

December 2007

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Recommended Citation

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<http://aisel.aisnet.org/mwais2007/18>

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AN EXAMINATION OF ETHICS INSTRUCTION IN THE INFORMATION SYSTEMS AND ACCOUNTING DISCIPLINES

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ABSTRACT

In light of several recent highly publicized unethical acts (e.g., unauthorized access of data, identity theft, and various other cybercrimes) in the field of information technology, there is a renewed sense of urgency for ethics education. The purpose of this study was to determine: (1) the ethics requirements established for undergraduate students in information systems and accounting, (2) the instructional methods used to teach ethics in these two disciplines, and (3) the content areas to be covered. An online survey was sent to a random sample of 213 Information Systems and Accounting instructors across the United States. There were 40 instructors who completed the survey for a response rate of 19%; 36 usable surveys from at least 28 different colleges were analyzed. Twenty-two percent of the respondents indicated they had a required ethics course taught within their department and 22% said they had an ethics requirement outside the department (some of these may have been the same respondents). The top two instructional methods used by the respondents were discussion (92%) and lecture (77%). The method they felt provided students with the best understanding of ethical issues was discussion (46%), then case studies (35%). The top two content areas the respondents felt should be included in ethics courses were (1) general ethical issues relating to fairness, honesty, respect, and integrity and (2) privacy and security of information.

KEYWORDS

Ethics Requirements, Ethics Instructional Methods, Codes of Ethics

INTRODUCTION AND RATIONALE OF THE STUDY

Every day Information Technology and Business professionals are faced with many ethical decisions. With the increasing risk of identity theft, network intrusions, and other computer crimes, it is the responsibility of educators to cultivate a new generation of graduates who are aware of computer-related ethical issues. According to Barnard, de Ridder, Pretorius, and Cohen (2003) computer ethics is the study of behavioral actions specifically concerning Information Technology

professionals. The Institute of Business Ethics defines business ethics as “the application of ethical values to business behavior [. . .] it applies to the conduct of individuals and to the conduct of the organization as a whole” (p. 1). The ever increasing reports of unethical actions have highlighted the demand for ethics education. The ultimate goal of ethics instruction is to develop students who not only have an awareness of the importance of good ethical decision-making but also the ability to apply proper ethical behavior in day-to-day personal and professional activities.

The field of Information Technology has not been around as long as most other disciplines. Therefore, the issues that are seen in this area are newer than the issues in most other fields. For example, hacktivism and other forms of cybercrime were started in the early 2000s (Spinello 2003). “The number of IT-related security incidents is increasing—not only in the United States, but around the world” (Reynolds 2007 p. 69). With the increase of these computer-related crimes, came the public awareness of unethical acts that used the computer as a weapon. As the public awareness increases, so does the need for ethics instruction in the Information Technology/Information Systems’ discipline.

Ethics is not a new topic to any field of study or group of professionals, and it has been taught for many years. In fact, most professional organizations have a code of ethics for its members to follow. For example, computer ethics is listed as one of the bodies of knowledge needed for an undergraduate degree in Computer Science education in the Association for Computing Machinery (ACM) Curricula 2001 (Lee, Dark, & Chen 2005). Ethics curricula and training programs are being developed in schools, universities, and government agencies; therefore, it is essential to identify key factors related to ethics instruction, including the amount of instruction needed, the philosophy/focus of the instruction, the instructional methods that are most effective, the use of codes of ethics, and specific content areas to emphasize.

REVIEW OF LITERATURE

In regard to how much ethics instruction is needed, many educators seem to agree that students have a greater ability to develop ethical knowledge and behavior when it is covered in more than one course. Searls (1988) felt that computing students did not have a basis for decision-making after taking just a traditional ethics course; however, he suggested that ethical issues be addressed across the computing curriculum. Sims (2002) stated that, “a stand-alone ethics module in the curriculum...will be more effective when the knowledge is integrated into the curriculum and applied” (p. 394).

