

2013

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Recommended Citation

Aderonmu, Omosalewa, Cheryl L. Aasheim, Paige Rutner. 2013. "Development and Testing of a Survey Instrument to Assess Ethical Perceptions of IT and IS Students." *2013 Southeastern INFORMS Conference Proceedings*: 217-241: Southeast Institute for Operations Research and the Management Sciences. source: <http://seinformatics.org/>
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DEVELOPMENT AND TESTING OF A SURVY INSTRUMENT TO ASSESS ETHICAL PERCEPTIONS OF IT AND IS STUDENTS

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ABSTRACT

The purpose of this research study is to design a survey instrument to determine the effectiveness of the information technology (IT) and information systems (IS) programs in teaching ethics and ethical behavior as it relates to the IT profession. As researchers and as teachers, we want to know if students learn what constitutes ethical behavior in the information technology and information system programs and understand the obligations of an information technology professional with regards to ethical behavior in the workplace. A survey was designed as a tool to assess the effectiveness of teaching ethics in IT and IS curricula. The survey addresses ethical issues such as plagiarism, intellectual property rights, computer related issues, privacy concerns, and law and public policy issues. The survey was administered to classes in an IT degree program in Spring 2013. The development and results of the survey are presented.

KEY WORDS: Ethics, ethical behavior, information technology, information system, Georgia Southern University, Information Technology ethics, Association for Computing Machinery (ACM), Association of Information Technology Professionals (AITP).

1. INTRODUCTION

Ethics is the system of moral principles of right and wrong that ought to guide human conduct (Shurden et al., 2010; Masrom et al., 2010). A set of principles of conduct that guide decision making and behavior in an organization is a code of ethics (USLegal.com). Several organizations, including academic organizations, business organizations, and societal organizations, have codes of ethics to guide the conduct of their students, employees or members, respectively. In making ethical decisions, a code of ethics provides humans with guidelines for conduct in their day to day activities within various organizations. As the use of computers has become part of routine work life, the concern over issues of ethics as they relate to computing in organizations continues to grow.

The integration and implementation of IT into the academic and workplace environments has borne rise to a variety of ethical issues. Student's ethical behaviors and values will help form the perception of the institution from external constituents. The varied ethical behaviors and values of students will eventually emerge and appear in the business organizations in which they will be employed. Therefore, it is important to study the ethical beliefs of students in IT related degree programs.

Sound ethical principles, once learned and accepted, impact individuals' behavior not only in the academic environment but also in the workplace. Ethical behavior related to academics in high school leads to higher academic achievement in college (Williams & Zhang, 2009) while a history of cheating in high school is related to a greater willingness to cheat at the college level (Harding et al., 2004). The personal characteristics of college cheaters are comparable to those of individuals who engage in unethical workplace behaviors (Martin et al., 2009). Furthermore, there are profound similarities in the decision processes used to evaluate ethical dilemmas in the college environment and in the workplace environment (Harding et al., 2004).

The purpose of this study is to design a survey instrument to determine the effectiveness of the IT and IS programs in teaching ethics and ethical behavior as it relates to the IT profession. Results of this research will help to explore beliefs and perceptions of ethical behavior of college students in IT and IS programs as well as on what constitutes ethical behavior for IT professionals.

2. LITERATURE REVIEW

Ethics should be an issue of concern for students in their personal lives, in their role in the workplace as well as in their role as a member of society. Ethics can affect an individual, an organization or an institution. Several organizations and companies address the concern of ethics using codes of conduct or ethics. These organizations will be discussed and examined in this section of the paper to better understand what is expected of an individual to be ethical.

Researchers have done studies related to the perceptions of students with regards to ethics in information technology and information system curricula. Many studies have examined students' perceptions of ethical behavior when it comes to the academic environment. Charlesworth and Swery (2002) examine ethical issues within information systems and discuss how these issues fit into the IS curriculum. They further concluded that "Ethics needs to be included into the curriculum and students educated in the process of ethical decision making" (Charlesworth & Swery, 2002, p. 168).

