Student Use of the Internet and Their Attitudes on Computer Ethics, with Regards to Internet Use

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Almost overnight, the nation's college campuses got wired. Students used the Internet to view professors' Power Point presentations, consult faculty advisors through email, and stay in touch with friends back home via email and Messenger Services. Now, on-campus Internet use has experienced exponential growth. At the University of Southern California, for example, Internet use has quadrupled in just the past year (Armstrong, 2000). What exactly are student doing on the Internet? Is it mostly recreational activities or academic-based?

To accommodate this vast increase in Internet usage, universities struggle to strike a balance that allows reasonable recreational use and more legitimate scholarly pursuits (Armstrong, 2000). The increased versatility that the Internet offers has increased its usage and the likelihood of its misuse (Banerjee et al., 1998). Misuse and methods that regulate such behavior, such as policies, bring about the relatively new and developing subject of computer ethics (Gotterbarn, 1992:p. 75).

The purpose of this study was two fold. The first purpose was to determine the task based and non-task based use of the Internet by Southwest Texas State University patrons

that frequented the Alkek Library Computer Lab. Secondly, the evaluation of Southwest Texas State University patrons' attitudes with regard to their perception of unethical uses of the Internet was assessed (attitudes should reflect the use of the Internet on university hardware provided for academic purposes, in a campus computer lab). A study was conducted with survey instruments to acquire data that pertained to university patrons' use of the Internet. The surveys were administered to university patrons that utilized computer lab services during survey distribution periods. Statistical methods, to include mode, frequency distribution, and percent, were used to analyze the raw data collected from the surveys. The findings from these analyses concluded that the Alkek Library Computer Lab patrons used the Internet for more task based (academic) purposes, although recreational email (non-task based) received very frequent use. The data also showed that survey respondents felt unethical use of the computer lab resources consisted of all non-task based subcategories, with the exception of recreational email. The overall perception of patron use of the computer lab indicated that academic assignments are used more frequently and take priority over non-task based activities.

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CHAPTER 1: INTRODUCTION AND STATEMENT OF THE RESEARCH QUESTIONS

INTRODUCTION

> "As a college student, I can hardly remember life before I was born into the world of e-mail. I use electronic mail and the World Wide Web to communicate with family and friends…, to ask questions of professors, to gather information about current events and to learn about topics ranging from Shakespeare to strawberry Pop-Tarts."[1]

This quote captures something extraordinary, which has occurred over the past few years in information technology use (Lubans, 1998). There's no doubt about it. Something revolutionary is going on, and that something is students and the Internet. But the question is how students use the Net. Does it broaden their access to high-quality resources, or lead them to wade mindlessly through endless streams of junk (Lubans, 1999:p. 144)? Most educators agree that the Internet can be a valuable resource if used correctly (Browne et al., 2000). The many uses of the Internet become important when its tools can prove beneficial to the educational arena.[2]

Aside from its more commonly known recreational uses

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[1] This quote was taken from a Duke undergraduate student writing about the Web in Spring, 1997.
[2] The Internet is open all hours of the night or day, every day of the week, and even on holidays. This convenience presents a definite advantage to students for whom the nearest library's schedule is a constraint to research (Browne et al., 2000).

(email, chat, surfing, and recreational information retrieval), the World Wide Web (WWW) has expanded into education (Barrie and Presti, 1996:p. 371). Internet courses, multimedia classrooms, WWW discussions, and the use of multimedia visual displays to accompany lectures have all become more common (Jason et al., 2001:p. 155). The WWW provides students with the ability to access information (academic and recreational), which ranges from general (the prodigious quantities of information organized at indexing sites such as Alta Vista and Yahoo) to specific (such as the large quantities of specialized information) (Barrie and Presti, 1996:p. 371).

It is almost universally acknowledged that the ability to use computers has become a new cultural technique comparable to reading, writing, and calculating (Ennals et al., 1986:p. 23). The Internet and the WWW offer powerful interactive learning and communication advantages that no other medium can duplicate (Dyrli, Nov/Dec 1998:p. 7). After benefits of the Internet became obvious, this resource's use escalated (Banerjee et al., 1998). A survey conducted at the University of Texas at Austin found that 73 percent of 531 students surveyed used the Internet at least once a week. Of those students, over 91 percent were online for academic purposes, over 85 percent used the WWW at least once a week, and 54

percent went online to access library services (Brown et al., 2000: p.392).

The ongoing increase in student Internet use demands a reassessment of the resources available at university computer labs. To understand and predict future national Internet usage, it is important to study college students since college graduates are the primary Internet users. Fifty-three percent of those with a baccalaureate or higher degree are online. College students use the Internet far more than the general population. Meanwhile, universities continue to expand Internet accessibility and experience an increase in the number of college courses that require Internet use (Odell et al., 2000:p. 856).

PURPOSE OF THE RESEARCH

The purpose of this study is two fold. The first purpose is to determine the task based and non-task based use of the Internet in the Alkek Library Computer Lab, by Southwest Texas State University patrons. Secondly, the evaluation of Southwest Texas State University patrons' attitudes with regard to their perception of ethical and unethical uses of the Internet is assessed (attitudes should reflect the use of the Internet on university hardware provided for student use

in a computer lab).

The nature of this research is descriptive. Descriptive
categories based on the current literature include task based
Internet use, non-task based Internet use, computer ethics,
and misuse regulations. These categories, along with
subcategories form the conceptual frameworks for this study.

CHAPTER SUMMARIES

This applied research project consists of 6 chapters.
The next chapter, Chapter 2, contains a review of the
literature on student Internet usage, computer ethics, and
Internet use regulations. It also illustrates the development
of the conceptual frameworks, as the categories are linked to
the literature. The institutional setting of the research
project is discussed in Chapter 3. An explanation of the
research methodology utilized is contained in Chapter 4.
Chapter 5 presents the results after careful analysis of the
data collected for the study. And, Chapter 6 concludes the
study with a summary of the applied research project and
recommendations for future research. The Appendices contain
reference charts and the survey instruments.

CHAPTER 2: LITERATURE REVIEW

This chapter has two purposes. First, this chapter classifies and defines (task based and non-task based categories) the ways university patrons use the Internet (specifically at a campus computer lab). Secondly, this chapter explores the subject of computer ethics. Topics in computer ethics include proper Internet usage by university patrons and legislation that regulates such behavior. Each purpose has a conceptual framework that links the categories to the literature. The conceptual frameworks developed from the literature are used to formulate survey items for later data collection.

INTRODUCTION

During the past two decades, society has witnessed a rapid evolution in and adoption of computer technologies, especially with the Internet (Gattiker, 1999: p.233). Pulsefinder On-Campus Market Study, a joint study by Greenfield Online and Youth Steam Media Networks, revealed that the Internet had become an integral element of college life (*Westchester County Business Journal*, 2000:p. 19). In 1998, after a study was conducted at three universities in the

Southeastern United States, careful analysis of the data
showed that university students used the Internet with
regularity (Browne et al., 2000:p. 392).[3] In fact, 78 percent
of students used the Internet at school (*Techniques:
Connecting Education and Careers*, 2000:p. 13). The majority
of college students (90 percent) go online at least once a
day. They spend an average of three hours online every day,
and 20 percent spend four or more hours online each day
(*Westchester County Business Journal,* 2000:p. 19).

As the Internet becomes more ubiquitous on college
campuses, students continue to find more and more ways to use
this tool (Browne, et al., 2000:p. 391).[4] And, given the
various promises of this technology and the unique tasks for
which it is used, students now utilize Internet resources for
educational purposes as well as a source of entertainment
(Mitra, 1998:p. 293).

HISTORY

Initially, the Web was invented as a way for researchers
to communicate information more effectively. In the late
1960s, the federal government saw how computers influenced

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[3] Data from the 1998 National Survey of Information Technology in Higher Education indicated that the percentage of classes reporting that they used the Internet resources increased from 15 percent in 1996 to 30 percent in 1998 (Flowers et al., 2000: p.637).

[4] In 1996, USA Today reported that the campus market accounted for over seven million Internet users (Browne

education and military research. Subsequently, the federal

government funded the creation of a nationwide computer

network to connect remote research and development sites and

universities. A standard protocol language was established

(TCP/IP) so that all computers linked to the Internet could

"talk" to each other.[5] Eventually, the network expanded and

linked sites globally. In the early 1990s, two significant

technological developments took place. The first development

provided commercial traffic access to the Internet. The

second was the invention of the World Wide Web (Kalfel,

1996:p. 9).

The Internet has become such a fundamental part of life

in general that students in a university environment expect

and demand extensive access to this service (McCampbell and

Liedlich, 1996: p.897). Access to the Internet is no longer a

luxury, but is now a necessity for many schools and

universities. The reformation of this educational technology,

and its availability to students, is as imperative as books in

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et al., 2000: p.391).

[5] TCP and IP were developed by a Department of Defense (DOD) research project to connect a number different networks designed by different vendors into a network of networks (the "Internet"). It was initially successful because it delivered a few basic services that everyone needs (file transfer, electronic mail, remote logon) across a very large number of client and server systems. IP is responsible for moving packet of data from node to node. IP forwards each packet based on a four byte destination address (the IP number). The Internet authorities assign ranges of numbers to different organizations. The organizations assign groups of their numbers to departments. IP operates on gateway machines that move data from department to organization to region and then around the world.   TCP is responsible for verifying the correct delivery of data from client to server. Data can be lost in the intermediate network. TCP adds support to detect errors or lost data and to trigger retransmission until the data is correctly and completely received (Gilbert, 1995).

a library (Molnar, 1997). The increased versatility of the Internet has made this technology an essential part of society, and increased the likelihood of both its use and misuse (Banerjee et al., 1998). Misuse, however, brings about the relatively new scholarly area of "computer ethics" (Gotterbarn, 1992:p. 75).

