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Perceptions of Professional Ethics Among Undergraduate Information Systems Students

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Abstract

This paper describes an exploratory, survey-based study designed to address questions related to the state of professionalism in the IS community. The study focuses on undergraduate student awareness of IS professional associations and student views on the appropriate content of such associations' codes of ethics. The specific research questions to be explored are: 1) Are undergraduate students aware of IS professional associations and their codes of professional ethics; 2) What ethical issues, if any, do students perceive as being particularly relevant for information systems professionals; 3) What specific ethical rules, if any, do students perceive as appropriate in an IS professional association's code of professional ethics; and 4) Do students believe that their personal views on ethical professional behavior are consistent with the ethical codes of IS professional associations? Results of preliminary analyses will be presented at the conference.

Introduction

This research-in-progress proposal presents a brief description of an exploratory, survey-based study designed to address questions related to the state of professionalism in the IS community. In general, the study focuses on undergraduate student awareness of IS professional associations and student views on the appropriate content of such associations' codes of ethics. The specific research questions to be explored are:

1) Are undergraduate students aware of IS professional associations and their codes of professional ethics?
2) What ethical issues, if any, do students perceive as being particularly relevant for information systems professionals?
3) What specific ethical rules, if any, do students perceive as appropriate in an IS professional association's code of professional ethics?
4) Do students believe that their personal views on ethical professional behavior are consistent with the ethical codes of IS professional associations?

In this research proposal, a brief background on the IS profession, professional associations, and codes of ethics is presented. This is followed by a more detailed discussion of the four research questions. Finally, the study setting and data collection are described.

The Information Systems Profession & Ethical Standards

Information systems can be defined as the hardware, software, networks, and procedures that function to collect, store, manipulate, or distribute electronic information. Information systems professionals, then, are those individuals who have specialized education related to information systems and are employed in responsible positions to study, design, develop, evaluate, or manage them. Information systems professionals may hold positions with many different titles and may be employed in private industry, education, government, and non-profit sectors.

A profession is classically defined as an occupational group of specialists whose practice is based on a circumscribed body of knowledge, represented by a professional association, self-regulating via a code of ethics and professional conduct, and

participating in a shared culture of norms, values and symbols (Greenwood, 1965; Caplow, 1966). While the label "professional" has long-standing acceptance as applied to doctors, lawyers, engineers, accountants and members of the clergy, it has been suggested, with increasing frequency and conviction, that both the benefits and obligations of a professional designation should be embraced by information systems specialists. Moor (1999) argues that the pervasiveness of information systems in modern society, coupled with the lack of public visibility of most computer applications, the potentially severe consequences associated with IS-related failures, and the opportunities for abuse by unethical IS practitioners, makes adopting professional standards of ethical behavior essential for the IS field. Moor, and others, maintain that increased professionalism is necessary for the well-being of both the discipline and society.

Professional associations are attempting to address the need to professionalize the IS field, in part, by facilitating voluntary self-regulation of professional conduct by their members. Professional associations dedicated to supporting and improving the efforts of practitioners in electronic information processing, systems development, and management are not, however, new to the IS landscape. The earliest such group, the Association for Computing Machinery (ACM), was founded over 50 years ago and now represents over 75,000 members worldwide, drawn from industry, academia, and government. The association's stated goal is "to advance the sciences and arts of information processing, to promote the free interchange of information among specialists and the public, and to develop and maintain the integrity and competence of individuals in the field" (ACM, nd). Other associations, including the Association for Information Technology Processing (AITP), the Institute for Certification of Computing Professionals (ICCP), the British Computing Society (BCS), and the Canadian Information Processing Society (CIPS), may have a more narrowly defined membership base or defined mission, but all have promulgated codes of ethics to inform, inspire, and guide their members' professional conduct. The codes have been compared by Oz (1992), and while the focus of Oz's article is on the need for a unified code of ethics, she also points out that there is substantial overlap in the codes, with similarities outnumbering differences. The ACM code of ethics is available at http: www.acm.org/serving/ethics.html

