Extent that professional business educators associated with the American Assembly of Collegiate Schools of Business use the Internet
by Patricia Rae Scarrah-Alston

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Business Education
Montana State University
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Abstract:
This research was initiated to find the extent, if any, that business educators associated with the American Assembly of Collegiate Schools of Business use the Internet to collect data pertinent to their jobs as educators. The population for this research includes professional business educators associated with the American Assembly of Collegiate Schools of Business. The sample size was 100 institutions out of the 853 total population. A response rate of 44 was achieved allowing statistical tests to be performed. Data were obtained through a review of literature and a survey instrument.

The questions asked in the survey instrument requested information on the type of institution, the services available on the Internet, how information was located, the hours of training received, the software used, if there was access to a local area network, what services were used on the local area network and demographic information. Respondents were asked to keep a five-day log of the length of time of each connection to the Internet, the services used, and the purpose of each connection.

The conclusions reached included: 1) both private and public institutions were well represented; 2) respondents use Internet directories most to find the information they are seeking, followed by the use of library references, periodicals, and information received from associates; 3) little or no training is given to educators on the use of the Internet; 4) e-mail was found to be used the same amount of time that all other services combined were used, indicating the value of e-mail; 5) respondents were connecting primarily for professional reasons not personal; 6) educators use varying software packages to perform word processing, data base, spread sheet, and graphics packages in their jobs; 7) educators are connected via local area networks (LANs) at their institutions giving them access to a wide base of local information to include student records used in advising, the campus directory and financial data; 8) women and minorities were highly underrepresented in this study; and 9) the majority of respondents held doctorate degrees.
EXTENT THAT PROFESSIONAL BUSINESS EDUCATORS ASSOCIATED WITH THE AMERICAN ASSEMBLY OF COLLEGIATE SCHOOLS OF BUSINESS USE THE INTERNET

by

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Business Education

MONTANA STATE UNIVERSITY
Bozeman, Montana

November 1995
APPROVAL

of a thesis submitted by

Patricia Rae Scarrah-Alston

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the college of Graduate Studies.

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Date  November 13, 1995
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To my son, Killian, for giving me the strength and courage to make positive changes in my life.

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ABSTRACT

This research was initiated to find the extent, if any, that business educators associated with the American Assembly of Collegiate Schools of Business use the Internet to collect data pertinent to their jobs as educators. The population for this research includes professional business educators associated with the American Assembly of Collegiate Schools of Business. The sample size was 100 institutions out of the 853 total population. A response rate of 44 was achieved allowing statistical tests to be performed. Data were obtained through a review of literature and a survey instrument.

The questions asked in the survey instrument requested information on the type of institution, the services available on the Internet, how information was located, the hours of training received, the software used, if there was access to a local area network, what services were used on the local area network and demographic information. Respondents were asked to keep a five-day log of the length of time of each connection to the Internet, the services used, and the purpose of each connection.

The conclusions reached included: 1) both private and public institutions were well represented; 2) respondents use Internet directories most to find the information they are seeking, followed by the use of library references, periodicals, and information received from associates; 3) little or no training is given to educators on the use of the Internet; 4) e-mail was found to be used the same amount of time that all other services combined were used, indicating the value of e-mail; 5) respondents were connecting primarily for professional reasons not personal; 6) educators use varying software packages to perform word processing, data base, spread sheet, and graphics packages in their jobs; 7) educators are connected via local area networks (LANs) at their institutions giving them access to a wide base of local information to include student records used in advising, the campus directory and financial data; 8) women and minorities were highly underrepresented in this study; and 9) the majority of respondents held doctorate degrees.
CHAPTER I

INTRODUCTION

Because a speedy Info Superhighway should boost productivity, create new markets, and be a model for the rest of the world, "the country that can get this set up first will have a significant advantage in the international marketplace."

-Suzanne Trichenor, VP of the industry-backed Council on Competitiveness (Carey, 1994)

Information systems have given us the capability of accessing multitudes of information via the Internet. The amount of information an individual human can process has been found to be relatively constant. Short-term memory lasts just a few minutes or hours. (Brainfacts, 1995) Therefore, they must rely on other systems of information storage, retrieval and communication to keep track of the myriad of facts and information needed to function in today's world. Educators are now able to contact colleagues with the convenience of a computer keyboard, via the Superinformation Highway, bypassing telephone calls, faxes and partial messages left on voice-mail. They not only gain the ability to converse with colleagues more economically than with a telephone call, but can also access information in their field of interest and remain on top of the latest research, newest trends, and research funds available. Educators need to stay current in order to educate students in the latest technology and findings in their subject
area. Textbooks about Information Systems are often outdated before they are published.

The use of the Internet is relatively new to most professors and intimidating to others. Previously, only computer science professors, or the extremely computer literate were even aware that the Internet existed. Now, most public universities and colleges have given their employees access to the Internet and its vast amount of information available both locally and globally. This research is designed to examine the use of the Internet by professional educators and to find out just what services they find valuable.

Problem Statement

The purpose of this study is to determine the extent, if any, that professional business educators, associated with the American Assembly of Collegiate Schools of Business, use the Internet to collect data pertinent to their jobs as educators.
Questions to be Answered

1. What are the major services of the Internet that professors use in their professional activities?
2. How often do professors use the Internet?
3. How do professors locate the information they are seeking on the Internet?
4. How much training, if any, have professors received on the use of the Internet?
5. Are professors using the Internet for both professional and personal reasons?
6. Do professors incorporate the information they retrieve from the Internet into the classroom and/or workplace?
7. With which software applications are professors most acquainted?
8. Do professors have access to local area networks (LAN) in their workplace?

