Journal of Information Systems Education

Summer/Fall 1996

Creating an Ethical Awareness Using the Internet

ABSTRACT: Information access via the Internet becomes easier, more informa- tion becomes available, and more people access that information. Almost daily there are newspaper articles describing security breaches, viruses or other questionable behavior on the Internet. Therefore, the Information Superhighway provides opportunities that have not been previously addressed either legally or ethically. Information Systems (IS) students must not only learn technology and its uses, but must address the social and ethical issues that constantly arise. This paper uses the Internet to develop examples of ethical and legal issues the students face as they graduate into the business organization. A five step ethical analysis [I] offers "five moral dimensions of the information age." 1 Information Rights 2 Property Rights
3 Accountability, Liability and Control 4 System Quality 5 Quality of Life
These five themes encompass concerns often raised in discussions about ethics and information technology. Using these topics, some examples for integration of ethics throughout the undergraduate IS curriculum using the Internet, have been devel- oped. These examples need not be limited to a specific IS course, but can be incor- porated throughout the Information Systems undergraduate curriculum. Students need to develop an awareness of ethical issues surrounding emerging technologies.

KEYWORDS: Undergraduate Curriculum, Ethics, Computers, Information Systems, Internet, Information Technology

INTRODUCTION Information Systems (IS) students must not only learn about information technology and its uses, but must
address the relevant social and ethical issues that constantly arise. IS under-
graduates, with little real-world experi- ence, have difficulty comprehending
the relevance of these issues. Since many undergraduate students are com- puter-Iiterate. it becomes the responsi- bility of IS faculty to raise the students , level of consciousness concerning ethi- cal behavior and technology. This paper uses the Internet to develop examples of ethical and legal issues the students face as they graduate into the business organization. These examples need not be limited to a specific IS course, but
can be incorporated throughout the IS undergraduate curriculum. Since ~ni- versities incorporate topics at different points in an IS curriculum, no attempt

is made to target specific courses. Likewise, there is no attempt to chroni- cle anecdotal classroom specifics. These examples can be incorporated through- out the IS undergraduate curriculum.
Every day information access via the Internet becomes easier, more informa- tion becomes available, and more peo- ple access that information. Telecommunications technology has changed the way information is dissemi- nated. However, almost daily there are newspaper articles describing security breaches, viruses or other questionable behavior on the Internet. Use of this Information Superhighway provides opportunities not previously addressed either legally or ethically. With the advent of intensive telecommunications capabilities and sophisticated databases, widespread distribution of information has recently become a concern. "The Internet is changing the way we com-

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municate. We should make certain that these innovations do not change the way we act." [2] The purpose of this paper is not to convince someone what is considered ethical or unethical by the authors, but to create awareness of

some of the potential issues that are being raised or soon will become criti- cal to the survival of emerging informa- tion technologies and the Internet as they exists today.

CODES OF ETHICS AND INFORMATION SYSTEMS

Periodically, codes of ethics have been advanced that offer models for ethical activities. Often these codes are used as the basis for exploring ethical behavior within the classroom setting. Codes that address IS ethical activity have been put in place by professional organizations [3] [4] [5] [6] [7] corporations [8] and

even government agencies [9]. Additionally, there are books and arti- cles that also address etiquette on the Internet or 'netiquette.' [10] (11) .In 1994, a National Computer Ethics and Responsibilities Campaign was launched [12] that was to create an "electronic repository of information resources, training materials and sample ethics codes" that would be available on the Internet for IS managers and educators. Universities often have codes of ethics that initially addressed use of comput- ers, expanded to include use of e-mail and now incorporate behavior while using the Internet. However, as the technologies become more complex
and new ways of accessing the Internet develop, new concerns rapidly emerge and current codes may not address future situations.

INFORMATION

SYSTEMS ETHICS EDUCATION

Organizations such as the American Assembly of Collegiate Schools of Business (AACSB), Data Processing Management Association (DPMA) and the Association of Computing
Machinery (ACM) emphasize ethics in the business and Information Systems curriculum. There are various ways to present this topic within the classroom setting. Popular methods include case studies, role playing or surveys of ethi- cal or moral literature. Some advocate newspaper articles as a way of present- ing a real-world view of ethics in the curriculum [13].Just as the Internet
can offer topical enhancement of the IS curriculum in areas such as internation- al emphasis [14] , this paper suggests
that the Internet, both with its strengths and weaknesses, offers examples and resources for IS related ethics educa- tion.