CLARIFYING TASK BASED AND NON-TASK BASED

It is important to consider the potential uses of the Internet, particularly in a higher education setting. Since the Internet is a tool whose prevalence is pervasive and crucial to society, it is vital that students are provided access to this tool. Unlike earlier studies on computer use that focused on the assessment of computer proficiency among specialized students (learning programming and other computer-related skills), this research project focuses on more non-specialized uses of computers. Non-specialized uses include situations that require the use of computer resources, like the Internet, for everyday academic activities. Use, in this study, is described in terms of the specific tasks accomplished on the computer. And since the computer has become more versatile, its uses have shifted from specific computer- and computing centric use to task-related and non-

task-related (Mitra, 1998: p.285). For this Applied Research

Project, the task related and non-task related use is applied

to the Internet activity of patrons that frequent a university

computer lab. The categories and subcategories of task based

and non-task based use are shown in the conceptual framework,

Table 2.1, as they are linked to the literature.

TASK BASED

One purpose for Internet use by patrons is task based,

which includes all activities with academic intentions. Use

of the Internet as a resource for education enjoys near-

universal support from students, educators, and institutions

(Kubey et al., 2001:p. 366). According to M. Neil Browne et

al. (2000), it is evident that college students use the

Internet for both academic and entertainment purposes (p.

392). In addition to the entertainment uses of the Internet,

students use a variety of Internet resources to help them

perform basic educational tasks (Golian, 2000: p.139). This

educational use of he Internet is classified as the

subcategory "information retrieval." Studies of campus

Internet use show that electronic mail and WWW browsers are

the most often-used Internet applications (Kubey et al.,

2001:p. 369). A few ways that education has harnessed the

power of the Internet-based communication resources is through

the use of email and chat or threaded discussions (McLester,

2001:p. 28). These growing roles of the Internet are

classified as communication a subcategory of task based

Internet usage.

COMMUNICATION

The use of computer communication technology is a

powerful tool that can enhance the educational experience for

students (Dyer and Saltzman, 1999). The Internet supports an

increased number of services to include, but not limited to,

log-on services, email, file transfer, Web, electronic white-

boards, videoconferences, host-to-host communications, and

directory services (Golian, 2000: p.139).

A growing role of the Internet is the support of learning

solutions for educational institutions with communication

tools. (Golian, 2000: p.139). For America's college class of

2001, one use of the Internet was to send and receive email

(*The Futurist*, 2001:p. 9). And according to a study conducted

by Jane Bost (1997), Assistant Director of the Counseling &

Mental Health Center (CMHC), the favorite online service, with

over 50 percent endorsement, was email. Findings on data

collected from the 1998 National Survey of Information

Technology in Higher Education indicate that in 1994, about 8

percent of postsecondary classes used email. This number

increased to 44 percent by 1998 (Flowers et al., 2000). The

email resource is useful for students to share questions,

problems, solutions, and successful and less successful

techniques, with their classmates and professors (McLester,

2001:p. 20). Patti Billet-Zigarevich, a student at

International University, utilized this Internet tool to

complete the assignments her professor posted on the class

home page. She would submit her work by email and receive

comments in a reply within a few days. At scheduled times,

she would enter chat rooms for discussions with her teachers

and other students (Brewer, 1998:p. 117).

With chat communication technology, students can join in

discussions with guests at distant locations, or collaborate

with classrooms around the globe (Schutte, 1998:p. 37). The

Internet provides student access to online services with

embedded message boards so that students can hold structured

discussions about what they learn (p. 22). Students can also

visit different chat rooms to talk with peers about class

assignments (p. 20).

Although the Internet is often considered a recreational

source, it began primarily as a research and scholarly tool.

This academic aspect of the Internet has become increasingly

popular among students (Browne et al., 2000:p. 393). More

recently, there has been a rapid growth in the use of the

Internet as a method of course delivery and a resource for

supplementary tools (Newby and Fisher, 2001: p.4).

INFORMATION RETRIEVAL

Academic work is a common reason for student use of the

Internet (Bost, 1997). Appendix A illustrates the frequency

of Internet use for academic purposes. A study of men and

women at a small liberal arts college indicated that women

used the Internet less than men, and used it for different

reasons. Additionally, 31 percent of the women said that they

used the Internet for educational reasons (compared to 12

percent of the men) (Altman, 1999:p. 255). Appendix A also

exhibits the difference, by gender, in the use of Internet

resources for academic purposes.

Online educational materials, such as lecture notes,

texts and computation tools are the wave of the future

(Garcia, 2000). Sixty-six percent of students used the

Internet to access curriculum materials (Dyrli, Sept 1998:p.

17).[6] Anna McFadden (1999) found that 4 percent, 102 hits out

of 2,310 hits, of total Internet usage was attributable to

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[6] An increasingly popular online classroom tool is Blackboard. Blackboard is an e-Learning software platform
that serves as an interactive classroom on the Web. In Blackboard, you will find course information,

course related sites (http://epaa.asu.edu/epaa/v7n6.html). A

student can access web sites that extend and reinforce the

academic concepts of their lecture course. Such a site

includes searchable lecture outlines, discussion groups, links

to web sites associated with class material, class surveys,

regular email announcements, examination answers, interactive

grade retrieval, searchable term papers, and course

assignments (Barrie and Presti, 1996:p. 372). Similar tools

create a Net presence for classes, and provide students access

to handouts, study guides, lab report templates, assignments,

and other instructional materials (McLester, 2001:p. 20).

Now, many students rely heavily on the Internet to do

research (Lubans, 1999: p.144).[7] Use of the Internet as an

educational and research tool is widespread among the nations

college freshmen, as revealed by UCLA's annual survey of

first-year students (*American Council on Education*, 1999). An

overwhelming majority of students responded they used the

Internet for school-related purposes, especially for

conducting research (O'Sullivan and Scott, 2000).

Approximately 49 percent of schools reported that students

assignments, readings, class announcements, discussion groups and other such features.
[7] The interactivity of some academic Web sites makes them unparalleled as a resource. When using the Internet for research, students have access to information from universities, observatories, government agencies, and other sources worldwide. The availability of library catalogs on the Web enables students in small and remote institutions to search the collections of larger institutions like Oxford University and the Library of Congress. Up-to-date information from sources ranging from independent researches to government agencies can be found on the Web, as can otherwise unpublished information. Students using the Internet carefully may find more in-depth information than would be available without such technology (Browne, et al., 2000).

used the Internet for research at least once a week (Dyrli, Sept 1998:p. 17). What's more, many of the students that utilized this portion of the Internet expected their dependence on it only to increase (Lubans, 1999:p. 145). Generally, students felt satisfied with the Internet as a research tool. Over 93 percent of the students claim their satisfaction level is either excellent or good. In addition, nearly 63 percent of the students noted depth or variety of information acquired as benefits of the Internet for research purposes (O'Sullivan and Scott, 2000:p. 35). More than four out of five college freshmen said they used the Internet for research and homework (*Thrust for Educational Leadership*, 1999: p.21). A study conducted in 1998 by the American Council on Education and the Graduate School of Education and Information Studies at the University of California at Los Angeles found that nearly 83 percent of new freshmen said they also used the Internet for homework or research (Browne et al., 2000: p.392).

Students compared their use of Internet resources to those traditional, library-based resources (paper indexes and encyclopedias). [8] More than half of the students described a

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[8] Currently, academic journals are delivered in both electronic and print format. But, these earlier methods are slowly being supplemented by the electronic journal, often a searchable, interactive, multimedia World Wide Web version of the paper journal. Motivated by exorbitant journal prices, long publishing delays, and a promising new medium, innovators have pioneered a movement that now realizes nearly 1000 electronic

ratio of traditional resources to Internet use at 50/50 or

higher, while a quarter reported more than 60 percent Internet

use (Lubans, 1999: p.145). Appendix B illustrates the

percentage distribution between traditional library based

resources and Internet use. Students said that their use of

the Internet had increased for research purposes because of

tangible benefits. Freshmen claimed that the Internet helped

them find more resources, save time, and get better grades

(Lubans, 1999: p.145).[9] Appendix C shows the student's

perception of the Internet's affect on the grade they received

on homework assignments.

    With electronic means, like the Internet, students can

use new tools to support the approved curriculum and desired

core competencies of their higher education degree (Golian,

2000: p.136). Andrew Zucker asserted that universities must

respond to these rapid technological changes in order to

maintain the relevance and quality of education, to improve

productivity, and to take full advantage of new opportunities

(Zucker, 1982: p.398). To accomplish such a task,

institutions must stress the use of Internet resources for

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journals on the Internet (Barrie and Presti, 1996:p. 372).

[9] Using the Web can allow students to access information that cannot be readily found in print. In addition, the Internet is convenient: unlike resources housed in the library, the Internet is available all day, every day. The Internet is open at all hours of the night or day, every day of the week, and even on holidays. This convenience presents a definite advantage to students for whom the nearest library's schedule is a constraint to research. (Browne, et al., 2000)

academic purposes only. However, this feat is difficult when

the Internet offers various other alternatives whose main

purpose is entertainment, or non-task based.

NON-TASK BASED

The non-task based use of computers among students

includes activities characterized as recreational or

entertainment. For some, the Internet is just an

entertainment appliance (Olsen, 2000: p.A39). In a study by

John Lubans (1999), freshmen ranked their use of the Internet

by activities from most to least frequent. The list included

using email, visiting favorite sites, surfing, playing games,

and chatting (p. 145). The Internet activities from this list

are classified into subcategories of non-task based use. The

subcategories include communication, information retrieval,

and games.

COMMUNICATION

The most common online activity, email, totaled 92

percent (*Westchester County Business Journal*, 2000:p. 19).

Nearly two-thirds (65.9 percent) of University of California

in Las Angeles (UCLA) freshmen said they communicated via e-

mail (*American Council on Education*, 1999: www.acenet.edu).

In a study conducted by McFadden (1999), at the computer lab

of a major state university, the data revealed that out of

2,310 Internet hits, 647 of them, or 28 percent, were from

email use (http://epaa.asu.edu/epaa/v7n6.html). According to

a survey administered by the Gallup Organization, female use

of the Internet consisted of 38 percent email to maintain

relationships with family, compared to men's 29 percent.