Langenderfer and Rockness (1989) explained that Philosophy instructors teach ethics in such a way that, “moral issues related to business [. . .] are generally not the focus of these courses and are often entirely excluded” (p. 61). They suggest that ethicist and Accounting instructors work together in order to create a solid ethical framework and teach ethics effectively. Staehr (2002) also stated that computing professors should work with Philosophy instructors to teach ethics. Bishop (1992) described teaching of ethics in a Business course, in which two conceptual frameworks were used—societal-organizational ethics and individual ethics; he suggested that the instructors integrate discipline specific ethical situations into every course. Huff and Martin (1995) gave suggestions for objectives and content of ethics instruction. The researchers recognized that “the study of ethical and social issues is interdisciplinary in nature” (p. 76). However, they suggested that the issues are multidimensional and should be seen from the perspective of a computing professional, instead of a philosopher or social scientist. They presented a framework with the following three dimensions: 1) technical, 2) social, and 3) ethical (Huff & Martin 1995). The researchers stated that “students need a careful and critical examination at the undergraduate level of the ethical and social issues involved in computer design and use” (p. 76). They recommended integrating lab work and ethical issues.

Barnard, de Ridder, and Pretorius (2001) found several ways to integrate case studies into the curriculum, which included the use of the following: worksheets, criteria, and algorithms. Many scholars (Alam,

1999; Benbunan-Fich 1998; Langenderfer & Rockness 1989) feel that case method instruction is the most effective methodology for undergraduate ethics education. However, a wide variety of methods are used to teach ethics in the Information Systems and Business disciplines. Some Business schools teach ethics within the Management discipline using lectures and workshops “in which case discussions, experimental exercises and other teaching methods may be employed” (Bishop 1992 p. 297). Staehr and Byrne (2003) conducted an experimental study in which they used the Defining Issues Test (DIT) to evaluate the effect of case method instruction in teaching a computer ethics course to an experimental group of seven senior computing undergraduates enrolled in a professional ethics course. The researchers found a significant difference between the control and experimental groups at the .05 level.

Codes of ethics were created for the Information Technology profession to address ethical concerns in the field (Oz 1993). In a study conducted by Gotterbarn and Riser (1997), a programming class was taught with the use of ACM’s code of ethics, cases, and worksheets. The students were given a scenario to analyze and were asked to determine the appropriate framework for the scenario. Programming exercises were used to allow the students to gain an understanding and anticipation of ethical issues when developing software (Gotterbarn & Riser 1997). However, codes of ethics are not always viewed as the best way to provide students with a solid ethical framework. As Johnston and Snapper (1985) stated, “a code might be [used] to offer advice in cases of moral perplexity about what to do [. . .] If such cases present genuine perplexities, then they cannot and should not be solved by reference to a code” (p. 12).

METHODOLOGY

After conducting an in-depth literature review during the fall of 2006, a survey was written in November to determine 1) the ethics requirements established for undergraduate students in Information Systems/Computer Science and Accounting programs, 2) the instructional methods used, and 3) the use of codes of ethics and the general content areas instructors felt were most important for the ethics curriculum. The survey instrument was reviewed by a panel of experts and revised. Then an interactive Web page was developed and loaded onto a web server. The survey instrument was pilot-tested by a group of randomly selected instructors in the United States and revised one final time.

The list of colleges was obtained from the *U.S. News and World Report: America’s Best Colleges 2007* issue to randomly select the sample. The A-Z college directory was used to select every fifteenth university from the list until a total of 128 colleges were chosen.¹ Those universities that did not have a Web site or access to e-mail addresses for the faculty were omitted, leaving a total of 89 colleges. From the remaining ones, the first faculty member listed with an e-mail address from the Accounting department and the first from the Information Technology/Information Systems department was selected. If the college did not have one of these departments, then there may have been only one faculty member selected. Various department names were used for the Information Technology selection, including such titles as Computer Science, Computer Information Systems, and Management Information Systems. An e-mail message was sent to each of the selected faculty members the second week of March explaining the purpose of the study and a request to complete the online survey available at the link provided; this was a total of 146 emails (73 for Accounting and 73 for Information Systems). A follow-up e-mail message was sent a week later.

Since there was only a 14% return rate from the first group of e-mails, another group of colleges was selected. This time it was every twenty-fifth college from the list of America’s Best Colleges 2007 which resulted in an additional 36 schools for a total of 125 colleges. This group had 67 email addresses (33 for

¹ The list of colleges is available in the A-Z School Directory under the School Center section on the website at: http://www.usnews.com/usnews/edu/college/rankings/rankindex_brief.php.

