

A STUDY OF THE ETHICAL PERCEPTIONS OF COMPUTER INFORMATION SYSTEMS MAJORS AND BUSINESS MAJORS IN COMPUTER- RELATED SITUATIONS

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Abstract:

As Information Technology evolves, it continues to raise new ethical challenges. In recognition of this, both the profession, and academic communities have attention on Information Systems ethics. This study examines an important question that has been neglected by previous research studies: Do Business students differ significantly from Information Systems students in terms of their perceptions about ethical issues in Computer-related situations. Eight Business and Information Systems students were surveyed to assess their ethical perceptions on six scenarios and sixteen ethical problems. All six scenarios incorporated computer related problems that are faced by managers and practitioners in the field. Hypotheses were tested for significant differences between the Business majors and Information Systems majors.

The results from the participants and data in this research study, suggested that Business students have similar perceptions with Information Systems students except in two scenarios where students who have taken ethics and/or philosophy courses rated the problems higher than the students who have not taken ethics and/or philosophy courses.

Keywords: Ethical Perceptions, Computer Information Systems, Information Technology, Ethics, Business Ethics, Information Ethics.

1. Literature Review:

The past two decades have witnessed an increasing awareness of ethical issues relating to information systems management among both practitioners and academics, in part because of the scandals and articles about business ethics in the popular media. Athey (1993) writes that most Information Systems groups and the current corporate codes of conduct have failed to keep pace with today's technology and the possibilities for misconduct it presents. Rifkin (1991), states that, "technology has developed so rapidly that the target is not well defined."

Although professional codes of conduct exist for computer professionals, Akers (1984); Summers and Markuson (1992), write that the rapid growth of the use and misuse of Information Technology has prompted both professionals and academics to call for additional attention to ethical conducts of members, and an attention to education and organizational policy to ensure the viability of the ever-increasing standards in the field.

Ethical problems and what actually would be considered as ethical behavior has not by-passed today's college students. It becomes even more compelling, when one considers the fact that these students will be tomorrow's Information Technology (IT) professionals and academics. Forcht and Myong (1993) found that

more than half of 300 Business students at a major State university surveyed admitted using computers unethically, including hacking, and illegal software copying. The study was among the first to study student behavior relative to specific computer related situations. However, several other studies have examined students' ethical behavior and beliefs in non computer related situations.

Today, many colleges and universities as well as some accrediting agencies (i.e., American Assembly of Collegiate Schools of Business (AACSB) have recognized the need to require some ethics instruction as a component of the curriculum of all graduate and undergraduate Business and Computer science courses. Carbo and Almagno (2001) write that although most courses have an impact on students' preparation for their careers and also on their individual life, graduates report that information ethics courses have a much greater effect on their personal and professional lives than other courses.

Information ethics have become even more important in recent years. Articles and news reports about ethical issues include: break-ins into security systems, viruses, pornography on the Internet, employee monitoring, are just a few examples of issues facing professionals today. Students in colleges and universities today run businesses from their dorm rooms; in public areas, some are viewing materials considered objectionable (or even "obscene") by others while using the colleges' network systems. Downloading of music from the Web raises questions of violation of copyright and appropriate use of university or corporate provided networks. Personal uses of the Internet or other Information Technology services provided by the employer are becoming commonplace. Issues about these and other practices become more challenging with the ever increasing use of Information Technology. According to Wilder and Soat (2001), R. Edward Freeman, Business Administration professor and Director of the Olsson Center for Applied Ethics at the University of Virginia's Darden School of Business, and co editor of the Blackwell Encyclopedia Dictionary of Business Ethics states that "IT people are the ones responsible for configuring technologies and systems that have ethical implications," "They have to be more than the mechanics who keep it running. They need to understand that ethics is at the center of what they do."

While several studies in the literature acknowledge increasing misconduct and unethical practices in the IT field, Mason (1986) was one of the first to identify four major information ethics area from a social orientation perspective: privacy, accuracy, property and access. An analysis of each area will lead to a research question for this study.