Molnar et al., (2008) mentioned the importance of the study of IT ethics by emphasizing that by working to improve IT ethics in students that it may positively influence the direction of the students IT ethics in the organizations where they work after graduation. Aashiem et al., (2012) focuses on comparing ethical behavior in an IT related class assignment (programming)

to other non-IT related class assignments. The Aasheim et al. (2012) study examines students' attitude towards behaviors which range from acceptable means of seeking help on assignments to unacceptable behaviors such as copying from another student or paying someone to complete an assignment. Although there has been literature which contains or focuses on research studies on ethics in the IT and IS programs (Molnat et al., 2008; Lau et al., 2011; Miller & Engeman, 1998; Sherman, 2007; Aashiem et al., 2012), there has been a lack of specific empirical research on studying student perceptions and beliefs about being ethical in the IT and IS programs as well as students' understanding of ethical behavior as it relates to the IT workforce.

2.1 Relevant Codes of Ethics for IT-Related Degree Programs

This section describes the Association for Computing Machinery (ACM), Association of Information Technology Professionals (AITP), and some major IT companies' codes of ethics, their standards of conduct and their obligations to members and employees as professionals. The Association for Computing Machinery code of ethics (ACM, 1992) and professional conduct is "one of the most widely recognized and publicized code of ethics in information technology" (Perlak, 2007, p.1), examining important ethical areas experienced in IT practice. This code consists of 24 imperatives which apply to one's conduct as a computing professional, formulated as statements of personal responsibility. "The code and its supplemented guidelines are intended to serve as a basis for ethical decision making in the conduct of professional work" (ACM, 1992). In the context of this study, this code has been revised in relation to ethics in the IT and IS programs and the work environment. The ACM code of ethics (ACM, 1992) content and guidelines have been described in the general moral imperatives, special professional responsibilities, organizational leadership imperatives and compliance with the code. The general moral imperatives addresses issues such as a member's contribution to society and human well-

being, avoiding harm to others, honest and trustworthy actions, fair treatment without discrimination, and commitment to honoring proper rights; which includes copyrights and patents, giving proper credit for intellectual property, respecting the privacy of others and honoring confidentiality. With more specific professional responsibilities, as an ACM computing professional, it is expected that one will strive to achieve the highest quality of professionalism in competence at work, respect professional work laws, accept an appropriate professional review, give comprehensive and thorough evaluations of computer systems, honor contracts, agreements and assigned responsibilities, improve public understanding of computing and its consequences, and access computing and communication resources only when authorized to do so. Organizational leadership imperatives address obligations as a member and organizational leader, to articulate social responsibilities of members of an organizational unit and encourage full acceptance of those responsibilities, manage personnel and resources to design and build information systems that enhance the quality of working life, acknowledge and support proper and authorized use of an organization's computing and communication resources, ensure that users and those who will be affected by a system have their needs clearly articulated during the assessment and design of requirements; later the system must be validated to meet requirements, articulate and support policies that protect the dignity of users and others affected by a computing system and create opportunities for members of the organization to learn the principles and limitations of computer systems. In compliance with the code, a member is expected to uphold and promote the principles of the code and treat violations of the code as inconsistent with membership in the ACM (ACM, 1992).

The Association of Information Technology Professionals (AITP) also provides a code of ethics (AITP, n.d.). AITP members have obligations to management, fellow members, society,

employers, college and university, and country and are expected to abide by the code of ethics and follow various standards of conduct. These obligations as stated in the AITP standards of conduct are described below:

“In recognition of my obligation to management I shall:

- Keep my personal knowledge up-to-date and insure that proper expertise is available when needed.
- Share my knowledge with others and present factual and objective information to management to the best of my ability.
- Accept full responsibility for work that I perform.
- Not misuse the authority entrusted to me.
- Not misrepresent or withhold information concerning the capabilities of equipment, software or systems.
- Not take advantage of the lack of knowledge or inexperience on the part of others.

In recognition of my obligation to my fellow members and the professional I shall:

- Be honest in all my professional relationships.
- Take appropriate action in regard to any illegal or unethical practices that come to my attention. However, I will bring charges against any person only when I have reasonable basis for believing in the truth of the allegations and without regard to personal interest.
- Endeavor to share my special knowledge.
- Cooperate with others in achieving understanding and in identifying problems.
- Not use or take credit for the work of others without specific acknowledgment and authorization.
- Not take advantage of the lack of knowledge or inexperience on the part of others for personal gain.

In recognition of my obligation to society I shall:

- Protect the privacy and confidentiality of all information entrusted to me.
- Use my skill and knowledge to inform the public in all areas of my expertise.
- To the best to my ability, insure that the products of my work are used in a socially responsible way.
- Support, respect, and abide by the appropriate local, state, provincial, and federal laws.