EXAMPLES FROM THE INTERNET

Ethical and legal issues arising from IS technologies are numerous. The
term 'ethics' encompasses diverse sets of issues for different populations.
Issues [15] are security, privacy, access,

marketing, censorship and cop}Tight. Some additional issues include contami- nation, plagiarism, fraud, etiquette, and cost of the Internet [2] [11] [16]. MIS texts often only devote a single chapter to IS and ethical behavior or legal
issues; very few undergraduate curricula have the luxury of introducing a single course in technology and ethics.
Laudon and Laudon [1, p. 702] summa- rize the current literature and offer
"five moral dimensions of the informa- tion age":

I Information Rights 2 Property Rights
3 Accountability, Liability and Control
4 System Quality 5 Quality of Life.

These five themes encompass con- cerns often raised about ethics and information technology. Using these topics, some examples for integration of ethics throughout the undergraduate IS curriculum, using the Internet, have been developed.

Information Rights

Information rights address privacy
and freedom in an information society. Privacy is the right to be left alone [2] , free from surveillance or the require- ment to carry out surveillance [17] or interference from other individuals or organizations. The Electronic Communications Privacy Act (1986) made intercepting electronic communi- cations a federal crime. Students realize their privacy has been invaded when they discover that their e-mail or data files have been read and/ or modified
by someone else-either authorized or unauthorized. Students often have read about privacy violations and have some opinions about activities such as caller- id, telemarketing, or computer cros&- matching. [18] However, this issue becomes more meaningful when the student is directly affected. Many of the ethical codes designed by universities provide for inspection of students' files when system management functions are required or when the system's integrity is threatened. Because the university

provides free access to the Internet for all their students, it may claim the right to monitor activities on the Internet. Since this directly affects the students, it becomes more meaningful to them;
they will face similar circumstances in the business organization. "Managers clearly have a responsibility to stock holders to protect and to make produc- tive use of the firm's assets." [19, p. 523]

Special interest groups are formed on the Internet to discuss topics of con- cern. They range from religious forums, to programming, to baking. Anyone can join a group and participate in the dis- cussions. There have been instances where someone was prohibited or blocked from voicing an opinion with a group. They deemed the comments offensive, or perhaps irrelevant. The excluded individual claimed violation of free speech. The group claimed harass- ment or infringement of the right to be left alone. Potentially, since there is real- ly no 'right answer', this case generates a great deal of classroom discussion and students must analyze an unresolved issue. This investigation can include a discussion of language, civility, and the right to be left alone. Flaming on the Internet, easily found in some usenet newsgroups, has been likened to the inquisition. "The restraints have been lifted, our intimate connections to our own meanings have dissolved, and we find ourselves free to speak any conceiv- able words that occur to us, with little thought for the consequences." [20, pp. 181-182] .

Property Rights

Intellectual Property issues raise own- ership and piracy concerns as well as responsibility and liability issues for both corporations [21] and business schools [22] .Additionally, there are always questions as to what constitutes copyright violations, plagiarism or libel on the Internet. Most students are aware that when they use someone else's ideas or directly quote from a published article, there is a need to give credit to the originator of the idea. However, on the Internet, students can

'cut and paste' or download text and those who publish in cyberspace often do not get credited.
Increased graphics usage raises copy- right issues for image material as well as text [23] [24] .For students who visit other HomePages, either from individu- als or organizations, and find an inter- esting graphic, Reed [24, p. 91] raises the following ethical dilemmas:
"Is it ethically wrong to simply down- load it and put it on my home page? How about if I don't download it, but use a command «href» to link it to my site from a remote server? What if I download it, change its color and size, then put it on my home page? Or what if I just keep a copy on my hard drive to look at occasionally?"
Students easily incorporate these graphics into PowerPoint presentations and documents. If there is no credit given to the author, is this a copyright violation? "Does the presence of a pic- ture on the Web imply a gift to the pub- lic domain?" [24, p. 91] "Ease ofrepli- cations, revision, and alterations-which might be seen as significant strengths of electronic communication-also pre- sent difficult challenges for authors and publishers alike." [25, p. 39] .
Currently, both the non-attributed
use of text and graphics is intellectual theft. On the Internet, the rules of scholarly ethics should be maintained. Since students have first hand experi- ence with the Internet and have experi- enced the ease which they can capture these different types of information, they can relate personally to the ethical issue. Additionally, as home pages become easier to create, students may themselves have their own creative graphics or papers copie~ without recognition given. When they are on the other side of the plagiarism, they have some different reactions to the activity. Students also need some instruction with electronic citations.