2. Purpose of the Study:

The purpose of this study is to test the hypothesis that IS students preparing to enter the business world as computer professionals hold the same beliefs as business students who may have had ethics courses in their curriculum. If the hypothesis is not true, it is an indication that more attention is needed to expose IS majors to the generally acceptable ethical standards in their individual choice of profession. Parker (1988) writes that IS students in colleges and universities may benefit from increased attention to ethics through readings, or training programs. Similarly, Solomon (1993) notes that the study of ethics can help instill a greater sense of confidence in one's ability to face and handle practical situations. Unfortunately, very limited studies exist in the literature that have examined, and analyzed data specifically relating to Information Systems ethics using samples from students. Therefore, this study will target business and IS students, by examining specific variables that are associated with, and may influence the ethical perceptions of this group of students when faced with ethical dilemmas involving different aspects of computer use situations.

3. Research Questions:

Once a research problem background has been developed, the next step in the process will be to specify the questions that will be addressed in the study. According to Frankel and Devers (2000) the importance of addressing specific and targeted research questions should never be overlooked. The authors further stated

that addressing targeted research questions enables researchers to accomplish the intended purpose of a study. Marshall and Rossman(1995) write that research questions should be linked to the problem and significance of the research study. For the purposes of this research study, all methodologies, results and conclusions will be directly linked to the following questions:

1. What are the differences between IS students and Business students in ethical perception in computer use situations?
2. What are the differences between IS students and Business students in ethical perception and attitudes on privacy issues?
3. What are the differences between IS students and Business students in ethical perception and attitudes on accuracy issues?
4. What are the differences between IS students and Business students in ethical perception and attitude on property issue.
5. Do differences exist between IS students and Business students on the issue of access? These questions will form the basis of the hypotheses for this research study. Also, the basis of the scenarios and survey will be derived from these questions.

4. Limitations:

There are two limitations of this research study. First, the participants' pool will consist of only undergraduate Business and Computer Information science majors with an average age of 22years. Subsequently, results would possibly be skewed if larger sample of older high tech students, such as graduate students who grew up in the 1960s and 70s were considered for this study, or if participants have extensive professional work exposures. Anecdotal evidence gathered from class discussions at Argosy University leads me to believe that this group has different perceptions than the 22 years old students. Second, there is the limitation of self response reporting bias. Randall and Fernandes (1991), write that social desirability response bias has particularly strong effects on ethics research. However, Bradburn et al. (1979), write that social desirability bias in responses is reduced with increased levels of anonymity. Therefore, all responses in this research study will be entirely anonymous. The strict conditions of anonymity will prevent the use of follow up techniques to increase the rate of response.

5. Definitions:

The following definitions will provide a clear understanding of the ethical perceptions of Business and Information Systems students in computer related situations.

- Business Major for the purposes of this study, business major will include any student whose major is Business Administration, Accounting and Marketing.
- Computer Information Systems Major is a student within the school of Business that has CIS as his/her major.
- College Student individuals presently enrolled in one or more college courses (i.e., undergraduate Business and Information Systems majors). Only students that are presently classified as juniors and seniors will be considered as participants.
- Gender male or female.

- Ethics an inquiry into the nature and grounds of morality where morality means moral judgments, standards, and rules of conduct.
- Business Ethics for the purposes of this study, these are principles and standards that guide behavior in the world of business.
- Information Systems Ethics is the general nature of morals and choices, and the rules of standards governing the conduct of the members of the Information Technology (IT) profession.
- Soft lifting is the illegal copying of software for private individual use.

6. Importance of the Study:

This research study has been developed to gather data that can have implications for IS education and practice. The increased explosion of IT and information networked society, have increased opportunities for unethical conduct (i.e., software piracy, creating computer viruses, employee monitoring and computer fraud). The moral imperative therefore, is a proper education for entry level IS professionals to help them deal with ethical dilemmas as they enter the workforce. Ethical training and education can benefit IS students by broadening their awareness and sensitivity about ethical problem solving. This research study is a beneficial endeavor, because no study in the literature has used IS students in their sample. This is due in part to the relative newness of IS ethics. It is predicted that the findings and subsequent recommendations of this study will contribute to a research based foundation that can be used by educators and faculty alike as they continue to work to develop ethics curriculum for IS students. For their part, organizations can include training in ethics in their orientation programs to socialize new employees. The results will also provide future researchers in this field the statistical significance needed to extend this study by using possibly graduate students as opposed to undergraduates.