Need for the Study

World usage of the Internet grew by 95% in 1994 (U.S. News & World Report, 1995). Professors can obtain a great amount of information related to their field of study by sitting in front of a personal computer and accessing colleagues across the world or retrieving documents via the Internet for use in research or class enhancement. Textbooks in the Information Systems might be outdated by the time they reach the publisher. This research effort was designed
to measure the extent that professors use the Internet for professional development. It will determine the services that professors use on the Internet and provide insight into the relationship between Internet and training. With the explosion of interest in the “Information Superhighway” this research will measure its impact on the academic and professional community.

Definition of Terms

American Assembly of Collegiate Schools of Business (AACSB): A not-for-profit corporation of educational institutions, corporations and other organizations devoted to the promotion and improvement of higher education in business administration and management. A condition to membership by educational institutions in the corporation is the use of accurate descriptions of programs or degrees offered. (AACSB Catalog, 1994)

Archie: A way of automatically gathering, indexing and sometimes retrieving files on the Internet. (Steve’s Internet Hyper-Glossary: http://www.windows95.com/glossary.html)

Bulletin Board: A computer system that allows users to post messages or programs for other users. Also called electronic bulletin board. (Webster’s New World Dictionary of Computer Terms, Third Edition, 1988)

Electronic Mail: The electronic transmission of letters, messages, and memos through a communications network. Also known as e-mail. (McGraw-Hill,

**File Transfer Protocol (FTP):** The most widely-used way of downloading and uploading (getting and putting) files across an Internet connection. The File Transfer Protocol is a standardized way to connect computers so that files can be shared between them easily. *(Steve’s Internet Hyper-Glossary: http://www.windows95.com/glossary.html)*

**Gopher:** A protocol and programs for a menu driven document delivery system that connects you to resources and sites all over the world. Gopher menu options can point to other gophers, telnet sites, text files, and binary files. *(Glossary: http://www.zynet.co.uk:8001/zynet/glossary.html)*

**Hypertext:** A metaphor for presenting information in which text, images, sounds and action become linked together in a complex, nonsequential web of associations that permit the user to browse through related topics, regardless of the presented order of the topics. *(Dictionary of Computer Terms. Microsoft Press, 1991)*

**Information System:** Any means for communicating knowledge from one person to another, such as by simple verbal communication, punched-card systems, optical coincidence systems based on coordinate indexing, and completely computerized methods of storing, searching, and retrieving of information. Abbreviated IS. *(McGraw-Hill, Dictionary of Scientific and Technical Terms, Fourth Edition 1989)*

List Serves: An automated mailing list distribution system. Listservs exist for a multitude of professional, educational, and special interest groups. (Steve’s Internet Hyper-Glossary: http://www.windows95.com/glossary.html)

Local Area Network (LAN): A communications network connecting various hardware devices together within a building by means of a continuous cable or an in house voice-data telephone system. Also known as LAN. (McGraw-Hill, Dictionary of Scientific and Technical Terms, Fourth Edition 1989)

Lynx: A text-based World Wide Web browser. Using Lynx, you can access almost all information on the World Wide Web. The primary difference between Lynx and Mosaic and Netscape is that there is only text in Lynx.

Management Information System: An information system designed to supply organizational managers with the necessary information needed to plan, organize, staff, direct, and control the operations of the organization. Abbreviated MIS. (Websters NewWorld Dictionary of Computer Terms, Third Edition, 1988)


Netnews: Also referred to as Usenet. A gigantic system of public discussion areas
with names like {alt.culture.usenet}.

**Netscape:** A graphical browser for the World Wide Web that supports hypermedia, invented by Netscape Communication and available as freeware. (Steve’s Internet Hyper-Glossary: http://www.windows95.com/glossary.html)

**Node:** Any terminal, station, or communications computer in a computer network. (*Websters NewWorld Dictionary of Computer Terms*, Third Edition, 1988)

**Operating System:** Abbreviated OS, sometimes called the executive. The software responsible for controlling the allocation and usage of hardware resources such as memory, central processing unit (CPU) time, disk space, and peripheral devices. (*Dictionary of Computer Terms*, Microsoft Press, 1991)

**Protocol:** Set of rules or conventions governing the exchange of information between computer systems. (*Websters NewWorld Dictionary of Computer Terms*, Third Edition, 1988)

**Telnet:** A communications network that enables many varieties of user terminals and computers to exchange information. (*Websters NewWorld Dictionary of Computer Terms*, Third Edition, 1988)

**UNIX:** A multiuser, multitasking operating system originally developed by Ken Thompson and Dennis Richie at AT&T Bell Laboratories in 1969 for use on microcomputers. (*Dictionary of Computer Terms*, Microsoft Press, 1991)

**UUCP:** An acronym for UNIX-to-UNIX Copy. A set of software programs that
facilitate transmission of information between UNIX systems using serial data connections, primarily the public switched telephone network. (Dictionary of Computer Terms, Microsoft Press, 1991)

WAIS: Acronym for Wide Area Information Service. An information retrieval system which was developed by Apple. It allows a client to perform keyword searches simultaneously on multiple on-line databases. (Glossary: http://www.zynet.co.uk:8001/zynet/glossary.html)

World Wide Web: A collection of on-line documents housed on Internet servers around the world. The concept of the Web was created by the European Laboratory for Particle Physics at CERN which is located near Geneva in Switzerland. Web documents are written or “coded” in HTML (Hypertext Markup Language). (Steve’s Internet Hyper-Glossary: http://www.windows95.com/glossary.html)

Summary

Professors have access to a wide variety of information that can be used to enhance their professional development and in-turn enhance the quality of education taught in all subject areas. The information explosion that the Internet holds requires that professional business educators use the Internet to stay abreast of cutting edge developments across the globe.
CHAPTER II
REVIEW OF THE LITERATURE

Introduction

The Internet is not new. In fact, it originated in 1969 with the Department of Defense linking four computer centers together and has not stopped growing since. (Churbuck, 1991)

Although the idea to connect wide-spread computer systems is not new, the excelled race of technology has never quit. An idea today is put into use for the world by tomorrow. The inception of the Internet consisted of four networked computers and has grown to linking millions of users across the world. The user interface to the Internet can be merely textual or one of text, graphics, color, sound and video. Technology dealing with the amount of information available and the kind of information, be it text or hypertext (text enhanced with graphical information), improves daily. Trying to keep up with the Internet, and all it has to offer, requires a significant amount of time and resources.

