 10 involved identifying the sources of funding for Internet use. The choices were local taxes, business or industry, state or federal government, community nonprofit organization, teachers, students, parents, and other. In the responding elementary schools of Gloucester County, local taxes were the top-ranked source of funding for Internet use (79% of the schools indicated this as a source of funding for them). State or federal government funding (including grants) ranked second (32% indicated this as a source of funding for them). "Community nonprofit

organizations" was chosen as a source of funding by 16% of the schools. Eleven percent chose "other" as a source. The choices "teachers" and "parents" were selected by 5% of the schools as a source of funding.

Comments about funding sources were:

Our Internet provider is giving it to us for free.

My guess is local taxes. Also have heard of a "deal" - we give ISP space, they provide free access.

Other - grants. State or federal government grants.

Figure 9 shows the funding source comparisons.

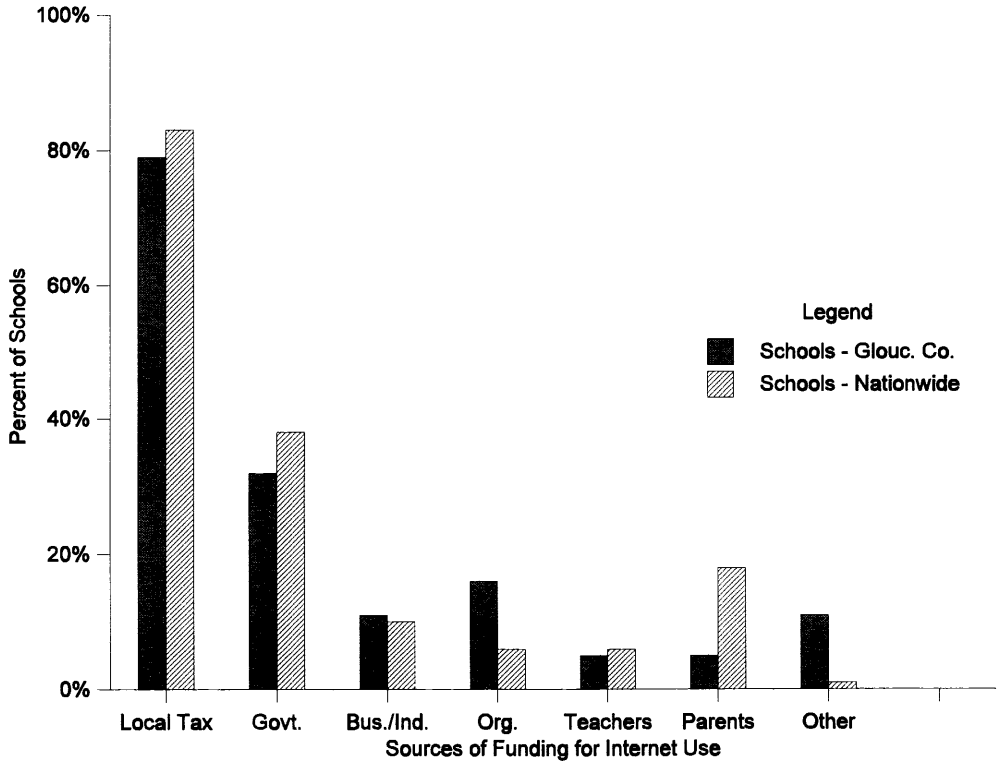

Figure 9. Funding sources for Internet use in Gloucester County and nationwide.

Survey Responses - Additional Internet Information

Question Number 11 through Number 16 of the survey dealt with information the researcher felt was relevant to a discussion of Internet use in elementary schools. Those questions were not part of the national survey. Therefore, the answers from those questions are not compared to the national survey.

