



Ethics in Information Systems: A Framework for Evaluation

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ABSTRACT: Ethical considerations in the use of Information Technology (IT) have become a focus point for many practitioners and educators because of the rapid proliferation of this technology. Many issues, however, remain unresolved. There is no widely accepted code of conduct regarding the use of IT. Information Systems (IS) curricula often fail to include a discussion of ethical considerations, and even when they do, fail to reach the relevant audience. Studies have shown remarkably lax ethical standards among IS faculty and students. This paper outlines a framework that evaluates the IS ethics environment, including the reasons for concern, the issues within IS ethics, the existing codes of conduct, and the methods and scope of an ethically correct IS curriculum.

KEYWORDS: *Ethics, Information Systems, Information Technology, Codes of Conduct, IS Ethics Education*

INTRODUCTION: REASONS FOR CONCERN

The proliferation of studies and literature about Information Systems (IS) ethics provides ample reason to believe that this area, deservedly, is getting a lot of attention. There seems to be little doubt that IS professionals are agreed on the need for adequate ground rules to govern the ethical use of present day Information Technology (IT). At the same time, there is a growing recognition of the need to incorporate ethics into IS curricula (Cohen & Cornwell, 1994, Cohen & Cornwell, 1989a, Couger, 1989). A review of the literature to examine current attitudes and behavior indicates that both aspects need action with some degree of urgency.

Unethical and illegal behavior in the use of IT is pervasive and appears to be growing as quickly as the technology. Although software piracy and unauthorized system access are ille-

gal in most states, many users pay little or no attention to these laws. The Software Publishers Association (SPA) estimates that as much as 20% of all personal computer programs in use have been illegally copied (Weise, 1992). Since conservative estimates of annual software sales are between \$8 billion and \$10 billion, losses due to piracy could easily be in the neighborhood of \$2 billion annually. The SPA further maintains that many organizations buy only one copy of a piece of software that they intend to use, and then load it on as many computers as they own. To drive home its point, the association has brought suit against several companies and at least one university because of this practice.

Much of the literature dealing with IS ethics indicates a disturbing state of affairs. Studies that address the areas of business ethics in general and IS ethics in particular highlight behavior

patterns that are extremely disconcerting (Bloombecker, 1991, Machan, 1991, Stark, 1993). One study that examined software copying policies at universities found attitudes that can only be described as extremely lax. The study also found that faculty were some of the worst offenders when it came to making illegal copies of commercial software (Athey, 1990). Several other studies showed that software piracy at universities was at unacceptable levels and that both students and faculty needed to be educated about IS ethics and copyright law (Cohen & Cornwell, 1989b, Im & van Epps, 1991, Reid et al, 1992, Wickham et al, 1992). One study indicated that a significant proportion of respondents believed that unethical IS behavior could actually aid them in being successful (Davis & Vitell, 1992). The study further suggested that ethical standards regarding the use of IT may be on the decline.

Another study compared the ethical standards of managers and students and concluded that students tended to possess lower ethical standards than IS professionals in managerial positions (Wood, 1991). The fact that these same students would soon enter the workforce is a matter for no little concern.

Results from these and other studies show that perceptions of what is ethical and what is not vary widely. In addition, university students and faculty appear to have regrettably lax ethical standards when it comes to using computers. Most disconcerting, however, is that fact that the studies seem to indicate that even though most people do not really have difficulty in grasping what constitutes unethical use of IT and what does not, their behavior seems to ignore these distinctions (Athey, 1990, Wickham et al, 1992). That is, they know it's wrong, but they do it anyway.

Are IS ethics somehow different from ethics in everyday life? Not really. One definition of ethics that I particularly like is: "Ethics is the practice of making a principled choice between right and wrong" (Kallman & Grillo, 1993, p.2). This broad and subjective definition would certainly apply to IS ethics as well. It would be reasonable to assume that for a person to use IT ethically, they must first possess active ethical standards for day to day living. It would also seem to be a reasonable assumption that people who do possess such 'everyday' ethical standards would use IT in an ethical fashion. The first assumption appears to be correct. The second, however, is not (Cohen & Cornwell, 1989b, Solomon & O'Brien, 1990). Many otherwise honest people feel that using a computer to do something that is illegal or unethical is somehow not as "wrong" as other "real" criminal or unethical acts. They wouldn't dream of reading someone else's mail, but will browse through others' computer files with little or no feeling of guilt. Hackers break into

someone else's computer system, but would never consider their actions to be the equivalent of breaking into someone else's home. Others copy software with aplomb, but are horrified and often indignant when it is suggested that software piracy and stealing are really the same thing. Many of those who are unethical in their use of IT don't really perceive the ethical implications of their actions (Kallman & Grillo, 1993). Often, people who misuse computers and technology don't see any harm in what they are doing because there isn't an easily identifiable victim.