History

The Internet began in 1969, with the name ARPANET, ARPA standing for Advanced Research Projects Agency, which was later known as the Defense
Advanced Research Projects Agency (DARPA), which was part of the Department of Defense. ARPANET consisted of four computer sites linked together. The sites included the University of Utah, the University of California at Santa Barbara, the University of California at Los Angeles and Stanford Research Institute (SRI) International. ARPANET was originally designed to demonstrate the feasibility of building a network using computers over a wide area. The largest defense issue was that of communication. In the event of war, the military wanted a reliable tool to communicate issues of command and control, supplies, and civil management. Information in this context is that of life-and-death issues.

Reliability required multiple routes that information could travel to get to one destination. This type of networking allowed information to get to the intended destination even if the original route was out of commission. The military was concerned with a bomb destroying a single route so they wanted a multiple route networked system that could withstand the loss of connections and thus, ensure that communication would prevail.

Protocols for communication needed to be developed to ensure reliability and prepare for disruption. The term protocol refers to how communication between computers will work. Data being sent needs to be represented in a certain way to be interpreted by the intended receiver of the information. Initially, a relatively simple protocol was used called Host-to-Host Protocol. It was limiting in that it restricted the total number of computers that could
communicate with one another. In 1972, a protocol called Transmission Control Protocol/Internet Protocol (TCP/IP) was introduced allowing a protocol suite. A protocol suite describes a collection of protocols that work together. The suite is layered by protocols, each layer being responsible for certain functions. For example, the lowest level of a protocol suite would handle basic work such as receiving pulses of electricity from a communications medium, the next level up would turn the pulses into characters. This leveling continues until the information is received in the intended format from the sender.

The 1970's produced several additional networks. The UUCP network consisted of several UNIX machines, which was an operating system. BITNET (Because It's Time Network) was born in the early 1980's, and CSNET (Computer Science Network) was another network that was created. The NSFNET (National Science Foundation's Network) was developed in the late 1980's and connected five supercomputer centers. Some of these networks were private and some were funded by the government. A consolidation of networks such as ARPANET, UUCP, BITNET, CSNET and the NASA Science Internet, joined the NSFNET and the original networks were dismantled in the early 1990's. This consolidation formed what is known as the Internet today.

In 1991, the National Research and Education Network (NREN) proposed linking the nation's major research and academic institutions and extending these
connections to communities and individuals wanting access to the resources. It was a major enhancement to the Internet. (Valovic, 1991)

When Vice President Gore was a senator, he sponsored a government project to bring the nation’s attention to the need to compete globally in information technology. In 1991, President Bush signed into law the federal High Performance Computing Act (the HPCA) which was to build a high-speed network for connecting supercomputers.

In 1992, the term Internet referred to over 5,000 networks in 33 countries and a half-million computers and three million people they connect. The Internet offered services, applications, and archives. Access was also granted for freeware and shareware source code, access to on-line catalogs, remote control of CD readers, inter-company program development and news services. (Dern, 1992)

By 1993, the Internet reached one million directly connected end users and up to four million electronic mail users. Its boundaries included 120 countries and new information was updated daily. Estimates of the actual size of the Internet were and continue to be outdated before the statistics can be published. The effects of the accelerated growth on both technology and the administrative infrastructure was a challenge. (Chapin, 1993)

For example, Editorial Inc., of Rockport Massachusetts, and Software Tool & Die, in Brookline, Massachusetts, have joined together and set up a service called Online BookStore on the Internet. The service offers an electronic delivery
of a text to a personal computer via the Internet. The service can enhance the options available to educators and libraries. (Hilts, 1993)

In 1994, as a follow up to the HPCA came the Information Infrastructure and Technology Act, S 2937, which was introduced by Vice President Gore prior to being selected as Bill Clinton's running mate. This legislation was introduced to provide a data "superhighway," called the National Research and Education Network (NREN). The NREN formed the infrastructure for U.S. scientific and industrial research and had the capability to transfer data at gigabyte-per-second speeds. The bill consisted of funding in the amount of $1.15 billion over five years. It gave federal agencies the responsibility of developing network applications. (Smith/Gibbs, 1994)

Vice President Gore argued for the NREN stating that the network could "revolutionize American education as well, giving teachers new tools and new ways to inspire their students." Vice President Gore believed that to be a leader in foreign competitiveness, the United States could not follow where connectivity was concerned. He believed the United States must move first and led the way for future technologies. (Smith/Gibbs, 1994)

This development brought increased access to the Internet to thousands introducing users to vast amounts of information. Vice President Gore has been no stranger to the Internet throughout his career. With the help of the Clinton administration Vice President Gore led the push to link CEOs, educators and couch
potatoes with the services, entertainment and information that the Internet possesses.