7. IS Ethical Issues:

Ethical issues relating to the development and use of Information Technology (IT) are referred to as information ethics (Eining et al.,1997). Information Systems ethics deal with a series of dilemmas that have special importance to those who provide, use, or are affected by information technology. Taylor and Moynihan (2002) write that the main aspect of ethical consideration for Systems Analysts is the uses to which the systems that they develop or maintain will be put. The direct cause of information ethics dilemmas however, is typically a human misuse of IT and information. In the IS field, ethical issues (reading other's computer files, software use, unauthorized copying of software, etc.) fall under four broad categories identified by Mason (1986) from a social orientation perspective: privacy, accuracy, property, and access.

7.1 Privacy:

Privacy is a high profile public policy issue that affects society at large and specifically consumers and users of information. For example, the explosion of e-Business and online marketing brings new privacy concerns to new levels leading to the Federal Trade Commission (FTC) scrutiny and review. Yet, industry groups and associations remain active in self regulation efforts.

In an effort to balance commerce, particularly e-commerce with consumer privacy needs, the FTC has relied on fair information principles to guide privacy regulations and industry practices in the United States (FTC1996). The principles include notice/awareness, choice/consent, access/participation, security/integrity, and redress/enforcement. Milue and Boza (1998) write that despite industry self regulation efforts, a survey of 365 organizations belonging to the Direct Marketing Association, found that 38% of the organizations notify customers about the collection of personal information, 33% indicate the use of the information, and

only 26% ask for permission to use the information. These results indicate that less than half of the organizations surveyed practice the fair information principles of notice and choice. The authors also note that the lack of adherence to fair information principles has also been found to be common among organizations that use Web sites to collect personal information.

Other privacy issues have emerged as an after mat of the information technology explosion. For example, the Internet has made it possible for organizations to collect information without the immediate knowledge of the consumers (Caudill and Murphy 2000; Sheehan and Hoy 2000). By the use of cookies and tracking software, organizations are now able to gather new types of information, such as click and viewing patterns that can be used to profile and target individual consumers. The collection of these data allows organizations to sell advertising on their Web sites. This further intensifies the growing and unwanted e-mail solicitations (Petty 2000).

7.2 Accuracy:

Accuracy represents the legitimacy, precision, and authenticity with which information is rendered. Due to the pervasiveness of information about individuals and organizations contained in information systems, particular care must be taken to guard against errors and to correct known mistakes. Questions of accuracy remain paramount when inaccurate information is shared between computer systems. Straub and Collins (1990) describe the legal liability issues associated with inaccurate information. Who is held accountable for the errors? Which party is liable for inexact or incorrect information that leads to serious injury to another? (Ellis and Griffith, 2001). Linderman and Schiano (2001) write that the field of IS needs to develop a coherent ethical position regarding the truth and accuracy of information posted on the Internet, and the propriety of transmitting such if it is not true. The authors cite the ethical (beyond the legal) issues surrounding the misinformation in the Emulex Internet hoax. Emulex is a fiber channel company whose stock value dropped more than \$2.5 million in market value before the Nasdaq Stock Market halted trading of the stock on Friday, August 28, 2000. This was a result of a falsified press release posted on Internet based news service less than an hour earlier, and was subsequently transmitted on Bloomberg and Dow Jones news services. A panic stock sell off triggered by such misinformation resulted in a 62% drop in Emulex stock value. Although the Federal authorities have since arrested a 23year old College student charging him with Security fraud, it only shows that legal recourse has precluded ethical issues and calls for behavior modification in the IS arena.

7.3 Property:

Property refers to the intellectual property rights of the owner (developer) of Information Technology. The concept of property rights is most often applicable to the software development. Advances in Information Technology have made it harder to safeguard one's intellectual work. Mason (1986) argued that the illegal and/or unethical duplications of someone else's work might reduce the incentives to produce future work, resulting in a detrimental long run effect on society at large. According to Eining et al. (1997), attempts at an overview of the legal aspects with a sense of how software property differs from traditional forms of property were made Gemingnani (1985).

Christensen and Eining (1991) examined unethical copying of software among U.S. accounting students and found that attitudes toward piracy and subjective norms were the most important factors contributing to this behavior. Knowledge of copyright laws had very little impact. Yet, another study in the literature, Swing yard et al. (1990) examined the differences in morality and behavior toward software piracy between students in Singapore and the U.S. The study concluded that copyright and other protective legislations run counter to Asian culture. Asian culture supports the concept of sharing, not protecting, individual creative work. The debate continues over the issue of information as a commodity and information as a right.