Accountability, Liability and Control How can 'something' on the Internet
cause injury? Immediately, students think of physical damage with account- ability for software or hardware related

injuries. For those who believe in [26, p. 23] "full and unrestricted access to the Internet" how does information about building the Oklahoma bomb or the "Terrorist's Handbook" blend with ethi- cal behavior? Since they can locate
these sources themselves, students find distribution of this type of information incredible and often consider it illegal distribution of information. While it is not illegal to have this information available on the Internet, it certainly raises some ethical considerations. This example can be used to demonstrate
the difference between legal issues and ethical issues. Posting this information might be unethical and still be legal. It does raise the issue of accountability for what is made available on the Internet.
Although most transmissions on the Internet are identified, anonymity can exist [25]. "Because many hackers oper- ate from their own homes and leave few traces of their maneuvering, no one knows just how extensive snooping, tam- pering and theft by computer has become." [27]. Students browsing through different systems can discover access codes and passwords. Using a sec- retary's e-mail account, a student in a Latin American politics course at Dartmouth sent a message canceling
the mid-term scheduled for the follow- ing day [28] .Half of the students did not show up for the exam and the exam had to be rescheduled. Since many of them would like for this scenario to develop, students can definitely relate to this breach of ethical behavior. The message obviously caused a serious dis- ruption in the academic community,
and while not physically harming any- one, certainly it created many inconve- niences and some stressful moments. This involved a mass distribution of a message, which also relates back to the privacy issue. Additionally, anything that is posted might be saved and the author may lose control over its future usage. Since messages containing private infor- mation can be mass distributed, senders must be more careful of what is being written and to whom it is being sent - postings are not to individuals, but to an entire universe.

Students are assigned a limited amount of disk storage to store their e- mail. When this storage is filled, they cannot receive any additional e-mail and sometimes, they cannot send mail either; they are locked out of the sys- tem. Once they know how frustrating this situation is, they are ready to dis- cuss the e-mail bomb [29] .Several per- sonal and corporate Internet mailboxes were jammed with thousands of pieces ofjunk mail by the Internet Liberation Front. Companies began to build fire- walls to protect their computers. What can students do to protect their accounts from such attacks?

System Quality
Quality is defined (American National Standards Institute 1979) as "the totality of features and characteris- tics of a product or service that bears on its ability to satisfy given needs." Therefore, system quality or data quality are usually referred to in these terms. When either cannot fulfill its require- ments, there is a loss of quality, perhaps even a loss of the system or the data itself.

A virus is a computer program that alters, or 'infects,' other programs with a copy of itself, and causes the altered program to behave differently." [30, p.22] .Previously, students learned the implications of a virus within a business setting -how long the system was down and how much production time was
lost. Students can learn that lesson from the Internet. As they download software from the Internet, they should check for infected diskettes. Unfortunately, they learn the hard way when they unknowingly download a virus and lose assignments, or even worse, transfer the virus to their hard drive and destroy even more information and applications packages. They might even infect the university's network and cause the sys- tem to become unavailable for the rest of the student community. Spreading viruses is similar to vandalism, however, until the student is directly affected, it has little meaning. Students have the responsibility for checking for viruses, and preventing the disruption of other