The fact that much of the technology involved in IS is so new and so rapidly changing also makes it difficult to pin down the issues involved in computer ethics. The massive proliferation of inexpensive computing power has actually created an environment without which some crimes and unethical acts would never have been possible (Neumann, 1991). After all, train robberies would hardly be possible had trains never been invented. The software piracy epidemic has only been possible because of the huge growth in the number of microcomputers in use (Solomon & O'Brien, 1990). Because this tremendous growth in computing power has been coupled with a similar decline in costs, many more people today have ready access to enormous quantities of information and the inexpensive means to manipulate it. Even a decade ago, the situation was dramatically different and far less hazardous. With a smaller pool of IT users, computer viruses and hacker's bulletin boards would have a far more limited arena in which to operate. The potential for crimes and misuse would also be restricted to this smaller pool, most of which, presumably, would consist of IS professionals with a greater awareness of ethical standards and professional conduct (Wood, 1991).

New IT often creates situations with ethical implications that have no

precedent. This causes obvious difficulties for IT users. Many IT users, both individual and organizational, do not possess the mechanisms to deal with these new and unfamiliar situations. Previously established codes, policies and procedures may often be so dated as to have no relevance to today's IS ethics issues.

The management of IT can also be fraught with ethical dilemmas (Parker, Swope, & Baker, 1990). Information created and stored electronically is easier to access, manipulate, or destroy without authority or permission than information stored on hard copy. Concerns of privacy, security, and theft of information have become increasingly relevant concerns for today's IS manager.

The use of computers and sophisticated communications equipment has changed interpersonal communication. Because so many human interactions no longer involve personal, face-to-face contact, decisions are often made with less thought and consideration. The potential for unethical conduct increases simply because not enough time is devoted to careful consideration of all the ramifications of a particular act. All too often, information sharing conflicts with concerns of confidentiality and privacy, and the lack of access security can often make unethical use far too easy.

Even IS professionals sometimes find it difficult to agree on what is ethical use of IT and what is not. In fact, many of the legal and ethical issues regarding the use of IT still remain cloudy. Although most states now have laws to deal with the possible criminal use of IT, almost every new case brings to light ethical and legal aspects that have not previously been encountered or examined. Many of these situations find IS professionals confused about the issues and at odds with others in their profession (Denning et al, 1991, Samuelson, 1993).

There is little doubt that IS ethics are not alive and well. There is ample reason for concern, and steps to

define and address the issues could hardly be taken too soon.

DEFINING THE ISSUES

Pinning down the issues within IS or computer ethics seems to be more difficult than one might imagine. Many ethics related studies have concentrated solely on software piracy problems rather than a broader definition of computer ethics (Wood, 1993). One author maintains that ethical concerns in IS must extend beyond just illegal behavior and include issues relating to computer crime, software reliability, privacy and matching, employee displacement, and artificial intelligence (Malone, 1993). Others agree, including such diverse issues such as privacy, security, ownership of property, race, equity in access, the environment, internal control responsibility of IS personnel, misuse of computers, artificial intelligence and unemployment and displacement (Hall & Hamilton, 1992). In their discussion of what constitutes unethical computer use, Kallman and Grillo (1993) include social and economic issues, issues of individual practice, development process issues, issues involving managers and subordinates, processing issues, issues relating to the workplace, issues of data collection, storage, and access, issues about electronic mail, resource exploitation issues, vendor-client issues and issues of computer crime.

It becomes clear that the issues within what is commonly referred to as 'computer ethics' are far more extensive than one might initially think. They extend far beyond the issues of illegal or criminal behavior. Since most people today are touched by IT in some way or another, the number of people that should be concerned about IS ethics is much larger than many authors have maintained (Phukan, 1994). Fundamentally, there is no real difference between computer ethics and "regular" ethics. IS ethics issues usually arise from ordinary ethical situations where comput-

ers happen to be involved (Kallman & Grillo, 1993). Since ordinary ethical dilemmas involve a wide variety of circumstances and situations, and the involvement of computers in day to day human activity is becoming increasingly commonplace, it follows that the issues of computer ethics are likely to be as diverse as those of ordinary human activity and will be encountered as frequently.

CODES OF CONDUCT

Many professional IS organizations today have codes of conduct including the Association for Computing Machinery (ACM), the Data Processing Management Association (DPMA), and the Institute for Certification of Computer Professionals (ICCP). Some of these codes have been in existence for over 30 years. There are several reasons, however, for the heightened concern about IS ethics today.

A code of ethical standards is not the law even though most codes of ethics do incorporate sanctions to deal with misconduct. Although legislation to deal with a variety of computer and technology related crimes has been enacted, statutes fall short addressing potential wrongdoing.

Technology has grown in complexity and use to such an extent that even the more recently developed codes of conduct can't possibly address the bewildering range of possible situations involving ethical conflict. Then too, because computer use today is so pervasive, the majority of people who should be targeted by these codes of conduct do not belong to the professional organizations that developed them. In fact, many IS professionals do not belong to any professional organizations. Obviously, a large proportion of IT users are never exposed to any code of conduct.

Each of the professional organizations for IS practitioners appear to have different guidelines in their codes of conduct, even though the basic objectives may be similar.