- Never misrepresent or withhold information that is germane to a problem or situation of public concern nor will allow any such known information to remain unchallenged.
- Not use knowledge of a confidential or personal nature in any unauthorized manner or to achieve personal gain.

In recognition of my obligation to my employer I shall:

- Make every effort to ensure that I have the most current knowledge and that the proper expertise is available when needed.
- Avoid conflict of interest and insure that my employer is aware of any potential conflicts.
- Present a fair, honest, and objective viewpoint.
- Protect the proper interests of my employer at all times.
- Protect the privacy and confidentiality of all information entrusted to me.
- Not misrepresent or withhold information that is germane to the situation.
- Not attempt to use the resources of my employer for personal gain or for any purpose without proper approval.
- Not exploit the weakness of a computer system for personal gain or personal satisfaction”

(AITP, n.d.)

Different companies and organizations have varying ways of performing business activities. Organizations have established separate codes of conduct to guide their daily activities or business processes. There is some similarity in the established code of ethics or standards of conduct of many companies. The code of ethics or standards of conduct of companies such as Apple, Dell, Microsoft, Google, and AT&T were examined in order to better understand what is expected of students as a professional working in these companies. This understanding has helped generate a series of questions related to the hypotheses that will be discussed later in this study. In the research of these companies’ codes of ethics or standards of conduct, it was discovered that honesty and integrity is highly expected of professionals (AT&T, n.d.; Dell, 2012; Google, n.d.; Microsoft, 2010; Yahoo!, n.d.).

These companies in general address the issue of compliance with the laws, rules and regulations of their company. It is expected of professionals in these companies to abide by the rules and laws established for these companies. Issues addressed include health and safety issues, disclosure of information in companies interest, conflict of interest being addressed in the best interest of the company (Amazon, n.d.), no improper advantage (Dell code of conduct), proper communication, privacy policy issue (Yahoo!, n.d.), the use of information technology and other resources which are the company's assets (AT&T, n.d.), safeguarding confidential information, protection of intellectual property rights, fair judgment or treatment, protecting human rights and environment, respect for others, reporting violations (Apple, 2009), and equality and diversity. Most of issues were addressed in the code of ethics or standards of conduct for these companies.

To mention a few statements as described in the code of conducts of these companies, Yahoo addresses copyrights issues by stating that "the absence of a copyright notice does not necessarily mean the materials are not copyrighted" (Yahoo!, n.d.). It is expected of the employees to check with the legal department if in doubt of copyright issues. Stating that, "articles, images, audio and video recordings, lyrics, TV shows, movies, computer software, and other authored materials may be covered by copyright laws", (Yahoo!, n.d.). Addressing copyright issues and intellectual property rights, Microsoft, a software company, stated in its code of ethics that as a member "we prohibit the making or using of copies of non-licensed copyrighted material, including software, documentation, graphics, photographs, clip art, animation, movie/video clips, sound, and music (Microsoft, 2010)." "Code of ethics provides general guidance on how to carry out our daily activities in accordance with our purpose and values, as well as in compliance with the letter and spirit of applicable legal requirements and Dell policies, standards and ethical principles" (Dell, 2012).

For the benefit of this research, these ethical issues addressed by these organization and companies in their code of ethics and standards of conducts, have been combined in order to develop a survey instrument that will help address the general perceptions and beliefs of student as to what constitute ethics and ethical behavior in the academic and work environment as a student and as a professional, respectively.

3. METHODOLOGY

3.2 Hypotheses

In order to assess the efficacy of the study, three hypotheses were proposed and assessed via the survey instrument. Based on the research findings narrated in the literature review section of this paper, the current research study attempts to examine beliefs of students as to what constitutes ethical behavior in the IT and IS programs. Secondly, the study investigates students' beliefs as to what constitutes ethical behavior in the workplace. It was decided that the survey instrument would be designed in such a way that various statements would be posed as scenarios and students would be asked to choose the response that best reflects their opinion about each of the behaviors stated as it applies to their ethical perceptions (See the Appendix for survey questions). Ethical behavior encompasses or deals with variety of circumstances that surround the academic and workplace environment. Therefore, Hypothesis I was established to help comprehend what constitutes ethical behavior in the IT and IS programs' as perceived by students in those programs at the authors' institution.

Hypothesis 1 (H1): Students in IT and IS programs understand what constitutes ethical behavior in their programs.