Women also used the Internet 30 percent of the time to email

friends, while men used the Internet for this purpose only 27

percent of the time (*Marketing to Women: Addressing Women and*

Women Sensibilities, 2001:

http://web5.infotrac.galegroup.com).

When asked what Internet activity occupied their free

time, the most common response from students was chat rooms or

Messenger Services (McLester, 2001:p. 20). A survey conducted

by the Higher Education Research Institute at UCLA's Graduate

School of Education and Information Studies showed that more

than half (54.2 percent) of all freshmen said they

participated in Internet chat rooms (*American Council on*

Education, 1999: www.acenet.edu). And, an online survey found

that 48 percent of students surveyed participated in chat

rooms (Dyrli, Nov-Dec 1998:p. 7). And according to the

Pulsefinder On-Campus Market Study, 66 percent of students

used Instant Messaging (*Westchester County Business Journal*,

2000:p. 19). One of their most common reasons for use of this

communication median was to maintain relationships. In

addition, 35 percent of the students indicated an interest in

meeting new people online, and 21 percent used this portion of

the Internet to experiment with their personality or social

relationships (Bost, 1997: www.utexas.edu). A recent study

(*Marketing to Women: Addressing Women and Women Sensibilities*,

2001) found that of total Internet usage, both males and

females used Instant Messaging Services 2 percent of the time

(http://web5.infotrac.galegroup.com). McFadden's (1999)

study, however, found that out of 2,310 hits reviewed, 133 of

those, totaling 6 percent, were received from Messenger

Services (http://epaa.asu.edu/epaa/v7n6.html). According to

students who used the Internet weekly, 37 percent frequented

newsgroups and 9 percent used chat rooms (Bost, 1997:

www.utexas.edu).

INFORMATION RETRIEVAL

America's College Class of 2001 used the Internet to

retrieve news and information (*The Futurist*, 2001:p. 9).

According to the Pulsefinder On-Campus Market Study, 84

percent of men and 77 percent of women surveyed used the

Internet as a news and information source (Dyrli, Nov/Dec

1998:p. 7). Seventy-two percent of online activities included

recreational surfing of the Internet for topics of interest

(*Westchester County Business Journal*, 2000:p. 19). A survey

of student use of the Internet found that 85 percent of the

students evaluated used the Web to find topics of interest

such as hobbies or events (Dyrli, Nov/Dec 1998:p. 7). A

student at a southern college, for example, used a public

terminal to search for news about the singer Christina

Aguilera (Olsen, 2000: p.A39). Data examined on a total of

2,310 hits from a major state university, revealed that sport

sites received 137 hits (6 percent), news sites received 30

hits (19 percent), and general sites accounted for 47 percent

of total Internet use (1,094 hits) (McFadden, 1999:

http://epaa.asu.edu/epaa/v7n6.html).[10]

Recently, new music and video technology has been

unveiled. With the introduction of various file-sharing

applications, such as Napster, Morpheus, and Aimster, just to

name a few, it is possible to download some of ones favorite

music or videos without cost.[11] A student at Wellesley

College, for instance, used the controversial Napster file-

sharing program to collect digital recordings of Dave

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[10] Due to the number and diversity of these sites, it was decided to categorize them under this general heading. These included sites apparently related to course activities, research, or web sites, heath and disease, psychology, business statistics, and the like.

[11] Some users, however, are not allowed to run servers that illegally distribute materials, such as copyrighted music or movies (Farnham, 2000).

Matthews' songs.[12]

<u>GAMES</u>

In fall 1998, a survey conducted by the Higher Education
Research Institute at UCLA's Graduate School of Education and
Information Studies showed that a full 80.4 percent of
students said they played computer games at least occasionally
(*American Council on Education,* 1999: www.acenet.edu). In a
survey conducted by the online Family Education Network on
student use of the Internet, 54 percent of the survey
participants played online games (Dyrli, Nov/Dec 1998:p. 7).
However, in a study conducted by McFadden (1999), less than 1
percent of total Internet use accounted for games
(http://epaa.asu.edu/epaa/v7n6.html).[13] A computer lab at the
University of Illinois prohibits games from noon to midnight,
Sunday through Thursday. Even when games are allowed,
academic work always has priority over games (Farnham, 2000).

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[12] Since July, Napster disabled their file-sharing tool due to legal matters. The most important events have been
our voluntary suspension of file sharing in July and September's preliminary settlement of an outstanding class
action suit brought against Napster by music publishers and songwriters. (www.napster.com/lowdown.html)

[13] Differing results in the study conducted by McFadden could be a result of how data was collected. Instead of
traditional data collection, McFadden collected Internet cache from random computers and interpreted the
nature of the sites visited.

CONCEPTUAL FRAMEWORK

The conceptual framework for this study is descriptive.

As stated by Abraham Kaplan in Patricia Shields' *Problems in*

Research Methodology (2001),

> "In this process the things studied are
> classified and analyzed: several things
> are grouped together and particular
> things assigned to the several groups
> to which they belong...Things are
> grouped together because they resemble
> one another" (p. 54).

The descriptive categories for Internet usage include task

based and non-task based. Task based Internet usage consists

of use related solely to academic assignments. And non-task

based Internet usage includes only recreational or

entertainment uses. Table 2.1 illustrates the linkage between

the categories and the literature sources. Each category is

divided into subcategories for a better understanding of what

activities constitute task based and non-task based Internet

usage. The conceptual framework was used as a guide to

formulate a survey tool. Each category and its subcategories

are developed into survey items so that the Internet behavior

of computer lab patrons can be analyzed. Appendix D houses

the survey tool.

CONCEPTUAL FRAMEWORK
Task Based and Non-Task Based Categories
Table 2.1

CATEGORIES	SOURCES
Task Based	
Communication • Email • Chat (Discussion Boards)	Golian (2000); Dyer and Saltzman (1999); McLester (2001); *The Futurist* (2001); Brewer (1998); Flowers et al. (2000); Bost (1997); Schutte (1998)
Information Retrieval • Class Notes • Research	Garcia (2000); *Thrust for Educational Leadership* (1999); Dyrli (Sept 1998); Bost (1997); Altman (1999); McFadden (1999); Barrie and Presti (1996); McLester (2001); Golian (2000); Lubans (1999); Zucker (1982); Brown, Freeman, and Williamson (2000); *American Council on Education* (1999); O'Sullivan and Scott (2000)
Non-Task Based	
Communication • Email • Chat (Messenger Service)	*Westchester County Business Journal* (2000); *Marketing to Women: Addressing Women and Women Sensibilities* (2001); McFadden (1999); McLester (2001); Dyrli (Nov/Dec 1998); Bost (1997); *American Council on Education* (1999)
Information Retrieval/Surfing • Recreational Information Retrieval/Surfing • Downloading Music/Video Files	Olsen (2000); *Westchester County Business Journal* (2000); *The Futurist* (2001); Dyrli (Nov/Dec 1998); McFadden (1999); Farnham (2000)
Games • Playing Online Games	Dyrli (Nov/Dec 1998); McFadden (1999); Farnham (2000); *American Council on Education* (1999)

COMPUTER ETHICS

Although use of the Internet in education has increased dramatically over the years, the misuse, or non-task based use of Internet resources in university computer labs has risen. To consider recreational use of the Internet unethical, the assumption that the Internet services provided by the university (specifically in computer labs) are for academic purposes only is established. The statement of purpose in misuse regulations is particularly important when use policies are established, since it explains the reason for making the services available in the first place. To assure safe, ethical and responsible use of the Internet, schools should follow basic guidelines when technology use policies are developed.

The institution should inform all users that their computer account, as well as the hardware provided, is for educational purposes only (Dyer and Saltzman, 1999). Carter (1998) also agreed that universities should clarify that Internet services provided on university equipment was established for a limited educational purpose. [14] Misuse regulations exist to control unethical use of the Internet by patrons. The conceptual framework, Table 2.2, shows how the categories of computer ethics and misuse regulation are linked

to the literature.

COMPUTER ETHICS

Because of the proliferation of computer technology, especially the Internet, many individuals who use this resource daily have encountered increasingly ethical dilemmas (Gattiker, 1999: p.233). And, as Internet access becomes a fundamental part of the educational system, an increased opportunity exists for students to misuse this service (Banerjee et al., 1998).

Computer ethics is a relatively new area of research (Gotterbarn, 1992:p. 75). This area, however, has not remained unattended (Banerjee et al., 1998). Computer ethics is defined as a set of rules or principles used for moral decision-making with regards to computer use (with regards to Internet use) (Pierce and Henry, 1996). Ethics defined only as compliance—tells what is right; what is wrong; what is legal; what is not permissible—is unacceptable (Menzel, 1999:p. 444). Acceptable behavior is a particularly ambiguous concept in the information systems field, since the field is still relatively young and it evolves at a tremendously rapid pace (Pierce and Henry, 2000).

James Moor maintained that computer ethics is the

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[14] What constitutes "educational purpose" must be further clarified.

analysis of the nature and social impact of computer

technology and the corresponding formulation and justification

of policies for the ethical use of such technology. Moor

argued that computer ethics is a dynamic and complex field of

study with no fixed set of rules. Computer ethics causes the

examination of the nature of computer technology and ones

values (Moor, 1985:p. 266). Tom Forester and Perry Morrison

(1994) believed that computer ethics could resolve, to some

extent, the ethical dilemmas that computer technology has

produced. Stephen Mandell (1992), however, viewed computer

ethics as a standard of moral conduct in computer use. He

argued that although specific laws were enacted to combat

problem areas of computer technology, ethics laws (the intent

or spirit) were applicable to computer related activities (p.

446).

As stated in *Morality and Computers: Attitudes and*

Differences in Moral Judgments, Johnson emphasized that

computers created an entirely new species of ethical issues.

Several important questions that developed from ethical

situations include how the moral judgments of users were

affected when computer technologies were involved, what moral

issues were involved in the ethical decision-making process,

what types of controversial computer actions were perceived as

ethical and unethical by users, and how should organizations

address the unethical computer behavior (Gattiker, 1999).

