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Maslin Masrom

*Department of Science, College of Science and Technology University Technology Malaysia, Kuala Lumpur, Malaysia,*  
maslin@citycampus.utm.my

Zuraini Ismail

*Department of Science, College of Science and Technology University Technology Malaysia, Kuala Lumpur, Malaysia,*  
zurainisma@citycampus.utm.my

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## Computer Ethics Awareness Among Undergraduate Students in Malaysian Higher Education Institutions

Maslin Masrom

Zuraini Ismail

Department of Science, College of Science and Technology

University Technology Malaysia, Kuala Lumpur, Malaysia

Email: [maslin@citycampus.utm.my](mailto:maslin@citycampus.utm.my); [zurainisma@citycampus.utm.my](mailto:zurainisma@citycampus.utm.my)

Ramlah Hussein

Department of Information System, Kulliyah of Information & Communication Technology

International Islamic University Malaysia, Kuala Lumpur, Malaysia

Email: [ramlah@iiu.edu.my](mailto:ramlah@iiu.edu.my)

### Abstract

*This study investigates the ethical awareness of computer use among undergraduate computer science students at two public Malaysian universities. One hundred and fifty-nine students were asked to evaluate the code of ethics pertaining to computer ethics. A comparison of undergraduate computer science students between two public universities was done to determine the level of ethical awareness of computer use. Independent Samples T-test for differences was performed across four distinct groups, that is, university, gender, age, and duration of computer use. The results of the tests conducted indicate that the ethical awareness of computer use of the students differ most significantly on the basis of the university itself. There were minimal differences across gender, age and duration of computer use. This suggests that computer ethics awareness training is needed for university users. The results are discussed and the implications for studies in an education context are outlined.*

### Keywords

Ethics, Computer, Awareness, Higher Education, Malaysia.

### INTRODUCTION

The Information and Communication Technology (ICT) has proliferated in many walks of life, and the success of many businesses today depends on people who are computer literate. In an information-based society, we constantly confronted with radical changes and the need to create new attitudes towards new situations stemmed from the computer technology. Issues caused by computer technology use basically have three unique characteristics namely, new concerns are rapidly emerging, computer ethics present a continuous stream of new situations, and computerized information systems are usually complex (Martin & Yale-Weltz 1999). Many higher learning institutions in Malaysia along with other countries have incorporated ICT courses into their curriculum in order to provide knowledge of computer and ICT to their students either undergraduates or graduates. As a result, these basic knowledges are essential in making the undergraduates or graduates students computer literate and therefore more marketable.

According to Namlu and Odabasi (2007), computer science is a rapidly changing field and it is hard to forecast what the future holds. Similarly, the increased use of computers in university classrooms is becoming ubiquitous, and its' effect on students' learning in future is still unknown. This phenomenon forces educators and students to be informed about computer ethics. Since the computer is one of the most important technological advances of the twenty first century, it becomes a part of the educational environment whereby students of all majors are using computers as research and communication tools.

As the students become increasingly computer literate, the gap between technology and students' intellect notably shrink (Sackson 1996). The readily available computer hardware and software have enlightened many people but, in turn, have increased the use of computers for illegal purposes or unethical activities such as unauthorized access and use of computer systems. Therefore, what have been the social costs and benefits of using computers? ICT introduces change that creates ethical issues. In this instance, computer ethics are becoming increasingly relevant topics of study. The future generation of ICT professionals need to be prepared to face the ethical challenges of a technologically and socially dynamic world.

Recently, there has been an increased interest in ethical standards for computer users. Many studies have questioned whether today's ICT user is a responsible and an ethical user (Baase 2003; Gan & Koh 2006; Masrom & Ismail 2008; Turner & Roberts 2001) Most of these studies have focused on larger business entities,

information system professionals, educators and students. In this paper we investigate these studies further. The aim of this study is to examine the computer ethics awareness among undergraduate computer science students in Malaysian higher education institutions. This study sought to answer the following questions: (a) Do undergraduate computer science students have different ethical perceptions on computer use ethics?; (b) Do female undergraduate computer science students and male undergraduate computer science students have different ethical perceptions on computer use ethics?; and (c) Do the duration of computer use influence the undergraduate computer science students ethical perceptions on computer use ethics?