The question of whether IT and IS programs students are ready to be an ethical IT professional in the work environment is the basis for Hypothesis 2. Hypothesis 2 helps faculty understand if students in the authors' institution in the IT and IS programs understand their obligations as an IT professional with regard to ethical behavior in the workplace.

Hypothesis 2 (H2): Students in IT and IS programs understand the obligations of an IT professional with regards to ethical behavior in the workplace.

Finally, a comparison of the perceptions of freshmen and senior students will be made to determine whether faculty are effective at teaching ethical behavior. Hypothesis 3 expresses the belief that ethical perceptions of these two groups of students will differ and that seniors will be more knowledgeable than freshman.

Hypothesis 3 (H3): The ethical perceptions reported by freshmen IT and IS students will differ from that reported by senior IT and IS students.

3.2 Survey Design

Extensive research on various codes of conduct or ethics as well as extensive literature review of issues related to ethical behavior provided the foundation for the questions on the survey (See Section 2 of the Appendix for survey questions). Table 1 provides a mapping of the survey questions to the source used in developing the question as well as a mapping of the survey questions to the hypothesis addressed by that question. Questions related to the academic environment on the survey are used to address the general issues related to beliefs and understanding of ethical behavior of students in the IT and IS programs. The general perception questions are to address the understanding of ethics as an IT and IS student or as a prospective IT professional. General moral imperative questions are to address the general issues related to beliefs about and understanding of ethical behavior as a student in a general perspective, in the

IT and IS programs, and as a professional in the work environment. Organization and profession questions are to address the general issues related to beliefs about and understanding of professional ethical behavior. There are questions that address and recognize the need for codes of ethics in an academic or work environment.

The questionnaire consisted of two sections. The first section of the questionnaire consisted of questions about the participants demographics. In the second section, a brief statement was cited to explain to the students that the section is about their ethical beliefs (see Appendix). The second section of the survey instrument consisted of various statements which will be used to test the hypotheses related set forth in the study. The demographic questions do not include any form of information that could be used to associate any participants with a response. The survey instrument presents no identified risk to the participants. Therefore, the students' personal or confidential information and privacy rights were protected.

Topic (Ethical Issues)	Code of Conduct	Survey Question
Software Piracy (Copyright)	Companies	12, 13, 14, 15, 16, 17, 18, 19, 44
Intellectual Property rights	AITP & ACM & Companies	1, 2, 4, 5, 7, 8, 10, 21
Plagiarism	AITP & ACM	1, 3, 6, 8, 9, 10, 23
Privacy Rights/Issues	AITP, ACM & Companies	8, 20, 21, 24, 28, 30, 34, 35, 36
Misuse of computer and other technological resources	AITP, ACM & Companies	11, 20, 22, 31, 32, 33, 34, 35, 42, 44
Cheating	AITP & ACM	4, 5, 8
Fair Treatments, Thoughts, Decisions, and Judgments	AITP, ACM and Companies	25, 26, 27, 29, 37, 39, 40, 41, 43, 45, 46, 47, 48, 49, 50
Honesty, Integrity and Trust	AITP, ACM and Companies	28, 29, 30, 34, 36

Table 1: Mapping of survey questions to hypotheses and code of conducts topic areas

The questions in the survey amounted to a total of 50 questions plus the demographic questions. The questions were directed to understand ethical beliefs of students in the IT and IS programs and as a prospective IT professional. For each question, students were asked to indicate

their ethical perception or belief as a student in either the IT or IS program and as a professional in the work environment. For each survey question, it was stated for the respondent to choose the response that best reflects their beliefs with regard to ethics. The responses are scaled on a 5-point Likert scale with 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, and 5 = Strongly Agree. These statements related to unethical behaviors such as software piracy, copyright and intellectual property rights, plagiarism, privacy rights/issues, misuse of computer and other technological resources, cheating, fair treatment, and thoughts, decisions, and judgment and honesty, integrity and trust in the academic and work environments.

Feedback from select professors in the IT and IS departments was used to review the questions in the survey instrument to determine if the survey addressed the needs of the respective departments. Also, with regard to the fact that the questions on the instrument were developed using the codes of conduct of various information technology companies, the code of ethics for ACM, the code of ethics for AITP, and various related research studies suggested criteria for evaluating factors affecting ethical perceptions, the survey questionnaire had desirable validity from an expertise standpoint.

4. RESULTS

The survey was built and administered using Qualtrics, an online survey tool that is currently licensed at the authors' institution. The survey was administered in several IT classes identified in Table 2. The survey was anonymous.