MISUSE REGULATIONS

Many situations that regard computer ethics are not well
understood (Gattiker, 1999;p. 233). The opportunity for
unethical computer use and the absence of a structured
framework to guide behavior compounds this serious problem
(Pierce and Henry, 1996).

Although computer-related legislation started in the late
1970s, the need to address ethical behavior among computer
professionals was recognized by the late 1960s, when computers
quickly spread into academic institutions. Because computer
laws did not exist, professional organizations initiated their
own ethical goods (Oz, 1992).

Most schools, however, provided Acceptable Use Policies
(AUPs), which defined unacceptable behavior, for student
Internet use (Freedman, 1996).[15] Of those schools that used
the Internet, 58 percent reported that a written policy was in
place to reduce the legal risks of student use of the Internet
(*Computers in Libraries*, 1996:p. 48). This policy defined the
skills students needed in order to make effective use of the

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[15] First, an AUP defines the skills students need to develop in order to benefit educationally from the Internet's resources. Secondly, it frames the use of the school's network. And finally, it establishes the do's and don'ts for online behavior, as well as the consequences when these norms are violated (Carter, 1998).

Web, regulated the use of the school's network, and established the rules for student online behavior.[16]

An effective Acceptable Use Policy should include among its provisions Internet access limited to specified dates and times when supervision is available, access to the Internet confined to a limited number of school-based locations, terms for access consistent with educational authority and functions of the school, and a mandatory training program on Internet use before access is permitted (*Computers in Libraries*, 1996:p. 48). This document (the AUP) was intended to clarify those rules as they apply specifically to network usage (Carter, 1998). Since students access the Web most often via the college's server for a direct connection, students have an obligation to abide by the regulations on Internet use set by the university (*Westchester County Business Journal*, 2000:p. 19).

CONCEPTUAL FRAMEWORK

The conceptual framework for computer ethics is also descriptive. Computer ethics and misuse regulations make up the categories for this part of the study. The concept of computer ethics is defined and related to Internet use at university computer labs (pertaining to Internet use on

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[16]   Acceptable behavior may be a particularly ambiguous concept in the information systems field, since the field is still relatively young and is evolving at a tremendously rapid pace. (Pierce, 2000:p.307)

university hardware resources). A misuse regulation,

specifically the Acceptable Use Policy is defined. A survey

tool was created with the computer ethics conceptual framework

(Table 2.2) as it related to Internet use in a university

computer lab. Categories of Internet use from the conceptual

framework, Table 2.1, are used to create situations that

question the ethical use of computer lab Internet resources.

The survey tool developed from this conceptual framework is

housed in Appendix E.

CONCEPTUAL FRAMEWORK
Computer Ethics
Table 2.2

CATEGORIES	SOURCES
Computer Ethics	
Computer Ethics • Defined	Pierce and Henry (1996); Gattiker (1999); Banerjee, Cronan, and Jones (1998); Gotterbarn (1992); Mandell (1992); Moor (1985); Forester and Morison (1994); Menzel (1999)
Misuse Regulation	
Acceptable Use Policy • Defined	Freedman (1996); Oz (1992); Gattiker (1999); Pierce and Henry (1996); *Computers in Libraries* (1996); *Westchester County Business Journal* (2000); Gencarelle and Matson (2000); Carter (1998)

CONCLUSION

Indeed, with the advent of the Information Superhighway, student's access to the Internet has become an essential part of their education (McCampbell and Liedlich, 1996: p.897). Since digital information resources have become integral and necessary to any student's education, refusal of student access to networked information is analogous to denial of student school library privileges (Carter, 1998).

Computers have been used in higher education for over 30 years as a tool to assist in the learning process within other disciplines. More recently, there has been a rapid growth in the use of the Internet. The Internet, alone, has expanded the computer's capabilities to access of educational material, on-line assessment, and communication tools (Newby and Fisher, 2001:p. 4). The multidimensionality of the Internet, however, has introduced the opportunity for the misuse of this technological resource (Mitra, 1998:p. 293). Future legislations may address some ethical issues, yet many will remain for individual professionals to resolve through the implementation of Acceptable Use Polices (Oz, 1992).

The next chapter explores the setting of this research project. A description of the institution's history and function is discussed.

CHAPTER 3: RESEARCH SETTING

The institutional setting for this study on patron use of the Internet and their position on what constitutes ethical and unethical use of the Internet is described in this chapter. A general description of Southwest Texas State University's Alkek Library Computer Lab, and some of the services it provides to university patrons is also discussed. The institutional setting for this study is the source of survey participants that reveal their views on use of the Internet and ethical use of the Internet in the Alkek Library Computer Lab.

The Albert B. Alkek Library, which opened June 4, 1990, changed the skyline on the SWT campus (Brown and Nelson, 1999:p. 17). The facility, named for Albert B. Alkek, a Texas oilman and rancher who had been a generous donor to Southwest Texas, cost $30 million and can shelve 1.5 million books in its seven floors (p. 116). Along with the Alkek Library Computer Lab, numerous other entities were developed to support the increasingly sophisticated learning needs of SWT's varied student population (p. 119).

Three distinct types of computer users exist on most campuses (McCampbell and Liedlich, 1996:p. 897). Southwest Texas' users include students, administration (faculty and

staff), and non-students (individuals not associated with the university, or other city residents).[17] By design, student labs are open.[18] Although at some colleges, a student computer identification card is required for access to campus computer labs in an effort to prevent, or limit unauthorized access, as is the case at the Alkek Library Computer Lab. Like SWT, however, some colleges are so committed to serve the community, that people are rarely refused access to a computer. This very openness, is often the strength of an institution, but provides an opportunity for possible unethical conduct (p. 898).

The Alkek Library Computer Lab currently houses 64 computers (a combination of Apples and Dells) for patrons to use. Even with the number of terminals available at the lab, the amount of patron traffic greatly surpasses the capabilities of the lab to accommodate the needs of users. The Alkek Library Computer Lab patrons experience situations, similar to those that occur at a University of Arizona computer lab.

> "Oksana Jones, an elementary education
> freshman at the University of Arizona,
> normally waits 10 minutes or more for
> access to a computer in the Science and
> Engineering Library, but on Monday, she

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[17] Only those who attend classes or work at SWT are considered students or affiliates. Those who don't work or pay tuition for the university are considered non-students.

[18] Availability of computers is on a first come, first serve basis. No check-in is required for use.

managed to get one after waiting for only five. 'It would be better if they had more computers, said Jonas, who uses the computer lab in the library every day. Sometimes the wait is too long.' With less than 1,000 open computer workstations on campus and nearly 35,000 University of Arizona students, many find themselves in Jonas' position. Veronica Reyes, an assistant librarian in the Main Library said, 'the staff there tries to keep lines moving, and even though the lines may look long, students normally only have to wait a few minutes.' Oksana explains, 'Usually if I see people waiting, I will go upstairs and study and wait for more computers to open up, she said. This semester, more than ever before, there have been long waits for computers in the Main and Science and Engineering Libraries,' she said. The ILC, which has been under construction since fall 1999, was originally planned to house 250 open workstations in its Information Commons, where students could walk in and use computers. 'It is even more critical than in the past, more faculty use computer technology and send their students to the labs, that we get the Information Commons opened, Oksana said.' Theresa Koflanovich, a senior support systems analyst for CCIT, said 'there are enough computers on campus for students even without the ILC, but students seem to be drawn to the library labs.' She said, 'CCIT operates seven walk-in labs, spanning from La Paz Residence Hall to the Aerospace and Mechanical Engineering building, but few students take advantage of them. As a result, there

are rarely lines at the labs.'
Nevertheless, she said CCIT's labs will
continue to be open for students, and
the center is considering a larger
marketing campaign to make students
aware of the labs" (Scarpinato, 2000).

When asked to list the things they like best about the
library media center, the single most frequent response (12
percent) was that the library media center was quiet. A total
of 37.9 percent of the choices fell within the categories of
atmosphere, facility, and physical climate. In contrast, 11.9
percent chose availability of individual resources, and 10.8
percent chose services and staff assistance (Burks, 1996:p.
145). Students provided a variety of reasons for use of the
library media center. The most common was that their teachers
made assignments that required the use of library media center
materials (76 percent). Use of computers for assignments was
important to 13 percent of the students (p. 146).

Fourty-eight percent of students used the school library
computers for access to the Internet (*Westchester County
Business Journal*, 2000:p. 19). Some library Internet
workstations are open, except for policy restrictions on
email, chat, and pornography (Gencarelle and Matson, 2000:
p.206). At the Alkek Library Computer Lab, certain terminals
are available for Internet use only. This was an attempt to

relieve the traffic in the lab area.[19] On library

workstations, research takes priority over recreational use of

the Internet. At the present, the Alkek Library Computer Lab

has no policy in place that restricts or mandates certain

types of use. Nevertheless, as open access to the Internet

becomes more widely known, the library workstations become

more heavily used for recreational surfing (Gencarelle and

Matson, 2000: p.206).

Consequently, increased use of the Internet has caused a

dramatic increase in the likelihood of its misuse (Banerjee et

al., 1998). Individual computer lab policies help to

prioritize workstation usage throughout campus (Gencarelle

and Matson, 2000: p.206). To deter unethical behavior, some

universities follow basic guidelines, which aid in the

development of technology use policies. The aim of such

policies is to assure safe, ethical, and responsible use of

the Internet (Dyer and Saltzman, 1999).

Chapter 4 discusses the methods that were employed to

acquire the survey data needed to answer the purposes of this

study. A review of statistical methods and sampling issues

are also discussed.

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[19] Computers located in the physical lab area are equipped with both application software (ex. Microsoft Office
or SPSS) and Internet access.

CHAPTER 4: RESEARCH METHODOLOGY

In this chapter, the research methods used to determine what tasks university patrons use the Internet for are examined. The methodology to assess patrons' attitudes on ethical and unethical use of the Internet is also discussed. The research methods, sampling, and survey development are discussed in detail. This chapter also operationalizes the categories of the conceptual frameworks with the research methodology. The methods discussed in this chapter aid in the proper collection of data so that the purposes of the study are resolved.