One of the services the Internet offers is e-mail, which is basically an extremely fast post office. E-mail allows users to communicate via computers which can be faster and more efficient than playing phone tag with a colleague on a different schedule in a different time zone. File Transfer Protocol (FTP) is another service offered on the Internet. This function allows users to retrieve programs and large files from remote computers. Telnet allows a user to operate a remote computer from a desktop computer. Archie, Veronica, Jughead and WAIS (Wide Area Information Servers) are searching tools for information available on the Internet. Gopher is a mechanism for tunneling from one address on the Internet to another in a quick manner. The World Wide Web is more advanced than Gopher in that it uses hypertext markup language (HTML) to display highly formatted documents incorporating link references in the text to navigate through the system. Mosaic is a software browsing program used with the World Wide Web that acts as an on screen control panel. With the use of a mouse, the user can point and click their way through the World Wide Web. Netscape is another web browser. Internet Talk Radio is available allowing broadcast sound recordings. Finally, CUSeeMe is an Internet teleconferencing tool. CUSeeMe allows up to eight users to see and hear each other on their computers with the help of photographic peripherals. Along with all the tools
mentioned, the Internet has a vast amount of bulletin boards on various subject areas. The bulletin boards range from interest groups to dating services to specific hobbies to health care for cats. The user need only find the desired address to connect to a variety of information. (Elmer-DeWitt, 1994)

The World Wide Web contains “home pages” which are hypertext documents that can incorporate text, images, sound and action to give users an introduction to a business, educational institution, service available on the Internet, or personal reference, to name a few. The home page is linked to other documents related to the home page, like services a business offers, programs offered by an educational institution or an entry form to order items sold on the Internet. Home pages are helpful in identifying the information contained in the entire document, allowing the users to decide if they want to proceed or if they want to search elsewhere to find the information they are seeking.

Present

The Internet keeps expanding each year. It is reported that it now reaches 4.8 million computers around the world and another network of computers joins every 30 seconds. A network can contain one or several computers. The number of nations connected in early 1995 was 159, of that number 22 joined the previous year. The usage of the Internet grew by 95% in 1994. The United States leads in the number of computers connected to the Internet at 3.2 million.
Other nations following are Britain at 241,191 computers connected, Germany with 207,717 connected, Canada with 186,722, Australia with 161,166, Japan with 96,632 computers connected and France with 93,041 computer connections to the Internet.

The number of organizations that are interconnected worldwide reached 56,000; businesses using the Internet numbered 32,000; businesses using online computers reached 1.3 million, which was a 628% increase in three years; school and university computers connected to the Internet numbered 1.1 million and government computers connected reached 209,345.

The services reported most used on the Internet are FTP, WWW and e-mail. The cost of access to the Internet through England’s Net provider, British Telecom is $1,151 per year and the basic cost to use CompuServe is $9.95 per month. These rates are for personal use in Britain and the United States. The cost of an Internet connection for an educator is usually defrayed by the educational institution. The institution can charge individual departments in terms of units that are allotted for each department but usually not in terms of dollars. An Internet connection for a large institution can be very expensive but cost comparisons to time spent on a telephone or unproductive time lost waiting for a document to arrive in the mail should be weighed before a decision to connect or not connect is made. (US News & World Report, 1995)
Businesses are using the Internet to conduct business. A computer manufacturer, Silicon Graphics, distributes software and answers customers questions using the Internet. An Advertising executive at Ogilvy and Mather claims the Internet is a huge market and has made guidelines for marketing on the net. The first rule states “intrusive e-mail is unwelcome,” suggesting that there is a proper place to advertise certain products. Global Network Navigator, an Internet publisher includes advertising in its offerings allowing their clients greater exposure to global customers. (Elmer-DeWitt, 1994)

Downsizing in organizations is driving businesses to have a more skilled, computer-literate workforce. Telecommuting is another benefit of the Internet. Employees can work at home relieving the employer of the cost of office space and furniture. The Internet offers expanded communication media that can be used by businesses, educational institutions and individuals. (Smith/Gibbs, 1994)

Future

Estimates of Internet growth by the year 2000 include 1,000,000 connected networks and up to 100,000,000 connected computers. These estimates may be outdated at this printing. Not knowing how to use the Internet in the year 2000, may compare to being illiterate today. Information available now by going to the library, will be accessible by using your personal computer and downloading all or parts of a book or journal. Distance learning will allow
those seeking higher education access to instruction in all curricula, from the school of their choice, from any geographic location. When the NREN begins to offer transfer speeds of a gigabyte per second, the doors will open for commercial vendors to compete with comparable speeds.

Once businesses begin to use the Internet to their advantage, buying, selling, trading, making contacts and exchanging data will become commonplace and businesses will wonder how they ever had the time to conduct business in a personal contact atmosphere. Business will be able to seek customers in a global market where prior to the Internet, the same effort would have involved great marketing costs and quite possibly a representative in the geographical area. (Smith/Gibbs, 1994)

The Internet will allow access to community level government departments. The need to stand in line and wait to renew an automobile registration on your car or get a business permit will be handled much more efficiently through online connections to the Internet. (Smith/Gibbs, 1994)

Will the need for personal contact to conduct business and teach be extinct in the future? Computer aided tutors are able to offer one-on-one instruction eliminating the role of the educator in some cases. If people no longer have to venture out into the public to conduct business, will they become recluses in their homes? The Internet, and the services it provides, can compare to the process that created suburbs in large cities. Suburbs have their own shopping, business
and entertainment services which decrease the need to travel to the heart of the city for such services. (Elmer-DeWitt, 1994)

While change should be expected in the world we live, the Internet can introduce us to a strange new world offering information about travel, people, services, news releases, education, art, employment opportunities, music, library catalogs across nations and legal information to name just a few. It should be viewed as another tool to reduce stress or increase awareness, not as a means to avoid personal contact. The challenge that faces all Internet citizens as the battle over the control of the Internet increases, is to ensure a safe and pleasant place to work, play and raise children without losing touch with the drive that attracted individuals to begin to use the Internet in the first place. (Elmer-DeWitt, 1994)

**Summary**

The Internet may have started out as an experiment for government, but has grown exponentially to a tool available to anyone desiring information and having access to a computer, whether it be a personal computer with a modem or a terminal set up in a library or classroom. The government has demonstrated the feasibility of making communication reliable from one user to another. It is not that servers do not break down but the lines of communication are interlinked allowing information to flow around a troubled area to another server that can safely deliver information. World Wide Web has created a more user friendly
atmosphere for the average user. The Internet is not as intimidating as it was at first and with one training session, a user can get acquainted using the Internet and feel comfortable that the system will not blow up while they are online. The Internet can be used for professional or personal reasons by everyone. Do the services reported most used mirror the services used by business educators? How do people learn to use the Internet and how do they locate the information they are seeking? How much time is spent working on the Internet and is the information used for professional development? Finally what type of people use the Internet? The answers to these questions today will change in the future with new developments and technological changes.
CHAPTER III

PROCEDURES

This chapter outlines the procedures that were followed to obtain the needed data from professional educators associated with the American Assembly of Collegiate Schools of Business.