7.4 Access:

Access refers to the ability to obtain information that is available. Access requires both physical technology and the skills to use that technology (Eining et al.1997). The skills and equipment needed to access these advances in technology are often costly and inaccessible to everyone. Mason (1986) argued that an inequity may have been created in the sense of information access. Eining et al. (1997) concluded that power is often redistributed to people that have access to information and the ability to use that information. Vass (2001) writes, that “those who stand to benefit most from modern science and technology tend to be those who have access to technology.” According to Carbo and Almagno (2001), knowing how to create, find, manage, access and use information effectively provides a form of power to people with access.

8. Methodology:

Information ethics is an important issue. The data upon which research in this area is based are usually very sensitive in nature. For example, Straub and Nance (1987), and DiDio (1998) report that many corporate victims of unethical computer use are extremely reluctant to admit their experience out of fear of further victimization, or that their reputation as a trustworthy organization may be compromised. These facts regarding information ethics research lead to questions of accuracy and reliability, and yet it is important that business understand the depth and form of computer abuse.

Perhaps, the most significant concern in the design and use of survey is the survey’s content. Since a major objective of a study is to have responses that are trustworthy, no questions about “how many”, “how much”, or “how often”, will be included on the survey. Although this may limit the utility of the survey data, Hilton (2000) noted that it also radically improves its validity.

Therefore, consistent with prior research measuring attitudes, ethical behavior, and moral development, a questionnaire was designed for this research study to measure and capture each respondent’s position regarding ethical/unethical behaviors in a set of scenarios relating to use of computers and information. The questionnaire will utilize previously validated instruments and measures. Two sources (Parker 1980; Weiss 1991) were used to identify representative scenarios confronting computer professionals. The scenarios in this research study include previously identified ethical issues such as privacy, accuracy, property, and access (Mason 1986). These dimensions have been utilized and validated in past studies Conger et al.(1995), and Athey (1993).

The selected scenarios will be representative of Mason’s aforementioned ethical issues of privacy, accuracy, property and access. The wordings will not be changed except for gender references such as he, and she to eliminate possible sex bias from the responses. There are also five demographic questions that require participants’ response, and each time the participants are assured that the data will be handled in the aggregate and that no right or wrong answers existed.

9. Survey Administration:

The study will be conducted in lecture rooms. To minimize selection bias, the questionnaire will be administered only in courses required of all students in the majors under study. The questionnaires will be handed out in class and completed by all students present, with possible exceptions of students who may be late to class, then, they will be required to complete the questionnaire outside of the class and return at the next class meeting. All questionnaires are anonymous. Interactions are not allowed, and confidentiality of responses is emphasized.

For each character in a scenario and for each situation associated with that character, the students will decide if the character acted ethically, unethically or if no ethical issue is present. This exercise will take

approximately 30 minutes, however, participants will be allowed the entire 50 minutes that is the time for a regularly scheduled class at this college.

10. Data Processing and Analysis:

A five point response scale ranging from “ethical” to “unethical” with a mid-point of not an ethical issue is utilized for data analysis. The data from this survey is transferred to be analyzed using SPSS for the purposes of performing a comparison of means and t-tests. The rating scale ranges from unethical, a negative five (-5) to 0 which is the not an ethical issue, to a positive five (+5) an ethical issue. Additionally, analysis of variance is done to compare the responses of IS and Business students in terms of the following:

- Gender
- Whether a philosophy course has been taken
- Whether an ethics course has been taken

The mean of the data from the observations of the ethical perceptions of Business students is compared with the observations of the ethical perceptions of CIS students. The goal is to determine if there is a difference between the means and, if so, is this difference significant. The response scale used and the mean comparisons are listed in (Appendix). Utilizing a response continuum rather than the dichotomous response alternatives of “ethical” versus “unethical” acknowledges the fact that many ethical decisions are not clear-cut, but rather, involve both ethical and unethical behavior (Reese and Fremouw 1984).

11. Hypothesis:

H1a: There are no differences in the mean scores on the scenarios between female Business students and female CIS students.

H1b: There are no differences in the mean scores on the scenarios between male Business students and male CIS students.

H2: There are no differences in the mean scores on the scenarios between Business majors and CIS majors.

H3a: There are no differences in the mean score on the scenarios between the groups who have taken and those who have not taken a philosophy course.

H3b: There are no differences in the mean scores on the scenarios between the groups who have taken and those who have not taken an ethics course.