INTRODUCTION TO METHODOLOGY

Survey research was the method of data collection for both patron use of the Internet and the assessment of patron's attitudes on ethical and unethical use of the Internet. In order to address the research purposes, this tool was the most appropriate methodology.

FORMULATION OF SURVEY INSTRUMENTS

The first survey, which assessed frequency of patrons use of the Internet for task based and non-task based purposes, was derived from the conceptual framework (Table 2.1) and the

literature. The second survey, which assessed patron's
attitudes about unethical computer use, was derived from the
categories and subcategories of the conceptual framework for
task based and non-task based Internet usage, with an emphasis
on the literature about computer ethics. Although the ethics
survey items are based on the categories and subcategories of
Table 2.1, the questions derived addressed the second research
purpose of computer ethics. The operationalization of the
conceptual frameworks used to develop the survey instruments
are shown in Table 4.1 and Table 4.2.

ALKEK LIBRARY COMPUTER LAB SURVEY

    The Alkek Library Computer Lab conducted a survey in
Spring 2000 (Appendix F). Some issues questioned include
purpose of computer use (Internet resources used), the lab
environment and how it compared with other labs on campus, and
various services provided by the Alkek Library Computer Lab as
compared with those of other campus labs. No conceptual
framework table existed from this survey tool. Although the
survey was conducted, no tables or charts were produced.
Therefore, the raw data was analyzed and tables were produced
only for those issues that were pertinent to the current study
of task based and non-task based Internet usage.

    The scales for the survey administered by the Alkek

Library Computer Lab differed from those that were used for the Task Based and Non-Task Based Use of the Internet and Computer Ethics surveys. The data from the Spring 2000 survey was compared with that of the Task Based and Non-Task Based Use of the Internet survey to determine if any changes in Internet use occurred.

SUMMARY OF CONCEPTUAL FRAMEWORK FOR INTERNET USE

Each question for the survey tool (Appendix D) was derived from a subcategory of the conceptual framework for task based and non-task based use of the Internet (Table 2.1). The scale for this survey ranged from never to very frequently, with occasionally and frequently as additional survey options.

OPERATIONALIZING THE CONCEPTUAL FRAMEWORK
TASK BASED AND NON-TASK BASED INTERNET USAGE
Table 4.1

CATEGORY	SUBCATEGORY	SURVEY QUESTION	SURVEY RESPONSE
		My use of the Internet consists of:	
Task Based			
Communication	1. Email 2. Chat	2. Email for academic purposes 4. Chatting/ Discussion Rooms for academic purposes	Very Frequently, Frequently, Occasionally, Never
Information Retrieval	1. Research 2. Class Notes	6. Information retrieval for research purposes 7. Information retrieval for class notes	Ranges from Very Frequently to Never
Non-Task Based			
Communication	1. Email 2. Chat	3. Email for recreational purposes 5. Chatting/ Messenger Service for recreational purposes	Ranges from Very Frequently to Never
Information Retrieval/Surfing	1. Recreational Information Retrieval/ Surfing 2. Download Music/ Video Files	8. Information retrieval/ surfing for recreational purposes 9. Information retrieval for music/video file downloads	Ranges from Very Frequently to Never
Games	1. Play Online Games	10. Playing games online	Ranges from Very Frequently to Never
Classification			
Communication, Information Retrieval, Games	1. Email, Chat, Information Retrieval/ Surfing, Games	1. What is your classification	Freshman, Sophomore, Junior, Senior, Faculty, Staff, Other

OPERATIONALIZING THE CONCEPTUAL FRAMEWORK
COMPUTER ETHICS
Table 4.2

CATEGORY	SUBCATEGORY	SURVEY QUESTION	SURVEY RESPONSE
Task Based			
		Situation: A patron waits to use the Internet for academic purposes while another patron uses the Internet to…	
Communication	1. Email 2. Chat	5. Email for academic purposes 6. Chat/ discussion room for academic purposes	Yes or No
Information Retrieval	1. Research 2. Class Notes	3. Obtain information for research purposes 4. Obtain class notes	Yes or No
Non-Task Based			
Communication	1. Email 2. Chat	1. Email for recreational purposes 2. Chat for recreational purposes	Yes or No
Information Retrieval/ Surfing	1. Recreational Information/ Surfing 2. Download Music/ Video File	7. Retrieve information/ surf for recreational purposes 8. Download music/ video files for recreational purposes	Yes or No
Games	1. Play Online Games	9. Plays games online	Yes or No

SUMMARY OF CONCEPTUAL FRAMEWORK FOR COMPUTER ETHICS

A different approach was taken to formulate the questions

for the ethics survey (Appendix E). Each question was

sculpted from the subcategories of the task based and non-

tasked based Internet use conceptual framework (Table 2.1).

The questions were phrased into situations that encompassed

the subject of computer ethics with regard to the types of Internet use.

Throughout the process of survey development, the weaknesses and strengths of this methodology required careful consideration and correction to ensure that a reliable tool was available for use.

SURVEY WEAKNESSES

Some weaknesses associated with survey research include the superficial appearance in their coverage of complex topics and their inability to represent the total attitudes, orientation, circumstances, and experiences of people (Babbie, 2001: p.268). Sometimes, survey tools only cover the surface of an issue, and respondents may have certain feelings that they are unable to express through the limited response choices provided. The survey items that were presented to those who frequented the computer lab were categorized into very general categories (task based and non-task based), and response choices were provided (instead of open ended responses). Babbie (2001) stated that the researcher should assume that respondents tend to read items quickly and give quick answers. Accordingly, provide clear, short items that will not risk misinterpretation under those conditions (p. 244). A comments section was available for respondents to

communicate any additional, in-depth thoughts or feelings about the subject.

Surveys are also subject to artificiality, which is evident in some of the conservative answers given by participants. People are hesitant to respond to a question that will make them look bad or create an uncomfortable situation for them. Under these circumstances, participants are reluctant to tell a stranger what their opinion is (Babbie, 2001:p. 243). To somewhat deter this behavior the surveys were distributed with the respondents knowledge of anonymity. Also, the task based and non-task based survey (Appendix D) and the ethics survey (Appendix E) were distributed separately so that the respondents would not feel obligated or guided to respond a certain way based on the type of questions asked on either survey. If both survey tools were administered together, participants may have felt pressured to answer in a more ethical manner.

One of the most significant weaknesses, however, is validity (does the tool measure what it was intended to measure). Since validity is one of the most important concepts in survey research, without it, the results are meaningless and a great deal of time and energy are wasted. To rectify the problem of validity, the survey was developed from the literature and conceptual framework with the intention to

measure how frequently and for what purpose the computer lab

patrons used the Internet. The survey answer choices provided

were adequate enough to elicit the necessary responses for the

study.

SURVEY STRENGTHS

A strength associated with survey research is

reliability, since a survey instrument can eliminate

unreliability caused by researcher observations (Babbie, 2001:

p.269). The opportunity for bias is eliminated with the

survey tool since everyone perceives things differently.

Otherwise, the patron's actions could easily be misinterpreted

by researcher observations. With the surveys for this study,

respondents have the ability to clearly categorize their own

actions in the provided responses, or express their opinions

further with comments.

A survey is also useful to describe the characteristics

of a large population and is flexible (Babbie, 2001: p.268).

With an adequate survey sample, generalizations to a larger

population are possible.

POPULATION AND SAMPLING

The population for this study consisted of Southwest

Texas State University patrons that frequented the Alkek
Library Computer Lab. The sampling frame consisted of the
entire Southwest Texas State University population, to include
students, staff, and faculty. Opportunities are also provided
for those individuals (non-students) who are not affiliated
with the university. The sampling method consisted of the
administration of two surveys; one to determine the task and
non-task based use of the Internet in a campus computer lab,
and the other to assess the attitudes of students on unethical
use of the Internet with respect to the purpose of the labs
existence (it was established for the purpose of this research
that the purpose of the Alkek Library Computer Lab was
primarily academic). Prior to distribution, both survey
instruments were pretested by student workers at the Alkek
Library Computer Lab. Each survey was distributed on separate
days (distribution began on Thursday, January 24, 2002). It
was important to distribute the surveys separately so that
neither would lead the participant to respond in a particular
way. The response rate for the task based and non-task based
use of the Internet totaled 112 for the first distribution.
Pleased with the number of respondents, I decided not to
redistribute this survey. The next week on Thursday (January
31, 2002), the ethics survey was administered. Because of the
low response rate, redistribution of the survey occurred the

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next Thursday (February 7, 2002). After the second trial run, the number of ethics surveys received totaled 99.

In order to select survey participants, patrons were approached as they signed in for a computer. Each potential participant was asked to complete a survey if time permitted. Both surveys were distributed at three different times throughout the day. The schedule included distribution once in the morning (7:30 AM – 11:30AM), at mid-day (2:00 PM – 6:00 PM), and in the evening (8:30 PM –12:00 AM). The purpose of this distribution method would eliminate the bias of student's use of the Internet for a different purpose at different times of the day. Such a method of selection allowed for a variety of views from a well-rounded population sample. Survey distribution had its limitations, since distribution occurred throughout normal hours of operation. It was necessary to not interfere with the job duties of those students employed in ways that could jeopardize their job performance.

STATISTICS

Statistical analysis for this study consisted of simple descriptive stats such as the mode, frequency distribution, and percent.

MODE

The mode of a sample is the attribute that occurs most frequently (Babbie, 2001:p. 398). This statistical method was used to determine which Internet tool was used most frequently by patrons.

FREQUENCY DISTRIBUTION AND PERCENT

When data is presented in a frequency distribution, the objective is to show the number of times a particular value or range of values occurs (*Gale Encyclopedia of Psychology*, 2001). Frequency distribution illustrates the number of times that the various attributes of a variable are observed in a sample (Babbie, 2001:p. 398). This measure will show the number of times that each category of the Internet is used by patrons. Based on the Merriam-Webster Online Dictionary, a percent is reckoned on the basis of a whole divided into one hundred parts (www.m-w.com).