1. Sources of data
2. Construction of Data Instrument
3. Collection and Analysis of Data

Sources of Data

Population

The population chosen for this study included professional business educators associated with the American Assembly of Collegiate Schools of Business (AACSB). Those associated with the AACSB include educational institutions, corporations and other organizations devoted to promoting and improving higher education in business administration and management.

The total membership of the American Assembly of Collegiate Schools of Business numbers 853. The population was chosen to obtain information about business related professionals and their use of the Internet. The sample for this
study was obtained by a quasi-random representative selection of professional educators from this population. (AACSB Catalog, 1994)

Sample

The sampling procedure used in selection of subjects was quasi-random, selecting every eighth name, from the August 1994 catalog of the American Assembly of Collegiate Schools of Business. The sample was quasi-random in that business organizations were skipped choosing the next educational institution in the alphabetical listing. The sample included domestic and international educational institutions.

The returned samples had to be at least a size of 30 to draw any statistical inferences from the population. (Gay, 1992) Therefore, 100 questionnaires were mailed to educational institutions associated with the AACSB, expecting a return rate over 30 percent.

Limitations of the Study

The scope of this study was limited to responses from educators associated with the American Assembly of Collegiate Schools of Business (AACSB) and inferences can be made only to that group. However, because non-AACSB educators are somewhat similar to this population, the results from this research do have implications to educators in other four-year colleges and universities.
Construction of the Survey Instrument

After a review of the literature, the researcher identified those issues which were important to the study and developed a questionnaire. A pilot questionnaire, consisting of a convenience sample, was sent out November 8, 1994 to business colleagues of Dr. Shannon Taylor, who teaches management and information systems courses in Montana (MSU-Bozeman, MSU-Billings and the University of Montana), Illinois State University and Central Michigan University. Seven of the eight were returned and tabulated using dBase IV. The questionnaire was modified using the suggestions and comments from the pilot study. The questionnaire identified the services, if any, educators use from the Internet in their professional activities. Other issues included: how often professionals use the Internet, how they locate information on the Internet, how much training, if any, was obtained to educate them about the Internet, and if professionals are using the Internet to gather information for professional or personal reasons. The researcher also looked at the relative time spent on e-mail and the amount of time spent on all other areas of the Internet. The use of the Internet for professional development of educators was also studied. Demographic information was gathered including: gender, age, race, income, education, degree and title to determine differences in Internet users.
Collection and Analysis of Data

Data collection began Spring 1995. The questionnaire was mailed, via U.S. mail, the beginning of April and data were compiled and analyzed in June 1995 using dBase IV. A response rate of 40 or more questionnaires was considered sufficient for reliable statistical analyses. Forty-four questionnaires were returned and no follow-up mailing was conducted.

Appropriate statistical tests using SPSS were performed on the data including a t-test of two means and a chi-square analysis of relative proportions. An independent-sample t-test was used to compare the mean time, in minutes, spent using e-mail to the mean time, in minutes, spent using all other services. A chi-square analysis was performed on the data collected pertaining to the area of the Internet used most. Connections to e-mail were compared to connections to all other areas combined. And finally, a chi-square test was used to gain insight into the purpose, either academic or personal, that business educators were connecting to the Internet.

Summary

Although the Internet has been in existence since 1969, the use of its services is still very new to most professional educators. The researcher sought to
determine if professional educators use the Internet to enhance professional development, extend research and if they use the Internet for professional and/or personal gain.
CHAPTER IV

RESULTS

Introduction

The questionnaires were returned by June 1995. dBASE IV was used to compile the data and SPSS was used to analyze the data.

A chi-square analysis was used to determine that respondents connected to e-mail half of the time and connected to all other services collectively, exactly the same proportion ($x^2 = .00 \text{ df} = 1, p > .05$). (See Table 1)

Table 1
Chi-Square Test
Area of Internet used

<table>
<thead>
<tr>
<th>Category</th>
<th>Cases</th>
<th>Observed</th>
<th>Expected</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail</td>
<td>84</td>
<td>84.00</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>Other Services</td>
<td>84</td>
<td>84.00</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>168</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chi-Square</th>
<th>D.F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>.0000</td>
<td>1</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

An independent-sample t-test was used to determine business educators spent approximately the same amount of time using e-mail ($\bar{x}_1 = 56.50$ minutes) as they did on all other services combined ($\bar{x}_2 = 63.84$ minutes) ($t = -.50, \text{ df} = 154, p > .05$). (See Table 2)
Table 2
T-Test for Independent Samples
Length (in minutes) of Connect

Mean Difference = -7.3462

<table>
<thead>
<tr>
<th>Variances</th>
<th>t-value</th>
<th>df</th>
<th>2-Tail Sig</th>
<th>Standard Error Difference</th>
<th>Ci for Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal</td>
<td>-.50</td>
<td>154</td>
<td>.617</td>
<td>14.671</td>
<td>(-36.33, 21.64)</td>
</tr>
<tr>
<td>Unequal</td>
<td>-.50</td>
<td>153.55</td>
<td>.617</td>
<td>14.671</td>
<td>(-36.33, 21.636)</td>
</tr>
</tbody>
</table>