Research Questions

During the last few decades, college and university programs leading to specialized baccalaureate degrees in information systems have become an important training ground for new entrants into the IS profession. According to ISWorld (2004), there are 25 university departments offering undergraduate degrees in Information Systems in Canada and 250 such department in the United States. Each year, graduates of these programs enter the IS job market, taking with them knowledge, skills, expectations, and attitudes developed during their courses, extra-curricular activities, and interaction with faculty members. We suggest that any concerted effort to increase IS professionalism should begin by ensuring that IS students are being adequately prepared for their future careers, not only in terms of skill sets and conceptual knowledge, but also in terms of professional attitudes and expectations. This preparation should sensitize students to the ethical issues that IS practitioners face and the special ethical responsibilities that are incumbent upon members of the IS profession. It should also ensure that students are familiar with IS professional associations and the rules and responsibilities that are formalized in their codes of ethics and professional conduct.

> **Research Question 1**: Are undergraduate IS students aware of IS professional associations and their codes of ethics?

Smith & McKeen (2003) have highlighted the demand for increased professionalism among new entrants into the IS field and, unfortunately, the lack of attention to professional development of students in university IS undergraduate programs. They call for the incorporation of professionalism as a topic in the IS curricula. Awareness of professional associations, their mission, and the standards they represent is one aspect of professional development is omnipresent in academic programs preparing new members of other professions (i.e., engineering, law, medicine). A professional association is one well-recognized hallmark of a profession (Greenwood, 1965; Caplow, 1966) and represents the over-arching values and standards to which all members of that profession should ascribe. Anecdotal evidence and personal experience with undergraduate programs and students at numerous universities, suggests that undergraduate IS students are not receiving information on professional associations as part of their course work and, as a result, are largely unaware of these associations and the standards of ethical conduct they represent.

> **Research Question 2**: What ethical issues, if any, do students perceive as being particularly relevant for information systems professionals?

Undergraduate IS students seem to be increasingly aware of publicized examples of illegal or unethical behavior related to computer use, such as stolen credit card number on the Web, cataclysmic viruses, or electronic espionage. This awareness may be due, in large part, to the increased coverage of computer-based crimes in newspapers and the nightly news, as well as fictional accounts in popular television dramas and movies. Information systems students may be less well informed, however, about the types of ethical dilemmas they may face in the day-to-day conduct of business as future IS professionals. Gotterbarn (nd) has stressed the importance of limiting the scope of ethical discussions with IS students, focusing attention

on "those actions that are within the horizon of control of the individual MORAL computer professional" (pg. 4). The question posed here, then, is whether IS students are able to translate their largely anecdotal exposure to "sensationalized" stories of computer-based crime and unethical behaviors to ideas about more constrained ethical issues specifically relevant to the work of information systems professions.

   Research Question 3: What specific ethical rules, if any, do students perceive as appropriate in an IS professional association's code of professional ethics?

A number of researchers have highlighted the declining state of ethical behavior among university students in North America. Sims (1993) outlines a path of increased participation in academic misconduct over the last six decades of the 20th century, from 23% of undergraduates in the 1940s (Drake, 1941) to 91% in the 1990s (Sims, 1993). Business students, a group which includes information systems students in many universities, have often been singled-out as having lower standards of academic honesty than other university students (see Brown, 1966; Baird, 1980; Meade 1992; Roig & Ballew, 1994). Information systems students, specifically, have not faired well when compared to other students, either. Nowell and Laufer (1997) found that MIS students were more likely to cheat on a self-graded exam than were non-business students. Brown & Weible (2001) report that 97.2% of MIS students reported cheating at least once during their academic career. Sims (1993) points out that there is a strong relationship between unethical behavior at school and unethical behavior on the job. Given these research results, one might expect that information systems students would shy away from suggesting a rigorous or comprehensive set of ethical rules or guidelines to restrict their actions in their future career.