Accounting and 34 for Information Systems) which resulted in an overall total of 213 addresses. The request to participate in the research study was sent to this group the first week of April with a follow-up the next week. There were 40 total responses to the survey for a response rate of 19%; 36 were usable after removing two that were not complete and two that were not undergraduate programs in four-year colleges.

FINDINGS

Demographics

There were at least 28 colleges represented (some did not give the name of the college and at least two had responses from faculty in both the Accounting and the Information Systems majors). There were 11 (31%) respondents that said they taught in a program for Accounting majors and 18 (50%) said Computer Science or Computer Information Systems. The other seven majors included finance, math, and Business administration (19%). There was an equal division between public (53%) and private (47%) four-year colleges.

Ethics Course Requirements and Philosophical Focus

The respondents were asked various questions regarding ethics requirements including the amount of ethics instruction required. The respondents were to mark all the options that applied to their department. Twenty-two percent of the respondents indicated they had an ethics course requirement in their department, 22% said they had a course offered as an elective, and 44% said they had units of instruction integrated into several courses within the department. Other requirements and offerings are shown in Table 1.

Ethics Requirements	Percent
Specific course required outside the department, such as general education	22.2
Specific course required from within the department	22.2
Specific course offered as an elective (not required) in the department	30.6
Units of instruction integrated into at least one course within the department	22.2
Units of instruction integrated into several courses within the department	44.4
No ethics instruction offered	5.5
Other	16.7

Table 1. Ethics Courses Required or Offered

The majority of those requiring a specific course in ethics for their majors indicated it was recommended that students take it during their junior year.

The respondents were asked their perceptions regarding the approach for helping students deal with ethical issues, such as philosophical, business, computing, and so forth. The largest number of respondents (50%) indicated they felt a combination of all approaches was best (as shown in Table 2). The next largest number (24%) felt a combination of philosophical and computing approaches was best.

Focus/Approach	Percent
Philosophical approach (i.e., utilitarian, rights, fairness, common good, and virtue)	10.3
Business approach (i.e., normative theories, vincentian tradition, professional codes of ethics, and personal values)	20.7
Computing approach (i.e., social concerns, technical concerns, and professional concerns)	20.7
A combination of philosophical and business approaches	24.1
A combination of philosophical and computing approaches	10.3
A combination of all approaches.	50.0

Table 2. Philosophical Focus

Somewhat related to the philosophical focus of the course is the background of the ethics’ instructors. It was clear that almost everyone (93%) felt that the instructor should be knowledgeable in the discipline. It was also obvious that the majority (although a smaller percentage) did not feel that they needed to be taught by a theologian (76%) or a philosopher (55%); however, there was more indication of uncertainty with these issues. “Not sure” was the response given to the largest number of respondents in regard to whether students should be exposed to those with training in both areas—theology/philosophy and discipline—related as seen in Table 3.

Educational Background of Instructor	Yes	No	Not Sure
Students should take a course(s) taught by someone who has training in theology.	10.3%	75.9%	13.8%
Students should take a course(s) taught by someone who has training in philosophy.	20.7%	55.2%	24.1%
Students should take a course (s) taught by someone knowledgeable in the discipline.	93.1%	3.5%	3.4%
Students should take a course(s) taught by those trained in both areas (either team taught or two courses).	13.8%	41.4%	44.8%
Students should take two courses: one from the general education core taught by someone with training in theology or philosophy and one from someone knowledgeable in the discipline.	17.2%	58.6%	24.1%
It does not really matter who teaches the course.	13.8%	75.9%	10.3%

Table 3. Background of Ethics’ Instructors

Instructional Methods

There were three questions regarding the instructional methods used to teach ethics. The first question asked the instructors to indicate which instructional method(s) they used when providing ethics instruction (and to mark as many as used). The top three methods used by the respondents were discussion (92%), lecture (77%), and case studies (69%) as shown in Table 4. When asked the one method the respondents used the most, the largest number indicated discussion (46%), and the next largest, lecture (42%). In regard to the one method they felt provided students with the best understanding of ethical issues, the largest number stated discussion (46%) and the next largest was case studies (35%).