In Question Number 11 the library media specialists were asked to indicate the number of computers in the schools which have Internet access. Thirteen (68%) of the 19 responding elementary schools in Gloucester County with Internet access have four or more computers currently hooked up to the Internet. Two (10.5%) of the schools have one computer with Internet access and two (10.5%) of the schools have two computers with Internet access. Two of the schools with Internet access did not answer this question. One library media specialist added this comment about number of computers with Internet access: "Entire building - one in each classroom (30) and 18 in other rooms."

Questions Number 12 and 13 of the survey involved two of the ways currently being used to protect students from inappropriate material on the Internet - filtering software and Acceptable Use Policies. When asked in Question 12 if they were using filtering software with their Internet, the library media specialists were split on the answer. Ten answered that they were not using filtering software and nine answered that they were using it. Comments on filtering software use were: "Will be in near future," and "Not yet, perhaps in the future." An Acceptable Use Policy is being used by 15 (79%) of the Gloucester County elementary schools with Internet access. Comments about the Acceptable Use Policy were: "Supposedly there is one - I haven't seen it yet," and "Will

be in near future."

The library media specialists with Internet access in their building were asked in Question Number 14 if their library media center was automated. There were 12 (63%) that responded **yes** and seven (37%) that responded **no**. Comments included: "In the process;" "Just for circulation - no card catalog automation; "Winnebago - circulation only;" and "Will be September, 1998."

Survey Responses - Opinions and Research Projects

Question Number 15 asked for opinions about Internet use in the elementary school. Sixteen library media specialists chose to answer this question with an opinion about Internet use. Seven were positive about the benefits of Internet use in the elementary school and nine had mixed opinions about Internet use.

Some of the positive comments about Internet use were:

The teachers have been fairly successful at finding relevant information. Students don't have independent use yet.

I think it is a wonderful source of information for both students and teachers. It helps to fill in the gaps where we may be lacking information. It can be slow and takes time. I still think books are the best source of info!

I think there will be major research benefits whenever we finally get it going!

I find it a valuable resource. It is difficult to find the time to really sit down and "surf" to see what is out there and available to offer to teachers and students.

It is a wonderful instructional tool. However, it is only one tool not to be used as

the only tool. Generates excitement but students need to be trained how to evaluate information. Level of content is, for the most part, too high for the majority of students in our school.

Internet use among staff is limited due to time constraints and curriculum pressures. However, there is much of value for teachers on the Internet.

Great for research!

Some of the library media specialists who have some reservations about the Internet had these comments to make:

At the elementary level, it can be confusing and often frustrating to the student.

The wait is sometimes too long, and the resulting sites are difficult to understand. But I think it is a necessary path to take and I wish for our technology to improve to overcome these negatives. (Personally, I really enjoy it!)

I think it encourages plagiarism. Students seem to print the info and copy it into reports. It limits the sources students use and much of what is retrieved is not on their reading level.

Have you read *Silicon Snake Oil*? Good book about computer/Internet use. I've been using computer since before it was "cool." The current obsession is amusing and a little scary.

I'm a real rookie, but I enjoy the experiences I have had. Desperately need training.

No substitute for a human being helping with the search. I think it should

make us as resource people more valuable.

Great for teachers - scary for me as a media specialist. Even with filtering software, supervision is difficult. There is always the student who can "crack the code."

We need guidelines before we use it. I need training.

We need more time to access it.

Need to teach evaluation techniques for on-line sources.

I feel that it should be hooked up in the high school. It should be limited to teacher use in the elementary grades.

Fourteen library media specialists responded to Question Number 16 with information about the research projects currently being done in their schools. Some of the schools were doing a few small projects such as Pen Pals and Chats on Scholastic Network. Other schools had projects for every grade level, such as: first grade - robots, second grade - pen pals, third grade - totem poles, fourth grade - Olympics, fifth grade - stock market and company information, sixth grade - Civil War research. For a complete listing of research projects currently being done in Gloucester County elementary schools see Appendix C.