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computer systems. The responsibility for monitoring database accuracy, as well
as usage [31] and for database sufficien- cy are key issues of an information sys- tem. "Let us know what we're reading and be aware of where it comes from. " [32, p. 31]. As the Internet becomes a major research vehicle, students are rushing to use the growing number of databases that are available on-line. There are library catalogs, commercial databases (RUN and OCLC's EPIC) , specific topic databases (OCEANIC), special indexes and files of computer software [33] .Databases from allover the world can be accessed. Those responsible for maintaining the databas- es should ensure that the data is timely and correct. Not only can the informa- tion be difficult to discover and identify, but then the quality of the source needs to be evaluated. Students need to scruti- nile information accessed from the Internet and to be careful of anony- mous postings, particularly on bulletin boards. Since students can also post questions on the Internet, they must examine not only the almost instant answers, but their origins. Until recently there was no real organization of resources on the Internet and students may still waste a good deal of time searching. The quality of information contained on the Internet is also criti- cal. Rosen [34, p. 49] claims that "90% of the available information is out of date or simply wrong" and "security is virtually nil. " There is no regulation on the Internet; this leads to material
being posted or broadcast that is not always desirable to the receiver. An 'adult home page' complete with pornographic images was made avail- able, with disclaimers as to the. contents, to the Internet. If someone downloads some of the images, credits the 'author' and then posts them, who is responsible for disseminating pornographic materi- als? Again, this is another unsolved issue of ethics on the Internet which the stu- dents, many who have visited such sites, can relate.

Quality of Life
The Internet, once thought of as the

private refuge of jargon-wielding insid- ers that descended to secret vocabulary and arcane protocols, is now moving into the mainstream. People are now treating it less like membership in the Fraternal Order of Brother Beavers and more like a global link for marketing goods" [31, p. 11]. People from all backgrounds are entering the Internet community. Who can receive informa- tion, who can afford information, and what is done when someone receives information to which they are not enti- tIed (computer crime), are clearly issues to be addressed with expanding infor- mation technology. Access issues raise social responsibility concerns also [34] . The seriousness of this issue is magni- tied when over 50% of the people in
the world have never received or made a telephone call.
Since university students can access the Internet at no charge, they probably never think about this issue. However, if the system is unavailable due to mainte- nance or a virus, they do become con- cerned. Additionally, some students can only access the Internet from campus labs, while others have computers in their dorms or homes. The latter group has 24 hour entrance onto the Net; this is perceived as an enormous advantage. This unequal access time can be pro- jected into the unequal access through- out the world. Connectivity and the lack thereof is clearly demonstrated in the postscript graphic from the Internet Society Presentation Graphics
Collection available via anonymous ftp (ftp:/ /ftp.isoc.org/isoc) or by accessing the society's Home Page
(http:/ /www.isoc.org/isoc) .
Some cities have established freenets. Computers, connected to the Internet, are made available, at no cost, in
libraries and other public places. Just as newspapers and magazines are accessi- ble, everyone should be able to obtain on-line information

SUMMARY

The reliable operation of the Internet and the responsible use of its resources is of common interest and concern for its users, operators, and sponsors." [36,

p.6]. The Internet is becoming a major source of connectivity and research for university students and therefore, is a good vehicle to demon- strate ethical or unethical behavior as it relates to information technologies. Many of the issues are still unresolved and this leads to interesting classroom discussions. The main purpose of these discussions is to make the students aware of the complex, rapidly evolving future that computer usage, particularly telecommunications, is generating. "If we can somehow get people trained in ethics when they're 18 or 19 years old, we won't have political corruption or white collar crime." Ms. Perolle said. "This is a fantasy. By the time my stu- dents are 18 or 19, their moral and ethi- cal basis in life is pretty well set. The most I've been able to do is give them a sense of consequences." [37, p. 10]. These students will become tomorrow's managers and they will be making cru- cial decisions with ethical implications involving technology. Hopefully, they will have gained an awareness of the magnitude of their obligations and will act responsibly.

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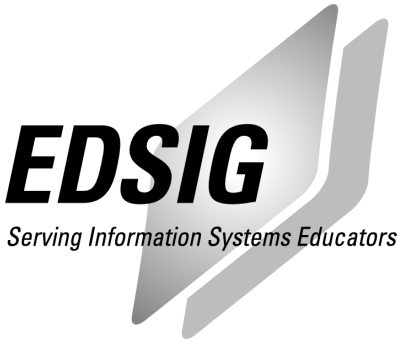

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ISSN 1055-3096