This paper is organized into five sections. Firstly, it introduces the research area. Secondly, it describes a literature review. Thirdly, it presents the research methodology. Fourthly, it describes and discusses the results. Finally, it draws the conclusion and provides recommendations for further research.

## **LITERATURE REVIEW**

This section reviews the literature firstly on computer ethics definitions followed by studies done pertaining to this context.

### **What is Computer Ethics ?**

The term “computer ethics (CE)” may seem vague and not at all important to many people, especially those who hold the view that technologies should deal with technology, and philosophers with philosophy and ethics (Couger 1989). Yet many computer science educators hold a different view, namely that the understanding of CE to students is as important as the understanding of technological topics (Barnard, de Ridder and Pretorius 2001).

The literature offers numerous definitions and notions of the terms CE. Among others, Maner (1980) defines CE as one that examines ethical problems aggravated, transformed or created by computer technology.

Johnson (1985) then states that CE studies the way in which computers pose new versions of standard moral problems and moral dilemmas, exacerbating the old problems, and forcing us to apply ordinary moral norms in uncharted realms.

Moor (1985) provides a much broader definition of computer ethics than those of Maner and Johnson. He defines CE as a field concerned with policy vacuums and conceptual muddles regarding the social and ethical use of information technology.

Further, according to Terrell Ward Bynum (Lockhorst 1998) developed broad definition of CE, that is CE identifies and analyzes the impacts of information technology on such social and human values as health, wealth, work, opportunity, freedom, democracy, knowledge, privacy, security, self-fulfilment, etc.

Breij (2001) states that CE as a field of study, is part of a wider field of study which may be called social and humanistic studies of computing (SHC). SHC is defined as theoretical of the way in which various forms of information technology shapes, and are themselves shaped by, aspects of individuals, collectives or social systems that constitutes part of the environment within which one or more computer systems are used.

Barnard, de Ridder and Pretorius (2003) describe the term CE as the study of those behavioural actions of IT professionals that will benefit all of society. In addition, Baase (2003) defines CE as a category of professional ethics similar to medical, legal, teaching and accounting ethics. He states that CE involves ethical issues faced by a computer professional as part of the job.

Based on the plethora definitions, it is more timely, for this study, the authors adopt the comprehensive definition of computer ethics as ethics related to computer use or technology. This is because this definition gives the strong emphasis on ethical action of computer users either ethical (good action) or unethical (bad action) while using the computer.

### **Computer Ethics in Higher Education**

Dolado (2000) asserted that the general feeling is that moral principles and ethical behaviour should be taught whenever a profession wants to be established. In this context, the teaching of CE in the preparation of computer professionals, and the education of the general computer user, is an area of increasing importance and interest (Turner & Roberts, 2001). The study of CE is an essential aspect in the education of future professionals.

The importance of computer ethics education for the computing professional was recognized a decade ago, and in this respect, the authors agree with the following excerpt that summarizes the Association of Computing Machinery (ACM) / Institute of Electrical and Electronics Engineers (IEEE) Joint Curriculum Taskforce’s position regarding computer ethics in education (Martin & Yale-Weltz, 1999, p.6):

*“Undergraduate need to understand the basic cultural, social, legal, and ethical issues inherent in the discipline of computing. They should understand where the discipline has been, where it is, and where it is heading. They should understand their individual roles in this process, as well as appreciate the philosophical questions, technical problems, and aesthetic values that play an important part in the development of the discipline... Students also need to develop the ability to ask serious questions about social impact and to evaluate proposed answers to these questions.”*