CONCLUSION

The statistical analysis of the above methods and their results will provide the data necessary to determine the task based and non-task based use of the Internet by patrons that frequent the Southwest Texas State University Alkek Library

Computer Lab. A survey previously administered at the Alkek

Library Computer Lab was compared with relevant categories of

Internet use, to determine whether any change in usage

occurred. The analysis of the ethics survey items will also

provide information for what patrons consider unethical use of

the Internet.

The next chapter explains the findings of the survey

research. Tables are provided to illustrate the findings.

CHAPTER 5: RESEARCH RESULTS

This chapter presents the findings of the study. The
survey data on task based and non-task based use of the
Internet by university patrons, as well as the survey data
collected on patron's attitudes with regards to unethical and
ethical use of the Internet is interpreted after statistical
analysis. Results for the survey administered by the Alkek
Library Computer Lab are also available. Relevant tables are
included to illustrate the outcomes of this study, to analyze
patron use of the Internet and their views on ethical use of
the Internet in campus computer labs, so that conclusions are
reached with regards to the research purposes.

STATISTICAL RESULTS FOR TASK BASED AND NON-TASK BASED INTERNET USE

Table 5.1 shows the breakdown of survey participants by
grade. Of all survey participants, the majority of
respondents (33.9 percent) were classified as seniors, in
accordance with the university student classification scale.
One possible explanation for the large number of seniors that
frequent the lab is that upperclassmen (juniors and seniors)
are more dedicated to their education. Also, many of the
incoming college students (freshmen and sophomores) have an
edge on technology. An increased number of new students come

to college with their personal computer, and have no need to

utilize university computer resources. Thus, there are a

small number of freshmen and sophomores that use the computer

lab. All of the survey participants who chose the "Other"

category indicated that their classification status was that

of a graduate student. Although three types of computer lab

users exist, only one of those types (students) was

represented in the survey. None of the survey participants

were university administration or non-students.

**TABLE 5.1   CLASSIFICATION OF TASK BASED AND NON-TASK
BASED INTERNET USERS**

CLASS	N=112	PERCENT
FRESHMEN	14	12.5
SOPHOMORE	20	17.9
JUNIOR	30	26.8
SENIOR	**38**	**33.9**
OTHER	10	8.9

Analysis of the data collected from the Internet use

survey showed frequent use of the Internet for nearly all task

based activities (academic email and information retrieval for

research material and class notes). The exception, use of

communication tools via discussion rooms, received a mode

response of "never" from nearly half (49.1 percent) of all

survey participants.   The lack of Internet use for this

communication task could have resulted from a lack of

knowledge by the professor. The use of discussion rooms is a

fairly new subject within the education arena. Professors may
not have the necessary knowledge to use this portion of the
Internet, and therefore refrain from using it for class. The
nature of a class could also play a factor in the lack of
discussion room use. From my experience, the use of such an
Internet tool in a class, would better serve a classroom
environment that promotes group work. This communication tool
would seem useless in a seminar type class, such as an
introduction to history or philosophy.

TABLE 5.2   TASK BASED INTERNET USE (MODE AND PERCENT DISTRIBUTION)

CATEGORY N=112	VF %	F %	O %	N %	MODE RESPONSE
ACADEMIC COMMUNICATION VIA EMAIL	27.7	**36.6**	33	2.7	Frequently
ACADEMIC COMMUNICATION VIA DISCUSSION ROOM/GROUP	2.7	12.5	35.7	**49.1**	Never
INFORMATION RETRIEVAL FOR RESEARCH	33.9	**45.5**	19.6	.9	Frequently
INFORMATION RETRIEVAL FOR CLASS NOTES	31.3	**40.2**	22.3	6.3	Frequently

LEGEND
VF - Very Frequently
F - Frequently
O - Occasionally
N - Never

Table 5.3 shows the statistical results obtained from the non-task based portion of the Internet use survey. Both Messenger Services and online games received a mode response of "Never." It can be inferred from the infrequent use of chat services and online games that there is a greater focus on the academic aspect of computer lab resources. The only survey item that received very frequent use by computer lab patrons was recreational communication via email. The response rate for this category could reflect the communication needs of patrons. Since email is the cheapest way for college students to communicate with friends and family, its use in university computer labs becomes a very frequent activity. Occasional use was reported for recreational information retrieval (42 percent) and music/video downloads (38.4 percent).

TABLE 5.3   NON-TASK BASED INTERNET USE (MODE AND PERCENT DISTRIBUTION)

CATEGORY N=112	VF %	F %	O %	N %	MODE RESPONSE
RECREATIONAL COMMUNICATION VIA EMAIL	**33.9**	32.1	31.3	2.7	Very Frequently
RECREATIONAL COMMUNICATION VIA MESSENGER SERVICES/CHAT	8.9	17.9	32.1	**41.1**	Never
RECREATIONAL INFORMATION RETRIEVAL/SURFING	19.6	33.0	**42.0**	5.4	Occasionally
DOWNLOAD MUSIC/ VIDEO FILES	8.9	17.9	**38.4**	34.8	Occasionally
PLAY ONLINE GAMES	3.6	4.5	33.9	**58.0**	Never

LEGEND
VF - Very Frequently
F - Frequently
O - Occasionally
N - Never

STATISTICAL RESULTS FOR COMPUTER ETHICS

Table 5.4 displays the results of the ethics survey, which questioned computer lab patrons' perceptions on unethical task based use of the Internet on computers housed in the Alkek Library Computer Lab. The ethical situation consisted of a patron waiting to use computer lab resources for academic purposes while another patron utilized a terminal in the computer lab. In each incident that tested this situation against task based uses of the Internet, the mode response was "no" (indicates that use of this type was

ethical). The response to these survey items was the

appropriate reply since it was established that the computer

lab resources were for academic purposes.

TABLE 5.4   COMPUTER ETHICS (PERCENT DISTRIBUTION)

CATEGORY N=99	YES %	NO %
ACADEMIC COMMUNICATION VIA EMAIL	15.2	84.8
ACADEMIC COMMUNICATION VIA DISCUSSION ROOM/ GROUP	17.2	82.8
INFORMATION RETRIEVAL FOR RESEARCH	16.2	83.8
INFORMATION RETRIEVAL FOR CLASS NOTES	17.2	82.8

The results of the ethics survey that assessed patrons'

views on unethical non-task based use of the Internet are

displayed in Table 5.5. The overall response for the survey

items was "yes" (indicates that the activities in question are

unethical). One subcategory of non-task based Internet use,

however, received an inappropriate mode response. Fifty-one

percent of survey participants felt that use of the Internet

for recreational communication via email, while another patron

waited to use a terminal for academic reasons was in fact

ethical.

TABLE 5.5   COMPUTER ETHICS (PERCENT DISTRIBUTION)

CATEGORY N=99	YES %	NO %
RECREATIONAL COMMUNICATION VIA EMAIL	48.5	51.5
RECREATIONAL COMMUNICATION VIA MESSENGER SERVICES/CHAT	54.5	45.5
RECREATIONAL INFORMATION RETRIEVAL/SURFING	53.5	46.5
DOWNLOAD MUSIC/ VIDEO FILES	60.6	39.4
PLAY ONLINE GAMES	72.7	27.3

STATISTICAL RESULTS FOR THE ALKEK LIBRARY COMPUTER LAB SURVEY

The relevant results of the Alkek Library Computer Lab survey, as they pertain to the task based and non-task based use of the Internet survey, are exhibited in Table 5.6. This survey tested the frequency of Internet use for specific purposes. The response for use of the Internet for information retrieval of research material and class notes and recreational purposes was "Some." Compared with the results for task based and non-task based Internet use, the category of recreational communication via chat also received "very little" use. The use of email received a mode response of "very often," although the purpose (task based or non-task based) was not specified.

TABLE 5.6 ALKEK LIBRARY COMPUTER LAB SURVEY – SPRING 2000
(MODE AND PERCENT DISTRIBUTION)

CATEGORY	VALID N	VL %	NM %	S %	FO %	VO %	MODE RESPONSE
EMAIL	128	3.1	3.9	28.1	14.8	**39.8**	Very Often
RECREATIONAL COMMUNICATION VIA CHAT	113	**30.5**	3.9	7.8	1.6	2.3	Very Little*
INFORMATION RETRIEVAL FOR RESEARCH	127	7.0	7.0	**29.7**	18.8	16.4	Some
INFORMATION RETRIEVAL FOR CLASS NOTES	125	14.8	7.0	**24.2**	11.7	14.1	Some*
RECREATIONAL INFORMATION RETRIEVAL/SURFING	124	10.2	7.8	**35.2**	8.6	13.3	Some

* Denotes the categories whose mode response was "Blank." The next highest response mode is recorded in Table 5.6.

LEGEND
VL – Very Little
NM – Not Much
S – Some
FO – Fairly Often
VO – Very Often
B – Blank

The final chapter looks to summarize the overall study on task based and non-task based Internet use and computer ethics. Recommendations for future research are provided.

CHAPTER 6: CONCLUSION

As we approach the next millennium, the technological advancements made in the 1990s have created a new emphasis for educators on electronic information tools. Electronic means, like the Internet and the Web, provide educators new tools to support the approved curriculum and desired core competencies of their educational institutions (Golian, 2000:p. 136).

It is clear that students are open to and welcome the use of innovative computer technologies, and find them beneficial in learning and the accessibility of information (Jason et al., 2001:p. 159).

SUMMARY OF TASK BASED AND NON-TASK BASED USE OF THE INTERNET

The condensed results of task based and non-task based part of this study (Table 6.1) show that the university population that frequents the computer lab show higher usage of the Internet for academic purposes. For those non-task based categories (chat, recreational information retrieval/surfing, music/video downloads, and games), the usage rates were on the low end of the survey scale. The Internet tool that received the highest survey scale rating, however, was the recreational use of email. The survey participants expressed dissimilar feelings about chat services

(academic and recreational): that it wasn't a more common use of the Internet. This survey item received a mode response of "never" for both task and non-task based use, which indicates its unpopularity among the survey participants. Games received the same overall rating.