Finally a chi-square analysis was used to determine business educators' purpose for connecting to the Internet. Clearly, the proportion of connects for professional reasons (including: academic, professional, research and development and administrative) was more than for personal use ($\chi^2 = 59.5238$, $df = 1$, $p < .0000$). (See Table 3)

Table 3
Chi-Square Test
Purpose of Connection

<table>
<thead>
<tr>
<th>Category</th>
<th>Cases</th>
<th>Observed</th>
<th>Expected</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic</td>
<td>134</td>
<td>84.00</td>
<td>50.00</td>
<td></td>
</tr>
<tr>
<td>Personal</td>
<td>34</td>
<td>84.00</td>
<td>-50.00</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>168</td>
<td>84.00</td>
<td>-50.00</td>
<td></td>
</tr>
</tbody>
</table>

Chi-Square 59.5238
D.F 1
Significance .001
Results

One hundred (100) questionnaires were mailed to a quasi-random sample of Deans of AACSB institutions. Forty-four (44) questionnaires were returned indicating an interest for this type of research. All returned questionnaires were usable for the analyses.

Type of Institution

Twenty (20), or 45%, of the questionnaires were returned from private schools; twenty-four (24), or 55%, were completed by persons working in public schools (see Figure 1).

Figure 1

The type of institutions were well represented from the respondents.
Degrees Offered

Thirty-six (36) of the responding institutions offered a Bachelor of Science in Business, twenty-seven (27) institutions offered a Master of Science degree in Business and eight (8) institutions offered a Ph.D. in Business. Fourteen (14) of the responding institutions offered a Bachelor of Science in Management Information Systems (MIS), seven (7) offered a Master of Science in this area and two (2) offered a Ph.D. MIS degrees (see Figure 2).

Figure 2

This representation of degrees offered indicates that colleges and universities are acknowledging the value of information systems and are devising separate curricula in the programs they offer.
Internet Services Used

Respondents were asked what services they used on the Internet. Thirty-nine (39) used e-mail services, thirty-eight (38) respondents used the World Wide Web, thirty-three (33) used Gopher, thirty-one (31) used library services, twenty-eight (28) of the respondents used Telnet, Netscape and Mosaic, twenty-seven (27) used FTP. Other services used included Archie, WAIS, Lynx, List Serves, TRN and Net News. Only two (2) respondents did not use any services (see Figure 3).

![Internet Services Used](image)

Business educators are presently using the Internet and the variety of services it offers in their jobs.
Location of Information

The questionnaire inquired how respondents located the information they were seeking. Thirty-three (33) respondents used directories on the Internet to find information. Twenty-two (22) respondents used library references to locate the information they were seeking. Twenty-one (21) people used periodicals, twenty (20) of the respondents used information they received from associates and staff to locate the area on the Internet where they could find the information they were seeking. Twelve (12) people used journals as a source for finding information on the Internet, eleven (11) respondents used professional associations, nine (9) used training manuals and seven (7) used the television to find resources on the Internet (see Figure 4).

Location of Information

On the Internet

- Internet Directories
- Library References
- Periodicals
- Journals
- Associates
- Training Manuals
- Professional Associations
- TV

Figure 4
Respondents are finding information they are seeking on the Internet. There are various ways to sort through the myriad of information and business educators are able to locate the information that they are seeking.

Training

All of the respondents had little or no formal training on the use of the Internet. Ten (10), or 23% of the people had between one and five hours of training and thirty-three (33), or 77% of the people had no formal training (see Figure 5).

Business educators have had to train themselves to use the Internet. This indicates initiative on their part to learn and use new resources available to them. It also indicates a lack of concern on the institutions part for the importance of proper training on the use of the Internet.
LAN Access

Forty-one (41) people had access to a local area network and two (2) did not have access to a local area network (see Figure 6).

**Access to Local Area Net**

![Access to Local Area Net](image)

**Figure 6**

Local Area Networks are available to these business educators giving them access to databases supplying information about the institution where they work.

LAN Services Used and Wanted

Of those who did have access to a local area network, twenty-three (23) used information available in student records in their daily tasks, twenty-two (22) used the campus directory, fourteen (14) used the financial data available, twelve (12) used the campus calendar and eight (8) used human resources information available (see Figure 7).
Of the respondents that had limited access to the services listed on the questionnaire seven (7) claimed they would use a campus calendar if available, five (5) claimed they would use information found in student records, four (4) would use information available in financial data records, four (4) would use the campus directory and three (3) would use the information available in human resources records (see Figure 8).
Information contained in local area network databases is used by business educators in their daily tasks. Not all local area networks contain the same information and business educators have indicated they would prefer more information.

Internet Area Used

Business educators who responded, connected to several areas of the Internet including: e-mail (74), World Wide Web (26), Netscape (14), Gopher (11), Telnet (10), FTP (7), Listserve (4), LAN (4), MIT (4), Library (4), Chat (2), NASA (1), and Libertynet (1). (See Figure 9).
Statistical analysis on the amount of time spent using Internet services determined that the amount of time, in minutes, connected to e-mail was not significantly different than the amount of time, in minutes, connected to all other services combined. (See Figure 10)
The respondents valued e-mail quite highly in that the amount of time spent using e-mail equaled the amount of time using all other areas of the Internet.

**Connect Purpose**

Most respondents logged on to the Internet for academic purposes. Academic connects totaled 100. Thirty (30) connects were for personal reason, twenty-seven (27) connects were for research and development purposes, five (5) were for administrative reasons and three (3) connects were used for professional development. (See Figure 11).
Purpose of Connect

Business educators are connecting to the Internet for academic purposes and the results of this research conclude that educators connecting for academic purposes was significantly greater from that of connecting for personal reason.