To assess whether or not students learn ethical behavior as it relates to information technology during their time in the IT program, responses from students in freshman level courses will be compared to responses from students in senior level courses. The first section of the survey asked for demographic information (see Appendix – Survey Instrument). In the

second section of survey questionnaire, students were asked to choose their level of agreement on a variety of question statements measured on a five-point Likert scale of (1) strongly disagree to (5) strongly agree as they perceived or believed the statement to describe ethical or unethical behavior. A total of 90 students participated in the survey questionnaire with 87 responses complete enough to include in the analysis.

Course	Description
IT 1130 (Introduction to Information Technology)	It also provides students with an introduction to the range of applications of Information Technology. It introduces students to some of the techniques that they will need for later courses, in particular object-oriented design and databases and SQL.
IT 4335 (Network Architecture)	The course covers the hardware required for interconnecting digital devices for the purpose of enabling data communications through a network. Bus architectures, ports, network cards, cabling, routers, switches. Ensuring network reliability. Optimizing network performance.
IT 4131 (Information Technology Capstone Project)	The course covers the main topics of IT project management including requirements specification, project integration, scope, time, cost, quality, human resources, communications, and risk management. In addition, techniques and methods used in IT project management will be covered. To reinforce the course concepts, students will complete projects related to their specialization and/or second discipline.

Table 2: Courses where students were surveyed

4.1 Demographic Results

Thirteen percent (13%) of respondents were female and 87% were male. This is consistent with the gender break down of the overall population of the IT program. The majority of respondents were information technology majors (83%), with 3% information systems students and the remaining 14% of the respondents represented a variety of other majors. The 14% in other majors are students registered in the introductory course where many students are still trying to figure out what major they want to be.

Students were predominantly typical college aged students with 74% of the respondents between 19 and 24 years old. This is also consistent with the breakdown of students at the authors' institution as it is a typical university campus.

4.2 Hypothesis Results

The first hypothesis concern students' perceptions and beliefs about ethical behavior in the IT and IS programs in an academic environment. The results related to Hypothesis 1 can be found in Table 3. Note that students strongly agree about how unethical it is to take credit for other's work, cheat and plagiarize. However, they are mixed in their sentiments regarding software piracy.

Question: As an IT/IS student, I believe it is unethical to:	Mean	Standard Deviation
Take credit for someone else's work	4.50	0.91
Hire someone to write an essay	4.27	1.07
Purchase or submit a research or term paper from the internet to a class as one's own work	4.44	0.98
Cheat on a graded assignment	4.26	0.99
Cheat on an exam	4.37	1.01
Plagiarize other people's work without citing or referencing the work	4.28	0.98
Add the name of a non-contributing person as an author in a project/research study	4.02	1.00
Copy and paste material found on the Internet for an assignment without acknowledging the authors of the material	4.03	1.16
Deliberately provide inaccurate references for a project or research study	4.39	0.91
Knowingly permit student work done by one student to be submitted by another student	4.21	1.01
Surf the internet for personal interest and non-class related purposes during classes	2.55	1.11
Make a copy of software for personal or commercial use	2.98	1.25
Make a copy of software for a friend	2.86	1.09
Loan CDs of software to friends	2.55	1.15
Download pirated software from the internet	3.05	1.18
Distribute pirated software from the internet	3.51	1.10
Buy software with a single user license and then install it on multiple computers	2.91	1.19
Share a pirated copy of software	3.25	1.14
Install a pirated copy of software	3.03	1.23

Table 3: Results related to hypothesis 1

The second hypothesis (H2) is concerned with the perceptions or beliefs of students as to what constitutes ethical behavior in the work environment as IT professionals. The results related to Hypothesis 2 can be found in Table 4. Note that students tend to strongly agree with the statements related to ethical behavior in the workplace.