There is no single set of widely accepted codes and guidelines for ethical decision making. A study that called for a unified ethics code for IS professionals examined the differences between the ethical codes of 5 organizations for IS professionals (Oz, 1992). The study found similarities as well as differences between these codes when examined in a framework of obligations to society, employers, clients, colleagues, the professional organization and the profession. One flaw in all 5 sets of standards was a lack of guidelines for prioritizing ethical conflicts. A unified code, the study concluded, would better serve IS professionals and would enhance public perception of the profession.

The ACM is the oldest and largest organization for IS professionals. Recently, responding to the dramatically different computing environment of the present time, ACM members voted to adopt a revised code of ethics and professional conduct. The code consists of 24 imperatives, organized under the four broader headings of general moral imperatives, more specific professional responsibilities, organizational leadership imperatives, and compliance. A set of guidelines supplements this code and is intended to assist ACM members in dealing with the ethical issues addressed by the code itself (ACM Code of Ethics and Professional Conduct, 1992). A study designed to test this revised code of ethics used several scenarios involving ethical decision points (Anderson et al, 1993). The intent was to illustrate both the broad range of issues that may be encountered as well as how one may use the code to deal with them. In conclusion, the authors suggested that several ethical topics were either not addressed by the guidelines or were dealt with in insufficient detail. Also, because of the diversity and complexity of present day issues as well the potential for new issues continually coming to light, the guidelines

would need to be updated on an ongoing basis.

AN ETHICALLY CORRECT IS CURRICULUM: METHODS AND SCOPE

IS curriculum recommendations from both the ACM and the DPMA include ethical issues. In recent years, several authors have addressed the inclusion of ethics in IS curricula. Couger (1989), through a process of evolution, developed a pedagogical approach to introducing ethical issues in his IS classes. Two illuminating studies by Cohen & Cornwell (1989a, 1994), showed that IS ethics are effectively taught through integration into the curriculum, using a system of ethical scenarios to which students respond.

Hall and Hamilton (1992) offer three alternate approaches to integrating ethical issues into an IS curriculum: add a separate course, incorporate elements of the new topic into some or all of the existing courses in the curriculum, or select one course to receive a substantial ethics component. An institution will need to decide on the most appropriate vehicle given its circumstances. The authors also provide several different presentation approaches, including case studies, the use of the popular press, case research, discussion and writing, debates and role playing, and extracurricular activities.

Smith (1992) provides a hands-on technique for incorporating ethical issues into the IS classroom that includes resources for IS faculty and ideas for exercises, assignments and readings for students.

The literature certainly seems to indicate that IS ethics can be effectively taught within an IS curriculum once the necessity for such education is acknowledged. Although this is reason for optimism, one aspect of IS ethics education needs further consideration. Who makes up the audience for this education? Most studies have focused on college level IS education. This tends to ignore a very

large segment of IT users. The magnitude of the concern that exists today regarding IS ethics is directly related to the rapidly growing number of IT users. For instance, software piracy didn't seem to be much of a problem until microcomputers made their first appearance about 10 years ago (Solomon & O'Brien, 1990). The proliferation of microcomputer use is most definitely not limited to IS professionals and students (Wood, 1993). As early as 1984, in his testimony before the US Congress, computer security expert Robert Campbell (1984) accused the computer industry of failing to develop the necessary ethical framework for IT use. He went on to say that the technology had already breached the boundaries of the professional arena and proliferated into the public domain. He was right. The use of microcomputers today has permeated into almost every human activity, and the number of people who use IT on a day to day basis, at home and at work, is growing explosively. A large number of these IT users never set foot in a college level IS class. Many others become active users when they are very young - often several years before they enter college, if at all. This makes the target audience for education on IS ethics far larger than we may have previously anticipated. Obviously a large segment of this expanded audience has yet to be targeted for education on IS ethics.

SUMMARY AND CONCLUSION

IS practitioners the world over agree on the necessity for using IT in an ethical fashion. In addition, IS educators today recognize that a discussion of ethics issues needs to be incorporated into IS curricula. Nevertheless, we can find many reasons for concern. Unethical and illegal use of IT is growing at an alarming rate, and behavior patterns in both the business and educational arenas are disconcerting. Users of Information Technology, including IS professionals, find it diffi-

cult to agree on what is ethical and what is not. Much of the technology is so new that it is almost impossible to pin down the rapidly changing issues involved in IS ethics. In addition, many issues are without precedent, and mechanisms to deal with them have yet to be developed.

The explosive growth in IT and the enormous proliferation of inexpensive computing power has led to a situation where the number of people involved in the use of this technology on a day to day basis is much larger than previously imagined or could have been anticipated. Although professional IS organizations have developed codes of conduct for their members, many IT users are never exposed to these codes simply because they do not belong to the organizations that created them. In addition, it has been concluded that many of these codes fall short of providing comprehensive guidelines for the complex IS ethics issues of today.

On a similar note, education in IS ethics also falls short of addressing its relevant audience. Most IT users are never exposed to the college level IS courses that may possess an ethics content. Although it has been shown that IS curricula at the college level can successfully incorporate ethics issues, this education needs to start at a much earlier age and be directed to a far larger audience.

AUTHOR'S BIOGRAPHY

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