12. Sample:

A total of 88 students participated in this study and most (93.2%) were either junior or senior year students, and sample was about equal related to gender. The ages ranged from 19 to 29 years, with the median age being 22. Thirty one were business majors, eight were accounting majors, 43 were CIS majors, and six had “other” majors. Only nine (10.2%) had ever held a CIS job. In terms of prior course work, 38.6% had taken a prior ethics course, and 55.7% had taken a previous philosophy course (Table 1).

Hypothesis 1a stated, “There are no differences in the mean scores in the scenarios between female business students and female CIS students.” In addition, Hypothesis 1b stated, “There are no differences in the mean scores of the scenarios between male business students and male CIS students.” To test this, a series of one way analysis of variance tests compared the four groups of students for their ratings of unethical behavior

for the 16 scenarios. For none of the ratings based on gender were significantly different at the $p < .05$ level (Table 2). Thus, Hypotheses 1a and 1b were accepted.

Research Hypothesis 2 stated, “There are no differences in the mean scores for the scenarios between business majors and CIS majors.” To test this, a series of t tests for independent means compared the two groups of majors for the 16 scenarios. No significant differences in the ratings were found based on student major (Table 3). Thus, Hypothesis 2 was accepted.

Hypothesis 3a stated, “There are no differences in mean score for the scenarios between groups having taken and those not having taken a philosophy course.” To test this, a series of t tests for independent means compared the two groups for their ethic scores on the 16 scenarios (Table 4). In Scenario 4, those who took a philosophy course ($M = 3.8$) gave higher ratings than students who had not taken the course ($M = 3.3$), $t(86) = 2.23$, $p < .05$ (Table 4). None of the other 15 comparisons were significantly different at the $p < .05$ level. Thus, Hypothesis 3a was accepted.

Hypothesis 3b stated, “There are no differences in mean scores on the scenarios between the groups who have taken an ethics course, and those who have not.” Table 5 displays the t test comparisons between those students who took the ethics course, and those students who did not. Inspection of the results found those who took the ethics course gave significantly higher ratings for the supervisor’s behavior in Scenario 3, $t(86) = 2.13$, $p < .05$ and for the programmer’s behavior in Scenario 4, $t(86) = 2.81$, $p < .01$ (Table 5). In addition, students who took an ethics course ($M = 2.6$) perceived top management’s response as more ethical than those students who had not taken an ethics course ($M = 3.3$), $t(86) = 2.27$, $p < .05$ (Table 5). Thus, Hypothesis 3b was accepted.

In summary, for almost all of the 16 scenarios, no significant differences were found for the ratings of unethical behavior based on school major, gender, completion of an ethics course or completion of a philosophy course. This suggested that CIS students and Business students had similar perceptions of what constituted unethical behavior across a variety of work scenarios.

Table:1*Frequency Counts for Selected Variables (N=88).*

	<i>n</i>	%
School Year		
Freshman	2	2.3
Sophomore	4	4.5
Junior	41	46.6
Senior	41	46.6
Gender		
Male	45	51.1
Female	43	48.9
Age		
Under 21 years	22	25
21 - 22 years	27	30.7
23 - 24 years	27	30.7
25 - 29 years	12	13.6
School Major		
Business	31	35.2
Accounting	8	9.1
CIS	43	48.9
Other	6	6.8
CIS Job		
Yes	9	10.2
No	79	89.8
Prior Ethics Course		
Yes	34	38.6
No	54	61.4
Prior Philosophy Course		
Yes	49	55.7
No	39	44.3
Gender with Major^a		
Male CIS	27	32.9
Female CIS	16	19.5
Male Business	15	18.3
Female Business	24	29.3

^a Six students with "Other" majors not include

Table-2*Unethical Behavior Ratings^a Based on Student Gender and Major (n = 82).*

					Male Business		Female Business		

* $p < .05$ ^a Rating: "1" = "Strongly Disagree (Ethical)" "3" = "Neutral"
"5" = "Strongly Agree (Unethical)"

Note: Six students with "Other" majors excluded.