Reviews of the literature had demonstrated a number of studies pertaining to ethical beliefs and attitudes of university students towards computer use. Among others, Sims, Cheng, and Teegeen (1996) from United States of America developed a profile of those who illegally copy software by looking at undergraduate and graduate students and the extent to which they pirate software. The results revealed males were found to pirate software more frequently than females and older students more than younger students, based on self-reporting. Hay, McCourt, and Fisher (2001) investigated the differences in the ethical perceptions of undergraduate students in a number of computer-related situations. One hundred and eight students of UK/Irish and Malaysian backgrounds were asked to evaluate the ethical implications of eighteen computer-related scenarios. Tests for differences were conducted across cultural background, gender, previous formal ethics education and incremental formal computer education. The results of the tests carried out indicate that the ethical perceptions of the students in computer-related situations differ most significantly on the basis of their cultural backgrounds. Observed differences across gender, previous formal ethics education and incremental formal computer education were minimal.

McCarthy, Halavi, and Aronson (2005) concluded that significant differences existed between male and female computer information systems students in their ethical beliefs. They asserted that it was significant because it supported the industry study gender differences that show the software piracy and hacking tend to be more prevalent amongst males than females. Gan and Koh (2006) used a survey technique in their study at Singapore’s three universities, to examine perceptions of software piracy found that senior respondents or university employees who used university software mainly at their workplace tended to pirate less frequently, while junior respondents or students tended to be pirates more often than the seniors.

Further, the preliminary results of the survey done by North, George and North (2006; 2007) indicated the need for computer ethics awareness for both major and non-major students. They concluded that education is one of the most effective ways to enhance awareness in this arena. Students should learned all the fundamentals about computer and information systems, and also should be made aware of the associated social concerns and issues.

### **Gap in literature**

It is noteworthy that in Malaysia, computer ethics is not offered as an individual subject, but rather the topic is integrated in some related courses, such as the Management Information Systems or Cyber Law and Ethics courses. In this case, the student population is certainly not familiar with the idea that ethical issues related to computer use might be of importance to them in their future career as computer professionals (Namlu and Odabasi 2007). There is a need for computer ethics theme be brought to the forefront of education given the impact technology has on all of our lives (Ben-Jacob 2005). Ben-Jacob pointed out that courses addressing computer ethics issues are prevalent on the graduate level but he contended that it should also be integrated at the undergraduate level.

There is also a need for those who are working with computers to gain an understanding and appreciation of CE. It is therefore necessary to carry out the study for examining the computer ethics awareness among undergraduate computer science students in Malaysian context.

## **RESEARCH MODEL AND HYPOTHESES**

Figure 1 below depicts the research model for the study.

The research hypotheses are as follows:

- H1: Undergraduate computer science students have different ethical perceptions on computer use ethics.
- H2: Female undergraduate computer science students and male undergraduate computer science students have different ethical perceptions on computer use ethics.
- H3: Senior undergraduate computer science students and junior undergraduate computer science students have different ethical perceptions on computer use ethics.
- H4: The duration of computer use influence the undergraduate computer science students ethical perceptions on computer use ethics.