Software Used

The respondents had experience using a variety of software. The word processing package used most was WordPerfect (22) followed by MS Word (16) and the remainder, including MS Works (1), MacWrite (2), WinWord (2) and AmiPro (2) (see Figure 12). The spreadsheet most used was Excel (10) followed by Lotus 123 (12), QuatroPro (9), MS Works (1), Quicken (1), Macintosh (1), and Persuasion (1) (see Figure 13). The database most used was dBASE (8), followed by Paradox (7), Access (6), FoxPro (3), MS Works (1), Macintosh (1) and AmiPro
(1) (see Figure 14). The graphics package most used was Power Point (9), followed by Corel Draw (4), Harvard Graphics (3), PhotoShop (3), PaintBrush (2), MacIntosh (2), Word (1), Freelance (1), AmiPro (1), Quark (1), Lotus (1), WP Presentation (1) and Canvas (1) (see Figure 15). The statistical package used most often was SPSS (12), following with SAS (8), Excel (2), Statgraphics (1), MacIntosh (1), Minitab (1), and StatPak (1) (see Figure 16). The accounting software most used was both Quicken (2) and Quickbooks (2), followed by MacIntosh (1), Peachtree (1) and Onewrite Plus (1) (see Figure 17). Other software used by the respondents included Visual Basic (3), Procom Plus (1), Pagemaker (1), Lexis-Nexis (1) and Illustrator (1).
Respondents used a variety of software to perform their daily tasks. Most respondents had experience using word processing software, spreadsheet software, database software and a graphics capability package.

**Respondent Demographics**

The demographics of the respondents were as follows: thirty-eight (38) were male and four (4) were female (see Figure 18).
Age of the respondents ranged from two (2) educators between the ages of 21 and 30, eight (8) were between the ages of 31 and 40, fourteen (14) were between the ages of 41 and 50, eighteen (18) respondents over the age of 50 (see Figure 19).
The race of the respondents was one (1) Black respondent, one (1) Native American with the majority of respondents, forty (40), being white (see Figure 20).

**Race**

![Race Pie Chart]

*Figure 20*

Demographics concluded that the majority of respondents were white males, age 41 and over.

**Academic Rank and Education Level**

The academic rank of the respondents included three (3) instructors, seven (7) assistant professors, seven (7) associate professors, nineteen (19) professors and twelve (12) other. Other classifications included: five (5) who were professor
and dean, one (1) vice president, two (2) deans, one (1) director of computer center, one (1) director of computer service, one (1) administrator and one (1) professor and division chair (see Figure 21).

![Academic Rank]

**Figure 21**

The education level of the respondents included thirty-one (31) Ph.D.'s, one (1) Ed.D., one (1) DBA, two (2) MS/MSA's, four (4) MBA's and two (2) B.S. (See Figure 22)
Figure 22

The majority of respondents were ranked as professors possessing Ph.D. degrees.

**Teaching Experience**

Of the respondents thirteen (13) had 0-10 years of teaching experience, fourteen (14) had 11-20 years of teaching experience, and twelve (12) had 21-30 years of teaching experience (see Figure 23).
Teaching Experience

(in years)

0-10 years
11-20 years
21-30 years

Figure 23

Teaching experience of respondents varied equally from zero to thirty years.

Summary

The respondents claimed they used e-mail most and when compared to the use of all the other services used, it was found that connections to e-mail were in the same proportion as all other connections combined. The time spent on e-mail was also found to be statistically equal to the time spent on all other services combined. Educators train themselves to use the Internet. Educators use local area networks (LANs) to gather information pertinent to the institution to include
student records. LANs can provide student transcript information to advisors decreasing the amount of time spent working with a hard copy of a student’s transcripts. LANs can also provide information regarding the availability of classes and section openings. The demographic information received determined that the majority of respondents were white males, age 41 and older. The return rate of this questionnaire demonstrated the importance of the information gathered.
CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this study was to determine the extent that business educators used the Internet. To obtain the necessary information, a questionnaire was sent to business educators associated with the American Assembly of Collegiate Schools of Business. This research revealed information about the population from which the quasi-random sample was taken. Conclusions are drawn and recommendations are made.

Conclusions

❖ The types of institutions, both private and public were well represented.
❖ Educators are locating the information they are seeking by directories found on the Internet, library references, periodicals, or through communication with associates.
❖ The amount of training received by the respondents on the use of the Internet is practically non-existent. The responses showed that there is little or no training given to these educators to enable them to use the Internet with ease. Educators must be computer literate to be able to train
themselves to use the services available on the Internet. It can be argued that if more training were given to educators, the initial intimidation of the vast amount of information would be decreased.

❖ The result of educators having access to a local area network suggests that educational institutions see local network connections as an informational tool. Local area networks have databases that can contain student records valuable to educators as advisors, institutional information including financial and human resource records, and library accessibility to locate resources or browse through the catalog. E-mail access is another valuable service available through a local area network allowing another avenue of communication across institutions and increasing instructor availability to students.

❖ Of the Internet services used, e-mail was used exactly the same amount as all other services put together. This indicates the high value of e-mail.

❖ Users are now better able to find information available to the public on the World Wide Web. Hypertext representation of home pages and search mechanisms available on the Web ease the burden of sifting through too much information to find what is being sought.

❖ Respondents are connecting to the Internet for professional reasons. There was a significant difference between the purpose of connecting for personal versus connecting for academic purposes. There is skepticism that the
Internet is a "toy" and wastes time on the part of educators. There are many ways to waste time in any working environment and "surfing the net" is just one more. It is evident that educators are not wasting time, but using the Internet to enhance themselves professionally.

The responding educators had experience using several different software packages and types of software. Respondents used word processing, spread sheet, and data base packages the most along with a graphics package. The variety of software used suggested that the name of the software was not as important as knowing the functions of the software. The widespread use of software also indicates the importance of information systems in education institutions. Educators need to enlighten themselves and their students to the hardware and software products available in their field of interest to compete in the global world.