Note: Six students with other majors excluded.									
	Male CIS		Female CIS		Male Business		Female Business		<i>F</i> (3, 78)
	<i>n</i> = 27	<i>n</i> = 16	<i>n</i> = 15	<i>n</i> = 24					
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Scenario 2 - Billing and Credit System									
Project Leader	3.4	1.2	3.6	1.1	3.4	1.4	3.1	1.3	0.67
Management - Premature	3.6	1.3	3.5	1.3	3.7	1.2	3.9	1.3	0.34
Management - Blame	4	1.3	4.1	1.1	3.7	1.3	3.9	1.4	0.34
Scenario 3 - Voting Machine									
Software Engineer	2.9	1.5	3.3	1.4	2.4	1.4	3	1.3	1.04
Supervisor	3.9	1.5	4.1	1	4.5	0.8	4.3	0.9	1.13

* $p < .05$ ^a Rating: "1" = "Strongly Disagree (Ethical)" "3" = "Neutral"
"5" = "Strongly Agree (Unethical)"

Note: Six students with "Other" majors excluded.

					Male Business		Female Business		<i>F</i> (3, 78)
	Male CIS		Female CIS		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
	<i>n</i> = 27	<i>n</i> = 16	<i>n</i> = 15	<i>n</i> = 24					
Scenario 4 - Marketing Profiles									
Programmer	3.6	1.1	3.1	1.4	3.9	1.1	3.8	1.2	1.26
Scenario 5 - Tax Law Software									
President - Marketing	3.9	1.2	3.4	1.1	4.1	1.3	4	1.3	1.19
President - Disclaimer	3	1.4	2.3	1.2	2.5	1.4	2.9	1.6	1.1
President - Industry Policy	3.7	1.3	3.7	1.3	3.5	1.5	3.8	1.3	0.15

* $p < .05$ ^a Rating: "1" = "Strongly Disagree (Ethical)" "3" = "Neutral"
"5" = "Strongly Agree (Unethical)"

Note: Six students with "Other" majors excluded.

					Male Business		Female Business		

* $p < .05$ ^a Rating: "1" = "Strongly Disagree (Ethical)" "3" = "Neutral" "5" =
"Strongly Agree (Unethical)"

Note: Six students with "Other" majors excluded.

13. Recommendations:

The field of Information Systems ethics is empirically underdeveloped. Therefore, researchers, practitioners and academics must continue to conduct empirical studies to provide and gather data that can help to strengthen the statistical and empirical foundation of IS ethics. This study has contributed to this effort by further illuminating the importance of providing ethics training and education to Information Systems students. It also adds a valuable perspective to the assessment of information systems ethics among students.

Consistent with the results of Conger et al. (1995), this study found a lack of consensus among students about most Information Systems ethical scenarios. This provides confirming evidence of the complex nature of IS ethical perceptions and decision-making. Additionally, the observed differences between Business majors and Information Systems majors indicated that people have a tendency to perceive many ethical situations differently based on their experiences. As a result, integration of ethics courses in the curriculum of IS programs can benefit students by expanding their awareness and sensitivity about ethical issues relating to computer use. This includes increasing awareness of the types of ethical dilemmas that are related to computer-use in the workplace and the sources of guidance that are available for solving these issues, such as professional codes of conduct, company codes of conduct, and different ethical schools of thought. This study opens many avenues for future investigations. Although early studies including this needed to call attention to the problem of Information Systems ethics, that need has been sufficiently satisfied. Now, the need is for theoretical and empirical data to support research in the field. Thus, future studies are encouraged to extend this study by investigating Information Systems ethics using additional samples, and different research methods. A potential option for future research is to replicate this study using DBA or MBA students as opposed to undergraduates.

A second potential avenue for future research is to use alternative research methods to broaden our knowledge about this field. Business ethics research has predominantly used survey research, and qualitative research techniques have seldom been used (Randall and Gibson, 1990). Therefore, the need exists to broaden our knowledge of IS ethics with qualitative research techniques such as in depth interviews. This approach would be particularly beneficial by enabling researchers to probe ethical perceptions and decision-making processes in a way that surveys typically do not. As a result, researchers could cross-validate the data derived from survey studies, and this could provide an enriched explanations of IS ethical perceptual process and improved theoretical models.

Finally, it should be noted that this study investigated student perceptions about Information Systems ethical issues, which do not necessarily relate to behaviors. Therefore, further research is required to examine the relationship between ethical perceptions, and behavior. Perhaps, that would provide a better understanding about how educating IS students on the subject of ethics might enhance the development of the students ability to identify ethical issues, affected parties, the potential consequences of actions, and one's professional or moral duties as they enter the workforce as Information Systems professionals.

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