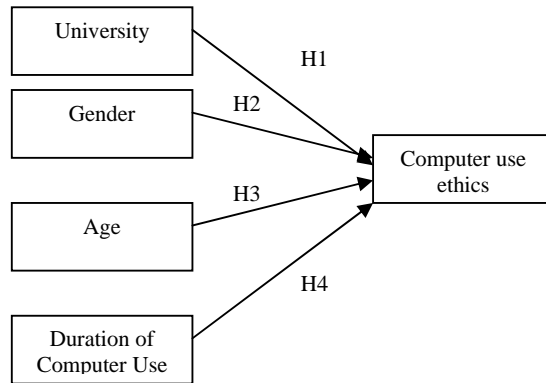


Figure 1: Research Model

## RESEARCH METHODOLOGY

### Respondents

The study was conducted in October 2007. This research used a convenience sampling technique to capture the relevant data of the study. In this instance, data from two public universities in Malaysia were gathered, i.e. University Technology Malaysia and International Islamic University Malaysia. The universities were chosen based on the researchers of this study are from the two universities. The research covered 159 undergraduate computer science students from University Technology Malaysia (UTM) and International Islamic University Malaysia (IIUM). Table 1 shows the demographic profile of the participants by gender, age, duration of computer use, and university. 79 (49.7%) of the respondents were female and 80 (50.3%) were male students. Respondents ranged in age from 20 to 40 years, with an average range of 20-25 years. As illustrated in Table 1, majority of the respondents 61 (38.4%) used the computers between 1 to 11 hours per week for job related either for academic or non-academic purposes. The sample population for UTM was 90 (56.6%), meanwhile for IIUM was 69 (43.4%).

Table 1. Demographic Profile

	<i>Frequency (N)</i>	<i>Percentage (%)</i>
<i>Gender</i>		
1. Female	79	49.7
2. Male	80	50.3
<i>Age</i>		
1. 20-25 years	156	98.1
2. 26-40 years	3	1.9
<i>Duration of computer use for job related purpose (academic/non-academic)</i>		
1. None	4	2.5
2. 1-10 hours	61	38.4
3. 11-20 hours	49	30.8
4. 21-30 hours	20	12.6
5. > 30 hours	25	15.7
<i>University participants</i>		
1.UTM	90	56.6
2.IIUM	69	43.4

### Instrument

A self-report questionnaire was selected as the research instrument. The questionnaire had two-part structure which was designed to solicit responses. The first part measured the demographic data. It was comprised of 4 items which related to participants' profile including gender, age, duration of computer use and university information.

The second part measured participants' ethical awareness of computer use. It contained 10 items, which dealt with code of ethics. Many computer associations or groups such as Association of Computing Machinery (ACM), Institute of Electrical and Electronics Engineers (IEEE) Computer Society, the Data Processing Management Association (DPMA), International Society for Technology in Education (ISTE) and Malaysian National Computer Confederation (MNCC) have developed codes of ethics for their members. The code of ethics is the standard of conduct that guides decisions and actions, based on duties derived from core values (North, George & North, 2006). Objectives of codes of professional ethics, among them, are (Johnson & Snapper 1985): Inspirational – it might be used to inspire members to be more “ethical” in their conduct; Sensitivity – to alert professionals to the moral aspects of their work; Disciplinary – to enforce certain rules of the profession on its members and defend integrity; Advising – to offer guidance in cases of moral perplexity about what to do; and Awareness – to alert prospective clients and employers to what they may and may not expect by way of services from a member of the profession concerned. However, in this study, the code of ethics used for evaluating the computer ethics awareness was based on the published ethical guidelines called “Ten Commandments of Computer Ethics”. These 10 items have been adapted from Rosenberg (1997), and the authors categorized them into three dimensions: Privacy, Property, and Social Impact.

Respondents answered each item in the survey on a six-point scale ranging from 1 (Strongly Disagree), 2 (Disagree), 3 (Somewhat Disagree), 4 (Somewhat Agree), 5 (Agree) to 6 (Strongly Agree). A Likert scale was used to assess the likelihood individuals might engage in the described computer ethics code. That is, the respondents indicated the extent to which they agreed or disagreed that they were might engage in the ethical or unethical behavior. Smaller values of a mean indicate higher levels of computer ethics awareness, and larger values imply lower levels of computer ethics awareness. The survey items are presented in the Appendix 1. Analyses were carried out with SPSS 15.0. Tests using independent sample t-test were conducted to examine the significance of the difference between two sample means on each of the 10 statements.

## RESULTS

Data analyses and discussion of the results were made in light of research hypotheses stated in the outset.

- H1: Undergraduate computer science students have different ethical perceptions on computer use ethics.