The demographic conclusions were expected by the researcher. The gender differential was profound. The respondents were almost all male implying a lack of female representation. Race is another area of concern with the institutions that responded. This was a quasi-random sampling having nothing to do with women or minorities and it is evident that institutions from the population used for this study are highly underrepresented by both women and minorities.
Recommendations

❖ Educational institutions need to survey their faculty to see what type of training they should provide to encourage the use of the Internet as a professional tool. Educators should be expected to stay current on the topics they teach to students, to give students the leading edge for a more successful future.

❖ It is recommended that educators be given access to the Internet to enhance their professional growth and in-turn the information will be given to students.

❖ A study should be conducted to determine the reasons that women and minorities were grossly underrepresented in this study. Is there truly a lack of females and minorities with the proper credentials to fill positions such as these or can these statistics be attributed to something else?

❖ It is recommended that a study be conducted to begin to assess the costs associated with the use of the Internet.

Summary

Some of results found in this research were expected and some were surprising. The expected results included the widespread use of information systems by educators and the lack of training received in the use of the Internet. The surprising results included the data relating to the purpose of connections,
gender and race. The researcher feels the study reveals important data based on the value placed on information systems in the world we work and live in. For educators to stay current in their field, they need to be able to transfer their skills from one piece of software to another and not be intimidated by the new emergences that are inevitable. Information systems are tools to be used to help, not hinder, students, educators and employees. Business educators need to stay current and take the time to learn the latest technology available so that students learning from their institution are able to compete with students learning from other institutions.
BIBLIOGRAPHY
BIBLIOGRAPHY


APPENDIX
April 7, 1995

Dear [FIELD(2)]:

I am a graduate student at Montana State University, collecting data for my master's thesis. I am conducting a study of professional educators associated with the American Assembly of Collegiate Schools of Business, to determine the extent, if any, that they use the Internet.

This study is very important due to the explosion of the "Super-information Highway," and its impact on both academic and private communities. Please deliver this questionnaire to a "power user" at your college or university, defined by the person most knowledgeable of the Internet and/or who uses the Internet the most at your institution.

The results of your input are confidential. I have coded the instrument for follow-up purposes only. Please return the questionnaire in the stamped preaddressed envelope by April 27, 1995.

Your assistance is sincerely appreciated. If you are interested in reviewing an abstract of the findings, please answer the last question on the questionnaire so I can mail the information directly to you.

Best regards,

Patty Scarrah-Alston
Graduate Student
Montana State University

Enclosure
Please take a few minutes to complete the following questions.

1. Which type of institution do you work for?  □ Private  □ Public  □ U.S.A.  □ International

2. Which type(s) of degree, if any, is offered at your institution? (please check all that apply)
   B.S.  □ Business  M.S.  □ Business  Ph.D.  □ Business  □ MIS  □ MIS  □ MIS

3. What services available on the Internet do you use?
   Please check all services used and add any not listed.
   telnet  □ bulletin board (please list)
   e-mail  □
   gopher  □
   library services  □
   FTP  □
   World Wide Web  □
   Netscape  □
   Mosaic  □
   None  □

4. How do you locate the information you are seeking on the Internet?
   Please check all the references used in locating information on the internet.
   library references  □
   periodicals  □
   directories on Internet  □
   associates/staff  □
   other (please list)

5. How many hours of outside training, if any, have you received on the use of the Internet?
   None (self trained)  □  6-10 hours  □
   1-5 hours  □  11 plus hours  □
6. With which software applications are you most acquainted?

Please list all software applications used.

<table>
<thead>
<tr>
<th>Software Type</th>
<th>Name of Application Most Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word processor</td>
<td></td>
</tr>
<tr>
<td>Spread Sheet</td>
<td></td>
</tr>
<tr>
<td>Database</td>
<td></td>
</tr>
<tr>
<td>Graphics</td>
<td></td>
</tr>
<tr>
<td>Statistical</td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td></td>
</tr>
<tr>
<td>Other (please list)</td>
<td></td>
</tr>
</tbody>
</table>

7. Do you have access to Local Area Networks (LAN) at your institution?

☐ Yes  ☐ No

If yes, please check all the items you use in your daily tasks.

☐ Student Records  ☐ Campus Calendar  ☐
☐ Human Resources  ☐ Campus Directory  ☐
☐ Financial Data
☐ Other (please list)

If no, check all the services you would use, if available.

☐ Student Records  ☐ Campus Calendar  ☐
☐ Human Resources  ☐ Campus Directory  ☐
☐ Financial Data
☐ Other (please list)
8. Please keep a log of your first four (4) connects for five (5) consecutive working days of your Internet activities.

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>LENGTH OF CONNECT</th>
<th>AREA OF INTERNET USED:</th>
<th>PURPOSE: R&amp;D, ACADEMIC, PERSONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAY 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAY 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAY 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAY 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAY 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. What is your gender?
   Female □     Male □

10. What is your age?
    - under 20 □
    - 21-30 □
    - 31-40 □
    - 41-50 □
    - over 50 □
11. What is your race?

- Asian
- Black
- Hispanic
- Mid East Indian
- Native American
- White
- Other (please specify)

12. What is your academic rank?

- Instructor
- Assistant Professor
- Associate Professor
- Professor
- Other (Please list)

13. Please list your highest degree, the date you received your degree and the area you received your degree:

   Degree ________________________ Date Received ____________________
   Curriculum _______________________________________________________

14. How many years of teaching experience, if any, do you have?

   - 0-10 years
   - 11-20 years
   - 21-30 years
   - 31-40 years
   - 40+ years

15. Yes, I would like to receive an abstract of the findings of this survey.

   Name: ____________________________
   Address: _________________________
   Email: __________________________