Question: As an IT/IS professional I believe (or I should):	Mean	Standard Deviation
Providing unauthorized access to other people's personal information to be unethical	4.46	0.87
I have an obligation to respect and protect the integrity of intellectual property and confidentiality agreements	4.22	0.93
Using social media networking as a tool for cyber-bullying to be unethical	4.37	0.92
It is unethical, and potentially unlawful, to take an unauthorized copy of someone else's work	4.20	1.00
Providing unauthorized access to an organization's private information to be unethical	4.41	0.84
Ethical behavior is better understood by information technology and information system students than students in other majors	3.18	1.28
Education has an influence on one's ethical behavior	3.79	1.24
Being ethical is important in the information technology sector	4.26	0.94
Not disclose confidential organizational information to co-workers without authorization	4.30	0.94
Uphold and abide by the laws, code of conduct, ethical and moral principles of my organization	4.23	0.92
Not violate the privacy and confidentiality of information entrusted to me to further personal interest	4.29	0.90
Not surf the internet for personal interest and non-work related purposes at work	3.16	1.16
Not involve in the act of phishing (unauthorized stealing of people's valuable data)	4.32	0.87
Not involve in the act of email spoofing (deformation of email for phishing purposes)	4.36	0.85
Not violate other people's privacy with the use of internet monitoring devices	4.10	1.01
Not use technology to infringe on other people privacy rights	4.18	0.99
Adhere to strict confidentiality rules regarding privacy and proprietary matters	4.23	0.94

Table 4: Results related to hypothesis 2

Hypothesis 3 proposed that students become more knowledgeable about what constitutes ethical behavior in the workplace as they progress through the IT program. To assess this hypothesis, responses from freshmen level courses were compared to those in the senior level courses using an independent samples t-test. Table 5 shows the results for those t-tests. Note that in general, the difference is positive, which indicates that seniors are more knowledgeable than freshman and in many cases, that difference is significant. However, there are two statements that resulted in a negative statistically significant difference, indicating seniors were in lesser agreement with these statements than freshman, which is cause for concern.

Question: As an IT/IS professional I believe (or I should):	p-value	Difference of means
Providing unauthorized access to other people's personal information to be unethical	0.2919	0.11
I have an obligation to respect and protect the integrity of intellectual property and confidentiality agreements	*0.0488	0.36
Using social media networking as a tool for cyber-bullying to be unethical	*0.0196	0.45
It is unethical, and potentially unlawful, to take an unauthorized copy of someone else's work	0.2226	0.17
Providing unauthorized access to an organization's private information to be unethical	0.1754	0.18
Ethical behavior is better understood by information technology and information system students than students in other majors	*0.0256	-0.53
Education has an influence on one's ethical behavior	*0.0201	-0.53
Being ethical is important in the information technology sector	0.1616	0.21
Not disclose confidential organizational information to co-workers without authorization	**0.0680	0.34
Uphold and abide by the laws, code of conduct, ethical and moral principles of my organization	**0.0996	0.27
Not violate the privacy and confidentiality of information entrusted to me to further personal interest	**0.0612	0.32
Not surf the internet for personal interest and non-work related purposes at work	0.2480	-0.18
Not involve in the act of phishing (unauthorized stealing of people's valuable data)	**0.0549	0.32
Not involve in the act of email spoofing (deformation of email for phishing purposes)	**0.0750	0.28
Not violate other people's privacy with the use of internet monitoring devices	0.4634	0.02
Not use technology to infringe on other people privacy rights	0.1851	0.20
Adhere to strict confidentiality rules regarding privacy and proprietary matters	0.1554	0.22

*Significant at 5%, **Significant at 10%

Table 5: Results related to education making a difference

5. CONCLUSIONS/RECOMMENDATIONS

The findings in this research study presented several ethical implications in the academic environment as well as the professional environment. The question of how to address unethical behavior in students is complex. Though, no conclusions can yet be drawn about the ethical behavior of students in the IT and IS programs, the survey instrument does provide faculty in

both programs with the ability to collect and analyze the data to draw those conclusions, which was the original goal of this study.

Though, the student responses were anonymous and the survey was definitely voluntary the response result to the survey questionnaire was deliberate. The value to be derived from this survey assessment is the importance of improving students learning and understanding of ethics. The objective of this study was to develop a survey instrument that will help faculty assess students understanding of what constitutes ethical behavior in the IT and IS programs and in the work environment as a professional. Furthermore, the survey instrument can be used to assess the difference in the perceptions and beliefs at different college levels. For example, the ethical beliefs of freshman students can be assessed and compared with the ethical beliefs of senior students to see if there is a better understanding of what constitutes ethical behavior as students' progress through the IT and IS programs.

In conclusion, this study was undertaken to gauge the ethical beliefs of students with a survey instrument to be administered online through Qualtrics. With the intent of pilot testing the survey instrument, the survey questions were administered online through the online survey tool and the students' responses with regard to their beliefs on ethical issues surrounding the academic and work environment was gathered and analyzed. The result of pilot testing was a success from the responses gathered from the students. Qualtrics also prove the capability of analyzing the result and addressing the hypotheses through the findings. The findings address the hypotheses by supporting the fact the students were able to provide responses that address all hypotheses.