Table 2 contains the mean ethical awareness of computer use (scale of 1 to 6). As can be seen in the table, means comparison using independent samples t-test shows that CE awareness level for 9 items among IIUM undergraduate computer science students was significantly higher than UTM undergraduate computer science students. We find that only one item was no significant difference ( $t = 1.41$ ;  $p > 0.05$ ) in ethical awareness of computer use amongst undergraduate computer science students from the two public universities pertaining to “Copy or use proprietary software for which you have not paid” item namely, UTM (Mean = 3.46; S.D. = 1.51) and IIUM (Mean = 3.10; S.D. = 1.65).

Table 2. Comparison of Computer Ethics Awareness by University

No.	Items	UTM		IIUM		t
		Mean	S.D.	Mean	S.D.	
<i>Privacy</i>						
1	Use a computer to harm other people.	2.17	1.16	1.59	0.96	3.31**
2	Interfere with other people's computer work.	2.50	1.20	1.96	1.33	2.70**
3	Snoop around in other people's computer files.	2.44	1.30	1.93	1.20	2.57**
<i>Property</i>						
4	Use a computer to steal.	2.14	1.50	1.45	1.01	3.31**
5	Use a computer to bear false witness.	2.31	1.24	1.54	1.02	4.20**
6	Copy or use proprietary software for which you have not paid	3.46	1.51	3.10	1.65	1.41
7	Use other people's computer resources without authorization or proper compensation.	2.69	1.41	1.88	1.25	3.74**
8	Appropriate other people's intellectual output.	3.23	1.24	2.58	1.63	2.88**
<i>Social Impact</i>						
9	Do not think about the social consequences of the program you are writing or the system you are designing.	2.97	1.22	2.39	1.32	2.85**
10	Always not use a computer in ways that ensure consideration and respect for your fellow humans.	2.72	1.32	1.84	1.09	4.50**

Note: \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

- H2: Female undergraduate computer science students and male undergraduate computer science students have different ethical perceptions on computer use ethics.

Table 3 reveals that there was a significant difference at the 5% level between male and female undergraduate students responses. The computer ethics awareness measured by item “Copy or use proprietary software for which you have not paid.” among male (Mean = 2.93; S.D. = 1.44) is significantly ( $t = -3.11$ ;  $p < 0.05$ ) higher than female (Mean = 3.68, S.D. = 1.63). It also shows that item “Appropriate other people’s intellectual output.’ among male (Mean = 2.64; S.D. = 1.45) is significantly ( $t = -2.78$ ;  $p < 0.05$ ) higher than female (Mean = 3.27, S.D. = 1.39).

Table 3. Comparison of Computer Ethics Awareness by Gender

No.	Items	Male		Female		t
		Mean	S.D.	Mean	S.D.	
<i>Piracy</i>						
1	Use a computer to harm other people.	1.95	1.15	1.89	1.09	0.36
2	Interfere with other people’s computer work.	2.21	1.25	2.32	1.33	-0.51
3	Snoop around in other people’s computer files.	2.03	1.22	2.42	1.32	-1.95
<i>Property</i>						
4	Use a computer to steal.	1.69	1.28	2.00	1.41	-1.46
5	Use a computer to bear false witness.	1.98	1.32	1.97	1.10	0.002
6	Copy or use proprietary software for which you have not paid.	2.93	1.44	3.68	1.63	-3.11**
7	Use other people’s computer resources without authorization or proper compensation.	2.25	1.38	2.43	1.42	-0.81
8	Appropriate other people’s intellectual output.	2.64	1.45	3.27	1.39	-2.78**
<i>Social Impact</i>						
9	Do not think about the social consequences of the program you are writing or the system you are designing.	2.88	1.34	2.56	1.22	1.56
10	Always not use a computer in ways that ensure consideration and respect for your fellow humans.	2.39	1.35	2.29	1.24	0.47

Note: \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

- H3: Senior undergraduate computer science students and junior undergraduate computer science students have different ethical perceptions on computer use ethics.