TABLE 6.1   SUMMARY OF RESULTS FOR TASK BASED AND NON-TASK BASED USE OF THE INTERNET

TASK BASED USE OF THE INTERNET	N=112	MODE RESPONSE
COMMUNICATION		
1. EMAIL	My use of the Internet consists of email for academic purposes.	Frequently
2. DISCUSSION ROOM/ GROUP	My use of the Internet consists of discussion rooms for academic purposes.	Never
INFORMATION RETRIEVAL		
1. CLASS NOTES	My use of the Internet consists of information retrieval for class notes.	Frequently
2. RESEARCH	My use of the Internet consists of information retrieval for research purposes.	Frequently

NON-TASK BASED USE OF THE INTERNET	N=112	MODE RESPONSE
COMMUNICATION		
1. EMAIL	My use of the Internet consists of email for recreational purposes.	Very Frequently
2. MESSENGER SERVICE/ CHAT	My use of the Internet consists of chat/messenger service for recreational purposes.	Never
INFORMATION RETRIEVAL		
1. RECREATIONAL INFORMATION RETRIEVAL/ SURFING	My use of the Internet consists of information retrieval/surfing for recreational purposes.	Occasionally
2. DOWNLOAD MUSIC/ VIDEO FILES	My use of the Internet consists of information retrieval for music/video file downloads.	Occasionally
GAMES		
1. ONLINE GAMES	My use of the Internet consists of playing games online.	Never

SUMMARY OF COMPUTER ETHICS

For the ethics survey questions (Appendix E), that
questioned the library computer lab patron's sense of computer
ethics, the majority of all given situations were considered
ethical use of the Internet. All situations where patrons
waited to use computers for academic purposes, while others
occupied the same terminals for curriculum related purposes
were voted as ethical situations. However, survey respondents
also felt that it was ethical to partake in recreational email
while others waited to use terminals for academic purposes.
The response given in the case of recreational email, was an
inappropriate response, since it was established that the
campus computer lab existed primarily for academic purposes.
Other situations, to include recreational chat, music/video
downloads, and online games were considered unethical, given
the situations provided in the survey.

TABLE 6.2   SUMMARY OF RESULTS FOR COMPUTER ETHICS

TASK BASED USE OF THE INTERNET	N=99	MODE RESPONSE
COMMUNICATION		
1. EMAIL	A patron waits to use the Internet for academic purposes while another patron uses the Internet to email for academic purposes. Do you consider this situation unethical?	**No**
2. DISCUSSION ROOM/ GROUP	A patron waits to use the Internet for academic purposes while another patron uses the Internet to chat/discussion room for academic purposes. Do you consider this situation unethical?	**No**

INFORMATION RETRIEVAL		
1. CLASS NOTES	A patron waits to use the Internet for academic purposes while another patron uses the Internet to obtain class notes. Do you consider this situation unethical?	**No**
2. RESEARCH	A patron waits to use the Internet for academic purposes while another patron uses the Internet to obtain information for research purposes. Do you consider this situation unethical?	**No**

TABLE 6.2   SUMMARY OF RESULTS FOR COMPUTER ETHICS (cont.)

NON-TASK BASED USE OF THE INTERNET	N=99	MODE RESOPNSE
COMMUNICATION		
1. EMAIL	A patron waits to use the Internet for academic purposes while another patron uses the Internet to email for recreational purposes. Do you consider this situation unethical?	**No***
2. MESSENGER SERVICE/ CHAT	A patron waits to use the Internet for academic purposes while another patron uses the Internet to chat for recreational purposes. Do you consider this situation unethical?	**Yes**

INFORMATION RETRIEVAL		
1. RECREATIONAL INFORMATION RETRIEVAL/ SURFING	A patron waits to use the Internet for academic purposes while another patron uses the Internet to retrieve information/surf for recreational purposes. Do you consider this situation unethical?	**Yes**
2. DOWNLOAD MUSIC/ VIDEO FILES	A patron waits to use the Internet for academic purposes while another patron uses the Internet to download music/video files for recreational purposes. Do you consider this situation unethical?	**Yes**

GAMES		
1. ONLINE GAMES	A patron waits to use the Internet for academic purposes while another patron uses the Internet to play games online. Do you consider this situation unethical?	**Yes**

* Denotes an inappropriate mode response to the survey item when the assumption that university computers are for academic purposes is established.

From the survey data, it appeared that the university population that frequented the library computer lab, used it mostly for academic reasons, and seemed to support its use for curriculum activities over recreational activities.

At the Alkek Library Computer Lab, the ethical situations that made up the ethics survey (Appendix E) are a part of

everyday activity. The purpose of this study was to determine what university patrons used the Internet for, determine if any change in Internet use had occurred over a span of two years, and assess patron's views of ethical computer use (computer ethics). The findings obtained form the survey instruments can serve as guides to improve computer lab services available to university patrons. Since customer service and the accommodation of university patron's needs are important at the computer lab, innovative techniques are always welcomed.

SUGGESTIONS FOR FURTHER RESEARCH

Technological expansion is reported to be advantageous to students because it enlarges their educational resources and expands their involvement with a new medium (Jason et al., 2001:p. 159). Michael O'Sullivan and Thomas Scott (2000) believe that more collaborative action research to analyze the Internet and information literacy is essential for future studies.

> "From such studies, we hope to see the creation of an information literacy network so teachers and librarian/media specialists can establish common goals, share strategies, and expand our understanding of the Internet and its affect on the teaching and learning process. Such understanding, we
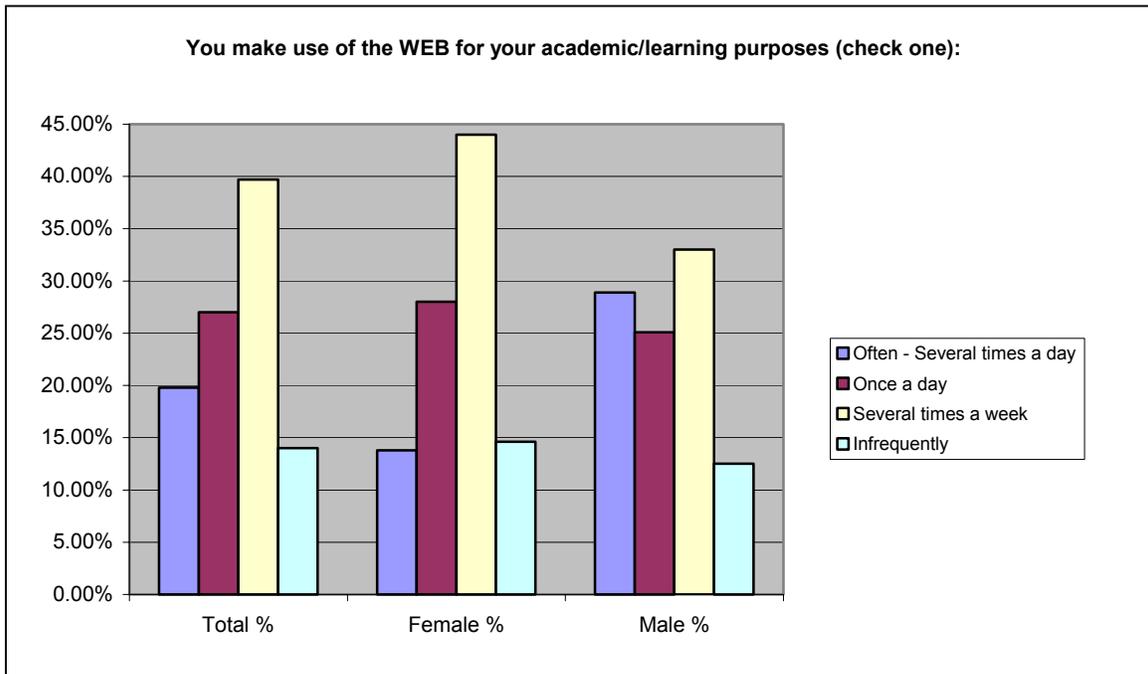
> believe, will help our students see the
> Internet as more than a source of
> quick, unlimited information.
> Information literacy will provide them
> with the critical-thinking skills they
> need to transform information into the
> valuable knowledge required to make
> informed decisions in the 21st century
> (p. 36)."

Perhaps additional research, that examines the way and the reasons students use the Internet could provide educational advantages that benefit student development.

Universities need to determine better ways to decentralize the users' choice of computer labs on campus. The Southwest Texas campus includes at least one computer lab in every building. Whether university patrons are aware of their existence is unknown. The solution to the university population's lack of knowledge with regards to the whereabouts of available computers is to broadcast the various locations during a new student (or administration) orientation session. Southwest Texas State University has the ability to accommodate student's computer needs, but this study helps to further clarify the necessary hardware and software that students use in the completion of their education.