Summary

Comparisons were made between Gloucester County elementary schools and elementary schools nationwide on a variety of issues relevant to Internet use. Fifty-six percent of Gloucester County's elementary schools have Internet access as compared to 61% of elementary schools in the national survey from 1996. Gloucester County had

more ISDN connections than elementary schools nationwide (in 1996), but a smaller percentage of modem connections. The number of instructional rooms with Internet access was similar in Gloucester County elementary schools and elementary schools nationwide (in 1996). Most Gloucester County elementary school teachers and administrators had access to e-mail and the World Wide Web almost twice as often as access to news groups and resource location services as compared to elementary schools nationwide (in 1996), which had access to all Internet capabilities equally. Also, Gloucester County elementary schools are using the Internet mostly to access information rather than to communicate with parents. Nationwide, more elementary schools used incentives and fewer used district mandates to encourage teacher training on the Internet than in the Gloucester County elementary schools. As for sources of funding, the Gloucester County elementary schools and elementary schools nationwide have similar percentages, with local taxes being the largest source of funding for both.

Chapter Five

Conclusions and Recommendations

Summary

The purpose of this study was to determine the status of Internet use in the elementary schools of Gloucester County and compare it to the status of Internet use in elementary schools nationwide. The survey sent to the library media specialists of the elementary schools of Gloucester County provided the data to assess Internet use in Gloucester County and a survey from the National Center for Education Statistics (1996) provided the data to access Internet use nationwide. A comparative analysis revealed that Gloucester County's elementary schools do not differ significantly from elementary schools nationwide (at least in 1996) in percentage of schools with Internet access.

Conclusions

Are our schools preparing students to enter this new age of communication? From the data obtained from the survey, it appears that the schools in Gloucester County have technology plans which will prepare students for the future. Fifty-six percent of Gloucester County's elementary schools have access to the Internet now. Eighty-seven percent of those without Internet access plan to have access by the year 2001. Thus, at least 94% of the schools responding to the survey have or will have Internet access by 2001. Therefore, they will be providing their elementary students the opportunity to

become familiar with this new style of communication and information source.

One basic assumption of this study was that there would be limited use of the Internet in Gloucester County's elementary schools. Of the 19 responding schools with Internet access, only 12 of them are currently using it for student research projects. This percentage will certainly grow as more schools get Internet access and become familiar with all that the World Wide Web has to offer for research purposes.

Another assumption of the study was that there would be a disparity among schools in physical readiness for Internet access. The study shows that schools are using a variety of connections for Internet access. One interesting statistic was that Gloucester County elementary schools had a greater percentage with an ISDN connection than elementary schools nationwide. That fact may be explained by the rapid changes in technology. The ISDN connection has become more popular since 1996, the year of the national statistics. Also, the number of instructional rooms with Internet access showed a wide disparity: 37% had one room and 37% had five or more rooms. It appears that some schools are more widely wired for Internet access than others.

Is there any significant difference in percent of Internet access attributed to school size or percent of minority enrollment? Just as in the nation survey, there does not seem to be any significant difference based on size. The one exception is the smaller Gloucester County schools (fewer than 300 students); they had a greater percentage of Internet access. Also, there was one large school (1,000 or more students) without Internet access. There doesn't seem to be a common factor which explains this difference; the small schools are either part of a large school district or the sole elementary school in a small

district. The one large school is part of a large school district in a rapidly-growing suburban township. Schools with the smallest percentage of minorities (fewer than 6%) had a greater percentage of Internet access.

Information access appears to be the main use of the Internet at the present time in Gloucester County's elementary schools and elementary schools nationwide. Perhaps communication with parents and other uses are lagging behind because they require more technological knowledge, such as Web page construction.

Most of Gloucester County's elementary schools are using an Acceptable Use Policy with their students, but only half are using filtering software. The amount of inappropriate material available on the Internet and how to protect students from this material will continue to be an issue for educators.