As the survey instrument was administered to a limited sample, both in size and scope, that was designed to be used as a pilot test of the instrument, the findings cannot be generalized. Future research will involve administering the survey to a larger sample in multiple departments.

In addition, a mechanism will be devised to pair the data so that the results of the survey administered to a student at the freshman level can be compared to results for that same student at the senior level.

6. REFERENCES

- Aasheim C., Rutner, P., & Lixin, L. (2012). Attitudes on Plagiarism in Programming Courses: Results from a Survey on Student Perceptions. *42nd Conference of the Southeast Decision Sciences Institute*. Retrieved from http://www.sedsi.org/2012_Conference/proc/p111014005.pdf.
- Amazon. (n.d.). Corporate Governance: Code of Business Conduct and Ethics. Retrieved from <http://phx.corporate-ir.net/phoenix.zhtml?c=97664&p=irol-govConduct>
- Apple. (2009). Apple Supplier Code of Conduct. Retrieved from http://www.apple.com/supplierresponsibility/pdf/Supplier_Code_of_Conduct_V3_1.pdf
- Association for Computing Machinery (ACM). (1992). ACM Code of Ethics and Professional Conduct. Retrieved from <http://www.acm.org/about/code-of-ethics>
- Association of Information Technology Professional (AITP). (n.d.). Code of Ethics. Retrieved from <http://www.aitp.org/?page=Ethics>
- AT&T. (n.d.). AT&T Inc. Code of Ethics. Retrieved from <http://www.att.com/gen/investor-relations?pid=5595>
- Charlesworth, M. & Sewry, D. A. (2002). Ethical Issues in Enabling Information Technologies. *Proceedings of South African Institute of Computer Scientists and Information Technology 2002*, 163-171.

Dell. (2012). How We Win: Code of Conduct. Retrieved from

<http://i.dell.com/sites/content/corporate/corp-comm/en/Documents/Dell-Code-of-Conduct-External.pdf>.

Google. (n.d.). Code of Conduct. Retrieved from

<http://investor.google.com/corporate/code-of-conduct.html>

Harding, T., Carpenter, D., Finelli, C., & Passow, H. (2004). Does Academic Dishonesty Relate to Unethical Behavior in Professional Practice? An Exploratory Study. *Science and Engineering Ethics*, 10, 311-324.

Lau, L., Caracciolo, B., Roddenberry, S., & Scroggins, A. (2011). College Students' Perception of Ethics. *Journal of Academic & Business Ethics*, 5, 1-13.

Martin, D. Rao, A., & Sloan, L. (2009). Plagiarism, Integrity, and Workplace Deviance: A Criterion Study. *Ethics and Behavior*, 19(1), 36-51.

Masrom, M., Ismail, Z., Hussein, R., and Mohamed, N. (2010). An Ethical Assessment of Computer Ethics Using Scenario Approach. *International Journal of Electronic Commerce Studies*, 1(1), 25-36.

Microsoft. (2010). Microsoft Standards of Business Conduct. Retrieved from

<http://www.microsoft.com/en-us/legal/compliance/Buscond/default.aspx>.

Miller, E. H. & Engeman, J. K. (1998). Ethical Behavior in an Information-Based Educational Environment. *Journal of Computing Sciences in Colleges*, 13(5), 121-131.

Molnar, K., Kletke, M., & Chongwatpol, J. (2008). Ethics vs. IT Ethics: Do Undergraduate Students Perceive a Difference? *Journal of Business Ethics*, 8(4), 657-671.

- Perlak, R. A. (2007). A Review of the Impact of ACM Code of Conduct on Information Technology Moral Judgment and Intent. *Journal of Computer Information Systems*, 47(3), 1-10.
- Sherman, C. A. (2007). Ethics: Making it Real for Information Technology Students. *Journal of Computing Sciences in Colleges*, 22(3), 168-174.
- Shurden, S. B., Santandreu, J., & Michael C. Shurden, M. C. (2010). How Student Perceptions of Ethics Can Lead to Future Business Behavior. *Journal of Legal, Ethical & Regulatory Issues*, 1(13), 117-127.
- William, S. L. & Zhang, P. (2009). The Academic Ethic and the Transition to College. *College Student Journal*, 43(1), 86-98.
- Yahoo! (n.d.). Winning with Integrity: Yahoo!'s Code of Ethics. Retrieved from <http://files.shareholder.com/downloads/YHOO/660619262x0x239565/4f32ddd0-82e5-47c2-ac71-75403ebbb404>