APPENDICES

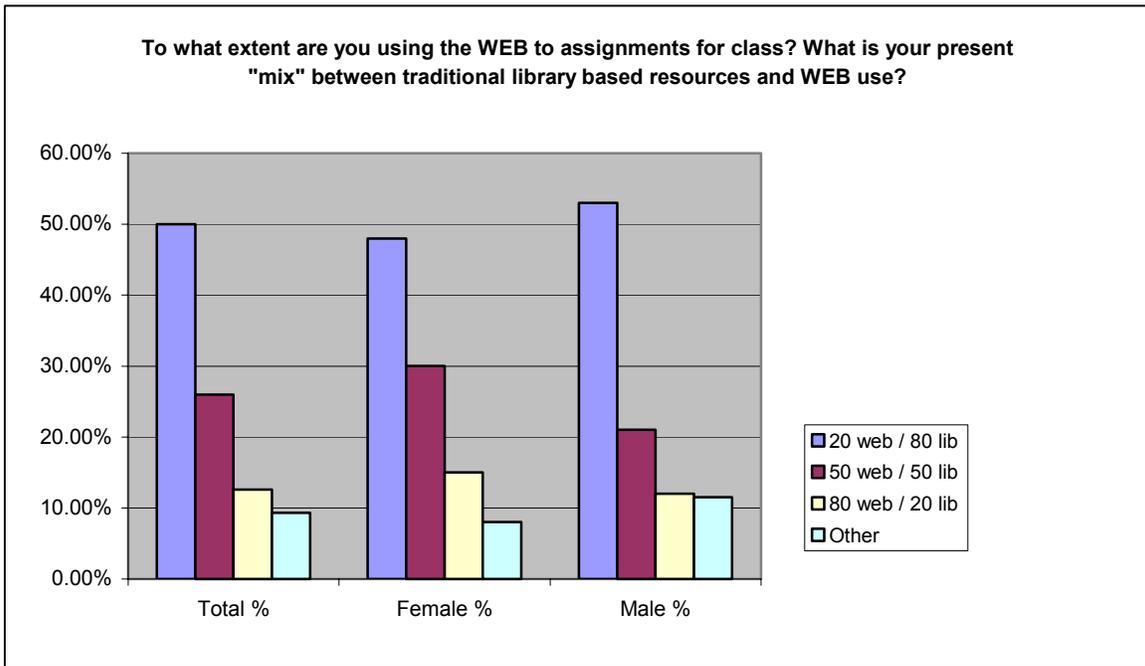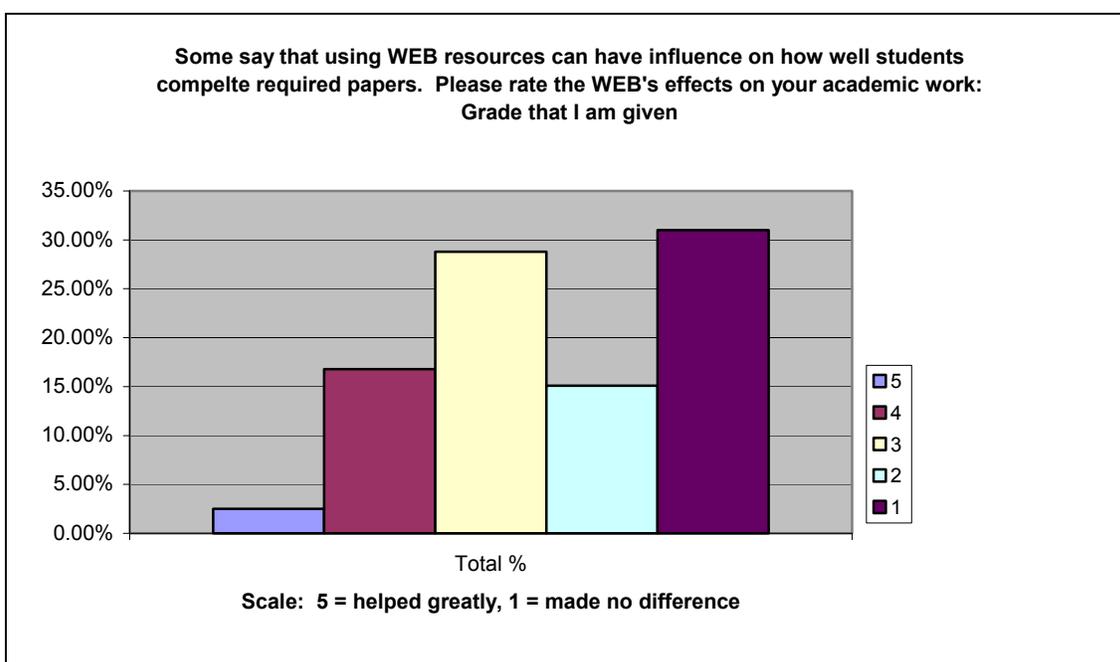**You make use of the WEB for your academic/learning purposes (check one):**

(Lubans, 1998)

To what extent are you using the WEB to assignments for class? What is your present "mix" between traditional library based resources and WEB use?

(Lubans, 1998)

APPENDIX C

Some say that using WEB resources can have influence on how well students compelte required papers. Please rate the WEB's effects on your academic work:
Grade that I am given

Scale: 5 = helped greatly, 1 = made no difference

(Lubans, 1998)

SURVEY
Task Based and Non-Task Based Use of the Internet

1. What is your classification?

O Freshman
O Sophomore
O Junior
O Senior
O Faculty
O Staff
O Other (specify): _____

2. My use of the Internet consists of communication by email for academic purposes (with a professor, TA, or classmate).

O Very Frequently
O Frequently
O Occasionally
O Never

3. My use of the Internet consists of communication by email for recreational purposes (with friends and family).

O Very Frequently
O Frequently
O Occasionally
O Never

4. My use of the Internet consists of communication by chatting/discussion rooms for academic purposes (with a professor, TA, or classmate).

O Very Frequently
O Frequently
O Occasionally
O Never

5. My use of the Internet consists of communication by chatting/Messenger Service for recreational purposes (with friends and family).

O Very Frequently
O Frequently
O Occasionally
O Never

6. My use of the Internet consists of information retrieval for research purposes.

O Very Frequently
O Frequently
O Occasionally
O Never

7. My use of the Internet consists of information retrieval for class notes posted by professors.

O Very Frequently
O Frequently
O Occasionally
O Never

8. My use of the Internet consists of information retrieval/surfing for recreational purposes.

O Very Frequently
O Frequently
O Occasionally
O Never

9. My use of the Internet consists of information retrieval for music/video file downloads.

O Very Frequently
O Frequently
O Occasionally
O Never

10. My use of the Internet consists of playing online games.

O Very Frequently
O Frequently
O Occasionally
O Never

COMMENTS:_____
_____
_____
_____

SURVEY
Computer Ethics

Based on the given situations, answer YES or NO to decide whether the situation is unethical.

1. **SITUATION**: A patron is using the Internet to email for recreational purposes (emailing friends and family) while another patron waits to use the Internet for academic purposes. Do you find this situation unethical?

    O YES
    O NO

2. **SITUATION**: A patron is using the Internet to chat for entertainment purposes (with friends and family) while another patron waits to use the Internet for academic purposes. Do you find this situation unethical?

    O YES
    O NO

3. **SITUATION**: A patron is using the Internet to obtain information for a class research project while another patron waits to use the Internet for academic purposes. Do you find this situation unethical?

    O YES
    O NO

4. **SITUATION**: A patron is using the Internet to retrieve class notes posted on the Web while another patron waits to use the Internet for academic purposes. Do you find this situation unethical?
    O YES
    O NO

5. **SITUATION**: A patron is using the Internet to email for academic purposes (emailing a professor, TA, or classmate) while another patron waits to use the Internet for academic purposes. Do you find this situation unethical?

    O YES
    O NO

6. **SITUATION**: A patron is using the Internet to chat for academic purposes (chatting with a professor, TA, or classmate) while another patron waits to use the Internet for academic purposes. Do you find this situation unethical?

   O YES
   O NO

7. **SITUATION**: A patron is using the Internet for recreational information retrieval while another patron waits to use the Internet for academic purposes. Do you find this situation unethical?

   O YES
   O NO

8. **SITUATION**: A patron is using the Internet to download music/video files for entertainment purposes while another patron waits to use the Internet for academic purposes. Do you find this situation unethical?

   O YES
   O NO

9. **SITUATION**: A patron is using the Internet to play online games while another patron waits to use the Internet for academic purposes. Do you find this situation unethical?

   O YES
   O NO

   COMMENTS:_____
   _____
   _____
   _____

Alkek Library Computer Lab Survey

1. Major: _____ 2. Classification:_____

3. Where do you live? : _____ On Campus _____Off Campus (in San Marcos) _____ Off Campus (Out of Town)

4. Number of times you frequent the lab in a week: _____

5.

Please rate your experiences while using our lab by marking the most appropriate response.	Poor	Below Average	Average	Good	Excellent
Knowledge/Ability of Staff					
Quality of Assistance by Lab Staff					
Quality of the Lab Environment					
Availability of Computers					
Quality of the Computers in the Lab					
Availability of Software/ Applications					
Quality and Availability of Peripherals *(Printers, scanners, etc.)*					

If you indicated POOR to any of the above please explain:
_____
_____
_____

6.

Please rate in order of importance the reasons you choose this lab over others on campus when you utilize our lab	Not a Factor	Less Important	Important	More Important	Extremely Important
Location					
Assistance					
Hardware *(Printers, scanners, etc.)*					
Software available					
Hours					
2 hour usage guaranteed					

Please specify other reasons you might choose our lab over others on campus.

_____
_____

7.   What other computer labs on campus do you use?

| _____ Commons | _____ Math/Computer Science | _____ Student Center | _____ Flowers Hall |
| _____ Liberal Arts | _____ Your Department | _____ Residence Halls | _____ Other |

If other, where?   _____

8.   How does this lab compare to other labs on campus you have used?

Please rate your experiences while using our lab by marking the most appropriate response.	Poor	Below Average	Average	Good	Excellent
Knowledge/Ability of Staff					
Quality of Assistance by Lab Staff					
Quality of the Lab Environment					
Availability of Computers					
Availability of Software/Applications					
Quality and Availability of Peripherals *(Printers, scanners, etc.)*					

9.   Please Indicate what Applications you use most often : (Please Check All that Apply)

	Word Processors		Databases		Spreadsheets		Graphs/Charts
	Presentations		Graphics Editing		Web Development		Programming
	Educational						Other

10. How much of your computing at the Computer Lab involves Internet Connectivity?
        Circle one (1= none to 5 = all the time)

1   2   3   4   5

11. What Internet Applications do you use?   How much do you use them? (Indicate by number the time you spend on each.)

1 = Very Little Use ← → 5 = A lot of use

Email		Educational Research	
Personal web surfing		Course Notes & Assignments	
Chat Rooms		Shopping	

12. Do you feel that this lab needs additional Software?   _____   Yes   _____   No

13. Do you feel that this lab needs additional Equipment?   _____   Yes   _____   No

If so what software or equipment do you feel the lab needs? _____

_____

_____

14. What do you like BEST about this lab? _____

_____

15. What do you like LEAST about this lab? _____

_____

17. Do you have any comments or suggestions? _____

_____

_____

Please return this completed survey to the collection box located beside the door at the Lab Assistance Station.

Thank you! ☺

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