The researcher asked the question about library automation to determine if there were any libraries that were not automated but were connected to the Internet, which also requires computer equipment. A small number of elementary school libraries are not automated but have Internet access; this seems to indicate that, in some circumstances, Internet access is considered more important than automation.

Davenport's 1995 study of Tennessee educators concluded that educators use the Internet more if they have attended workshops on Internet use (Davenport, 1995). This conclusion was echoed by several library media specialists in Gloucester County's elementary schools. They commented, in this study, that more training is needed for them to become proficient in Internet use.

A number of library media specialists in Gloucester County's elementary schools

feel that the Internet is a valuable tool for research and communication. Their opinion agrees with the findings of a study done in West Virginia in 1994, which showed that the Internet can be a valuable tool in the rural classroom (Baugh, 1996).

Recommendations

Library media specialists of Gloucester County's elementary schools have mixed opinions about the positive benefits of Internet use in elementary schools. More experience with and training on the Internet would be beneficial for the library media specialist as well as the classroom teacher. Then the library media specialist would be qualified to become the advocate for increased use of the Internet in the elementary schools. More research projects coordinated with the classroom teachers need to be attempted using the Internet as a source of up-to-date information. Whether to use an Acceptable Use Policy or filtering software or both in the elementary school is an issue that needs further study.

Future studies on Internet use in Gloucester County's elementary schools would be beneficial as this is a new field of research. Many Gloucester County elementary schools are just hooking up to the Internet. A follow-up study would produce more information on actual usage, research projects and up-dated opinions about Internet use. Some library media specialists want more guidelines to help them use the Internet effectively with their students. Future studies could provide some of those guidelines, including recommendations from librarians already familiar with the Internet, such as tips on Internet use and pitfalls to avoid. Also, further studies on evaluation of Internet sources would be appropriate and helpful for educators.

The Internet and World Wide Web are new resources and, therefore, excellent areas for further research. Their impact on education, especially, will necessitate continued research and afford an excellent source of topics for future thesis and dissertation projects.

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Appendix A

Survey: The Current Status of Internet Use in the Elementary Schools of Gloucester County (by Christine Rohrman)

Librarian's Name_____

School_____School District_____

(The information above will not be appear in my thesis or any written report of my thesis)

If you would like to be sent a short summary of the results of this study, please check here: [ ]
Thank you for taking the time to answer this survey. Please try to return by February 20, 1998.

Please check the box of the appropriate answer:

1. School size: [ ] less than 300 [ ] 300 to 999 [ ] 1,000 or more students

2. Minority enrollment: [ ] less than 6% [ ] 6 to 20% [ ] 21-49% [ ] 50% or more

3. Is there access to the Internet in the school building?
[ ]yes (please answer questions # 4 to #16)
[ ]no
If no: Are there plans to have Internet access in the building by the year 2001? [ ]yes [ ]no

If you do not have Internet access in your building, you do not need to answer any further questions unless you would like to express an opinion about Internet use on the next page.

4. How is the school connected to the Internet?[ ]modem [ ]SLIP/PPP [ ]T1 [ ]56Kb [ ]ISDN

5. Number of instructional rooms (including classrooms, computer lab or library) with access: [ ]one [ ]two or three [ ]four [ ]five or more

6. To which Internet capabilities do teachers have access (check all applicable answers):
[ ]e-mail [ ]news groups
[ ]resource location services (e.g. Gopher, Archie) [ ] World Wide Web access

7. To which Internet capabilities do administrators have access (check all applicable answers):

[ ]e-mail [ ]news groups
[ ]resource location services (e.g. Gopher, Archie) [ ]World Wide Web access

8. For what purpose does the school use Internet access (check all applicable answers):
[ ] access information [ ]communication with parents [ ]other

9. If there is Internet training for teachers, is it:
[ ] mandated by the school district
[ ] encouraged by incentives
[ ] left up to teachers to initiate participation
[ ] other