Looking at research measuring student responses to specific computing-related ethical scenarios, it is apparent that IS students do recognize that many behaviors are ethically incorrect and should be avoided (e.g., Cohen & Cornwell, 1989; Christoph, Forcht, & Bilbrey, 1987/1988; Kreie & Cronan, 2000; Kreie & Cronan, 1998; Couger, 1989; Paradice, 1990). What is also apparent from these studies is that there is considerable variability between subjects on which behaviors are identified as unethical and on the relative severity of various ethical breaches. Interestingly, Kreie and Cronan's study (2000) revealed that, without exception, the percentage of subjects who judged a described behavior as ethically unacceptable was always larger than the percentage of subjects who reported that it was "improbable" that they would commit the behavior. For example, 85% of the subjects responded that it was unethical for a programmer to modify a bank's software to avoid a checking account fee, but only 66% of subject responded that it was improbable that they would do the same. The remaining subjects were confident that they would probably do the same (23%) or were undecided about their future action (11%). This result demonstrates that students may evaluate ethical rules as appropriate for inclusion in a code of professional ethics independent of their individual history or future intention to uphold the rule. It is likely, given these results, that IS students may consider a broad range of ethical rules appropriate for the IS professional association code of ethics. It is also likely that support for different rules may vary considerably between students.

   Research Question 4: Do students believe that their personal views on ethical professional behavior are consistent with the ethical codes of IS professional associations?

For a voluntary professional association to serve its ultimate mission, members, and potential members, must perceive the association as embodying and promoting values and norms that are consistent with their own beliefs. IS students are one important set of potential members for an IS professional association. It is likely that students will perceive their personal ethical views as reasonable and, therefore, typical of those promulgated by the IS professional association. As a result, there will likely be considerable correlation between the ethical rules students believe <u>should</u> be included in the association's code of ethics and the rules they believe actually <u>are</u> included in the association's code. Going further, some research has shown that students tend to judge themselves as more ethical than their peers (Greene & Saxe, 1992; Newstrom & Ruch, 1976; Stevens, 1984). It is reasonable to suggest, therefore, that any difference in ethical rigor, should it exist, will be weighted toward the student; that is, students may believe that the IS professional association code includes fewer ethical rules than they believe appropriate.

The Study

A paper-and-pencil survey instrument was administered to upper-division IS students at two universities. Part A of the survey begins by asking if the student plans to pursue a career in information systems. It continues with an open-ended question asking the student to list any ethical issues that he or she perceives as particularly important for information systems professionals. Part B of the survey asks the student if he or she is familiar with any IS professional association and asks the student to list the associations' names. The next question asks if the student is familiar with the associations' codes of ethics. Finally, the survey includes a list of the key ethical rules from the ACM "Code of Ethics and Professional Conduct". The survey instructs students to read each rule and indicate whether or not they believe the rule <u>is</u> or <u>is not</u> part of the ethical code for the IS professional association. Finally, they were asked whether they believe each ethical rule <u>should</u> or <u>should not</u> be part of the code. A copy of the survey form is included as Appendix A.

At this time, responses have been collected from more than 100 upper-division (3rd or 4th year) IS students. The open-ended question asking for a description of IS-related ethical issues was coded following guidelines for content analysis (Neuman, 1994). Twenty issue categories were developed based on responses to this open question. The two researchers independently coded all responses. Any differences in coding were discussed and resolved. All data from the survey forms collected to-date have been entered into a database. Data cleaning and pre-processing have begun, and analysis of the data will commence shortly. Results will be available in the final version of this paper.

*Note: Results of an earlier version of this study were presented at SAIS 2004.

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Appendix A. Survey form

An information system is defined as the hardware, software, networks, and procedures that function to collect, store, manipulate, or distribute electronic information. Information systems professionals are those people who have specialized education in a field related to information systems and are employed in responsible positions primarily to study, design, develop, operate, evaluate, administer, or manage information systems. Information systems professionals may hold positions with many different titles, but some typical positions include: chief information officer; programmer; software engineer; application, database, or network developer; systems analyst; system, database, or network administrator; computer security, infrastructure, or computer operations specialist; IT customer service representative; hardware or software support specialist, trainer, or consultant; information technology manager; information resources specialist, administrator, or manager; and website designers, content developers, or webmasters.