APPENDIX – SURVEY INSTRUMENT

Section 1: Demographic Questions

Gender

- Male
- Female

Age

- 16 -18 years
- 19 – 21 years
- 22 – 24 years
- 25 – 27 years
- 28 – 30 years
- Specify ()

Race/Ethnicity

- Asian
- Black or African American
- Hispanic
- Native American
- White/Caucasian
- Specify ()

College Level

- Freshman
- Sophomore
- Junior
- Senior
- Graduate

Marital Status

- Single
- Married
- Divorce
- Specify ()

Major

- Information System (IS)
- Information Technology (IT)
- Specify ()

Work Experience

- None
- 0 – 1 year
- 2 – 4 years
- 5 – 7 years
- 8 years and above

Section 2: Question Related to Ethics

For each statement, please choose the response that best reflects your opinion about each of the behavior below as it applies to your ethical perceptions. All questions answered using a 5 point Likert scale ranging from 1 - Strongly Disagree to 5 - Strongly Agree.

As an information technology (IT) or information system (IS) student, I believe it is unethical to

1. Take credit for someone else's work
2. Hire someone to write an essay
3. Purchase or submit a research or term paper from the internet to a class as one's own work
4. Cheat on a graded assignment
5. Cheat on an exam
6. Plagiarize other people's work without citing or referencing the work
7. Add the name of a noncontributing person as an author in a project/research study
8. Copy and paste material found on the Internet for an assignment without acknowledging the authors of the material
9. Deliberately provide inaccurate references for a project or research study
10. Knowingly permit student work done by one student to be submitted by another student

As an information technology (IT) or information system (IS) student, I believe it is unethical to

11. Surf the internet for personal interest and non-class related purposes during classes
12. Make a copy of software for personal or commercial use
13. Make a copy of software for a friend
14. Loan CDs of software to friends
15. Download pirated software from the internet
16. Distribute pirated software from the internet
17. Buy software with a single user license and then install it on multiple computers
18. Share a pirated copy of software
19. Install a pirated copy of software

As an IT/IS professional, I believe

20. Providing unauthorized access to other people's personal information to be unethical
21. I have an obligation to respect and protect the integrity of intellectual property and confidentiality agreements

22. Using social media networking as a tool for cyber bullying to be unethical
23. It is unethical, and potentially unlawful, to take an unauthorized copy of someone else's work
24. Providing unauthorized access to an organization's private information to be unethical
25. Ethical behavior is better understood by information technology and information system students than students in other majors
26. Education has an influence on one's ethical behavior
27. Being ethical is important in the information technology sector

As an IT/IS professional, I should

28. Not disclose confidential organizational information to co-workers without authorization
29. Uphold and abide by the laws, code of conduct, ethical and moral principles of my organization
30. Not violate the privacy and confidentiality of information entrusted to me to further personal interest
31. Not surf the internet for personal interest and non-work related purposes at work
32. Not involve in the act of phishing (unauthorized stealing of people's valuable data)
33. Not involve in the act of email spoofing (deformation of email for phishing purposes)
34. Not violate other people's privacy with the use of internet monitoring devices
35. Not use technology to infringe on other people privacy rights
36. Adhere to strict confidentiality rules regarding privacy and proprietary matters

As a member of society, I should

37. Advise in an honest and trustworthy manner to enable people to behave ethically
38. Be ethical in my behavior in all aspects of life
39. Protect fundamental human rights
40. Respect the diversity of all cultures
41. Abide by and not violate the laws of the country and community
42. Not misuse computing or technology resources
43. Report any violations of ethical regulations to an authority
44. Protect against the act of piracy (downloading or copying copyrighted music/video/books/software or any electronic materials)
45. Take action if I catch someone involved in unethical use of computing resources

As an IT/IS student or professional, I believe

46. Establishing an organizational code of ethical standards encourages employees in that organization to behave ethically
47. Establishing a code of ethics for IT professionals encourages IT/IS professionals to behave ethically
48. Students acquire and develop their ethical standards by taking ethics as a part of the IT/IS curriculum
49. Ethical standards are important in IT/IS programs Ethical standards should always be included in the IT/IS curriculum

50. Establishing an organizational code of ethical standards encourages employees in that organization to behave ethically