10. Sources of funding for Internet use (check all possible):

[ ] local taxes	[ ] teachers
[ ] business or industry	[ ] students
[ ] state or fed. govt.	[ ] parents
[ ] community nonprofit organ.	[ ] other

11. Number of computers which have Internet access: [ ]one [ ]two [ ]three [ ]four or more

12. Are you using filtering software? [ ]yes [ ]no

13. Are you using an Acceptable Use Policy? [ ]yes [ ]no

14. Is the library media center automated? [ ]yes [ ]no

15. Opinion about Internet use:

_____
_____

16. Research projects (by grade level) currently being done with the Internet:

_____
_____
_____
_____
_____
_____
_____

Please send completed survey to:
Christine Rohrman
1070 Ollerton Road
Woodbury, New Jersey 08096

Appendix B

Letters

January 26, 1998

Dr. John M. Sherry
Superintendent of Gloucester County Schools
Tanyard Road & Salina Road
Sewell, New Jersey 08080

Dear Dr. Sherry:

I am currently studying Internet use in elementary schools as the topic of my Master's thesis at Rowan University of New Jersey. The purpose of my study is to determine the current status of Internet use in the elementary schools of Gloucester County and compare it to national statistics.

I will be sending this survey questionnaire to the elementary school librarians of Gloucester County in order to collect data on this topic. The questions cover actual Internet access and future plans for Internet access, as well as how the Internet is being used by librarians, teachers, and students.

If you have any questions about the survey or my study, please feel free to contact me at home or at school. I will send a summary of the results of the study when all the data has been collected and analyzed.

Sincerely,

Christine Rohrman
1070 Ollerton Road
Woodbury, New Jersey 08096
(609) 845-2529

Librarian at Valley Park School
63 Mahoney Road
Pennsville, New Jersey 08070
(609) 540-6255

February 2, 1998

Elementary School Librarian
West End Memorial School
Jackson and Queen Streets
Woodbury, New Jersey 08096

Dear Librarian:

I am requesting your help to gather data for my Master's thesis at Rowan University of New Jersey on Internet use in elementary schools. The purpose of my study is to determine the current status of Internet use in the elementary schools of Gloucester County and compare it to national statistics.

I am sending this survey questionnaire to all the elementary school librarians in Gloucester County. A more valid study will result if the response rate is greater. So, please take the time to complete the questionnaire and send it back to me as soon as possible.

If you have any questions about the questionnaire, you may call me at home or at school.

Thank you for your cooperation.

Sincerely,

Christine Rohrman
1070 Ollerton Road
Woodbury, New Jersey 08096
(609) 845-2529

Librarian at:
Valley Park Elementary School
63 Mahoney Road
Pennsville, New Jersey 08070
(609) 540-6255

Appendix D

Internet Research Projects

In Gloucester County Elementary Schools

February, 1998

Grade One:

- Robots
- Author Studies - Scholastic Network
- Titanic

Grade Two:

- Pen pals

Grade Three:

- Totem Poles
- Composers
- Animal Habitats
- Olympics
- Endangered Animals

Grade Four:

- Olympics
- Omega program
- Weather
- American History - Colonial Times
- Biographies
- Oceans
- Women in History
- Genealogy
- Animals
- Native Americans
- New Jersey
- Black History
- Space & Planets
- Dinosaurs
- Peer Internet Project

Grade Five:

- Stock market and company information
- Characters Come Alive - Language Arts
- Presidents
- Body Systems & Nutrition
- Black Americans
- Olympics
- Science Fair Projects
- Endangered Species
- States
- Immigration
- Lighthouses
- Weather
- U. S. Cities - visit Home Pages

Grade Six:

- Civil War research
- Research project on countries
- Mathematicians
- Elements
- Presidents
- Characters Come Alive
- Romans
- Black History

Stars & Constellations
Poetry
Dolphins
Daily Rhyme - Scholastic Network

Biographies
Study Skills
Pakistan

All Grades:

Chats on Scholastic Network
Pen pals