Method	Percent
Lecture	76.9
Discussion	92.2
Writing assignments	46.1
Case studies	69.2
Textbook reading	46.2
Presentations by students	30.8
Videos	19.2
Role playing/simulations	15.4
Lab activities	3.8
Other	3.8

Table 4. Ethics Instructional Methods

Codes of Ethics and Content Areas

When asked about the department's position on whether a specific code of ethics should be used in ethics instruction within their programs, only 11% of the respondents indicated their department recommended a particular code of ethics be taught. The majority (61%) indicated that their department did not specify any particular code.

In an attempt to identify the content that instructors felt should be included in an ethics course taught in the discipline, the respondents were asked to rank nine specific items based on importance. They were to rank them from 1 (most important) to 9 (least important). The area of general ethical issues (fairness, honesty, respect, integrity) was ranked as the number one content area to be covered; it was followed by plagiarism, and privacy and security of information. The others are listed in order of ranked mean in Table 5.

Content Areas	Rank	Mean
General ethical issues (fairness, honesty, respect, integrity)	1	2.6
Privacy and security of information	2	3.5
Intellectual property and copyright issues	3	4.3
Fraud	4	4.5
Plagiarism	5	4.8
Identity theft	6	5.9
Social engineering	7	6.2
Spam, viruses, worms, intentional attacks on networks	8	6.4
Use of the Internet (and other personal activities) on company time	9	6.6

Table 5. Content Areas for Ethics Course in the Discipline

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Data (relating to ethics course requirements, instructional methods, and content areas) from 36 instructors in Information Systems and Accounting disciplines of at least 28 different colleges were analyzed. Twenty-two percent of the respondents indicated they had a required ethics course taught within their department, 22% said they had a requirement for a course taught outside the department, and 44% indicated they had units of instruction integrated into several courses (some may have been the same respondents as they were asked to mark all that applied). These findings seemed to agree with other researchers and ethics instructors who felt that one traditional ethics course (Searls 1988) or one stand-

alone module (Sims 2002) was not enough, and that ethics instruction should be addressed or integrated throughout the curriculum.

When considering the philosophy or focus of the course, the largest number of respondents (50%) indicated they felt a combination of all approaches or philosophies was best. According to the literature, some authors indicated a belief that Philosophy instructors teach ethics in a way that does not focus on moral issues as they relate to Business or the discipline. They (Langenderfer & Rockness 1989; Staehr 2002) felt that the ethicist or Philosophy instructors and those in the discipline (i.e., Accounting or computing) should work together to provide a solid ethical framework. Huff and Martin (1995) felt that the ethical and social issues were multidimensional and should primarily be seen from the perspective of the discipline instead of from a philosopher or social scientist.

The top methods of instruction used by the respondents were discussion (92%) and lecture (77%). The one method that they felt provided students with the best understanding of ethical issues was discussion (46%); it was followed by case studies (35%). These findings agree with the research from other scholars (Alam 1999; Benbunan-Fich 1998; Langenderfer & Rockness 1989) who felt that case method instruction was the most effective methodology for undergraduate ethics education. However, the findings show that even though many felt it was the best method, not as many instructors used this method as others, such as discussion and lecture. Huff and Martin (1995) recommended integrating lab work and ethical issues; however, only 3% of the instructors in this study indicated using lab activities to teach ethics.

The findings indicated that although some instructors use codes of ethics, the majority of departments do not require a specific code. The top four content areas ranked as most important for an ethics course in the discipline were (1) general ethical issues (fairness, honesty, respect, integrity), (2) privacy and security of information, (3) intellectual property and copyright issues, and (4) fraud.

More research should be conducted in this area to continue to identify how much instruction is needed and what approach and methodologies are the most effective to better prepare students for ethical decision-making activities in the workplace. Specifically, research into exactly what types of instructional methods and approaches (philosophies) result in the greatest development of ethical standards in students is recommended. This would involve more in-depth research with an experimental study, but would likely find answers to some of the questions many are still asking about ethics instruction.

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