1.   Do you plan or hope to pursue a career as an information systems professional? (Circle the appropriate answer.)
         Yes   No   Not sure at this time

2.   Some professionals must make difficult decisions that involve choosing what is the morally right, or professionally ethical, thing to do. For example, doctors sometimes must face the ethical issues of assisted suicide or withholding treatment from patients who cannot pay; and lawyers sometimes face the ethical issues of defending guilty clients or keeping sensitive information confidential. What, if any, do you think are important ethical issues or situations facing information systems professionals today?

        You may enter as many or as few ethical issues as you choose in the space provided. Check the blank in front of the first statement if you don't believe information systems professionals face any special ethical issues in the course of their work.

        ____ IS professionals probably don't face any special ethical issues in their work.

        In my opinion, important ethical issues for IS professionals include:
        _____
        _____
        _____
        _____
        _____
        _____
        _____
        _____
        _____
        _____
        _____
        _____

Information Systems Questionnaire: Part B

1. Are you familiar with any professional organization or society that primarily represents information system (IS) professionals? (Circle the appropriate answer.)
    Yes   No   Not sure

2. *If you answered "Yes" to Question*, list the professional organizations in the spaces below. If you answered "No" to Question 2, skip to Question 4.

    _____
    _____
    _____
    _____

3. A "code of ethics" or "code of conduct" is a document that describes what professionals should and should not do to be considered ethical members of the profession. Are you familiar with the "code of ethics" or "code of conduct" for any of those organization(s) you listed in Question 2? If you answered "No" to Question 1, skip to Question 4.
    Yes   No   Not sure

4. *The following statements describe ethical standards and rules for appropriate conduct that <u>may or may not</u> be included in the actual "code of ethics" for the largest IS professional organization in North America. Circle "Yes" or "No" to indicate whether or not, in your opinion, each standard <u>is</u> included in the organization's "code of ethics" and circle "Should" or "Not" to indicate whether or not, in your opinion, this standard <u>should</u> be included in such an organization's "code of ethics". Respond to each statement regardless of whether or not you are actually familiar with the organization or its "code of ethics".*

Ethical Standard	Is Included in Code	Should be Included in Code
1 Avoid causing injury or negative consequences to others.	Yes/No	Should/Not
2 Make sure that users' have input into system design.	Yes/No	Should/Not
3 Be honest about your professional qualifications.	Yes/No	Should/Not
4 Be honest about potential conflicts of interest.	Yes/No	Should/Not
5 Build computer systems that enhance the quality of users' work life.	Yes/No	Should/Not
6 Honor property rights, including copyrights & patents.	Yes/No	Should/Not
7 Contribute to society and human well-being.	Yes/No	Should/Not
8 Honor confidentiality of employers, clients, and users even when confidentiality is not explicitly required by contract.	Yes/No	Should/Not
9 Encourage your employer to be socially responsible.	Yes/No	Should/Not
10 Strive for high quality in your work process & product.	Yes/No	Should/Not
11 Create and support policies that protect the dignity of users and others.	Yes/No	Should/Not
12 Do not access computer resources without authorization.	Yes/No	Should/Not
13 Support proper and authorized use of an employer's computer system.	Yes/No	Should/Not
14 Be fair and don't discriminate.	Yes/No	Should/Not
15 Don't take credit for other's ideas or work, even when it isn't copyrighted.	Yes/No	Should/Not
16 Acquire and maintain professional competence.	Yes/No	Should/Not
17 Know about laws related to your work.	Yes/No	Should/Not
18 Follow all laws unless there is a compelling ethical reason not to.	Yes/No	Should/Not
19 Accept and provide professional review of IS-related work.	Yes/No	Should/Not
20 Provide careful & complete evaluations of computer systems, including possible risks or negative impacts.	Yes/No	Should/Not
21 Honor contracts and agreements.	Yes/No	Should/Not
22 Share your technical knowledge to educate the public.	Yes/No	Should/Not
23 Help educate members of your employer's organization about computers.	Yes/No	Should/Not
24 Uphold and promote the principles in the code of ethics.	Yes/No	Should/Not
25 Respect the privacy of other people.	Yes/No	Should/Not
26 Serious violations of the code of ethics may result in loss of membership in the professional organization.	Yes/No	Should/Not