Table 4 shows that there was a significant difference at the 5% level between senior and junior undergraduate students’ responses. The computer ethics awareness measured by item “Do not think about the social consequences of the program you are writing or the system you are designing.” among junior (Mean = 2.75; S.D. = 1.28) is significantly ( $t = 2.36$ ;  $p < 0.05$ ) higher than senior (Mean = 1.00, S.D. = 0.00).

Table 4. Comparison of Computer Ethics Awareness by Age

No.	Items	20-25 years (Junior)		26-40 years (Senior)		t
		Mean	S.D.	Mean	S.D.	
<i>Piracy</i>						
1	Use a computer to harm other people.	1.94	1.12	1.00	0.00	1.45
2	Interfere with other people's computer work.	2.28	1.29	1.67	1.15	0.81
3	Snoop around in other people's computer files.	2.24	1.28	1.00	0.00	1.68
<i>Property</i>						
4	Use a computer to steal.	1.86	1.36	1.00	0.00	1.09
5	Use a computer to bear false witness.	1.99	1.22	1.00	0.00	1.41
6	Copy or use proprietary software for which you have not paid.	3.29	1.57	3.67	2.52	-0.40
7	Use other people's computer resources without authorization or proper compensation.	2.37	1.40	1.00	0.00	1.68
8	Appropriate other people's intellectual output.	2.97	1.45	1.67	1.15	1.55
<i>Social Impact</i>						
9	Do not think about the social consequences of the program you are writing or the system you are designing.	2.75	1.28	1.00	0.00	2.36**
10	Always not use a computer in ways that ensure consideration and respect for your fellow humans.	2.36	1.30	1.33	0.58	1.36

Note: \* p < 0.1; \*\* p < 0.05; \*\*\* p < 0.01

- H4: The duration of computer use influence the undergraduate computer science students ethical perceptions on computer use ethics.

As can be seen in Table 5, means comparison shows that 1-10 hours duration of computer use at average has 2.20 and S.D = 1.15, while 11-20 hours duration of computer use has 2.78 mean and S.D = 1.54. The difference between this two was significant (t = -2.25; p < 0.05), with the shorter duration of computer use has a higher level of computer ethics awareness regarding item 7, that is "Use other people's computer resources without authorization or proper compensation" than the longer duration of computer use.

Table 5. Comparison of Computer Ethics Awareness by Duration of Computer Use

No.	Items	1-10 hours		11-20 hours		t
		Mean	S.D.	Mean	S.D.	
<i>Piracy</i>						
1	Use a computer to harm other people.	2.03	1.11	1.84	1.09	0.93
2	Interfere with other people's computer work.	2.28	1.19	2.16	1.33	0.48
3	Snoop around in other people's computer files.	2.26	1.26	2.37	1.27	-0.43
<i>Property</i>						
4	Use a computer to steal.	1.70	1.17	1.96	1.43	-1.03
5	Use a computer to bear false witness.	1.95	1.17	2.00	1.24	-0.21
6	Copy or use proprietary software for which you have not paid.	3.11	1.57	3.67	1.64	-1.82
7	Use other people's computer resources without authorization or proper compensation.	2.20	1.15	2.78	1.54	-2.25**
8	Appropriate other people's intellectual output.	2.92	1.31	2.86	1.50	0.23
<i>Social Impact</i>						
9	Do not think about the social consequences of the program you are writing or the system you are designing.	2.92	1.41	2.57	1.21	1.37
10	Always not use a computer in ways that ensure consideration and respect for your fellow humans.	2.57	1.41	2.43	1.35	0.55

Note: \* p < 0.1; \*\* p < 0.05; \*\*\* p < 0.01



## CONCLUSIONS AND RECOMMENDATIONS

As higher education communities learn to use the power of the ICT, issues inevitably arise that cause re-examination of individual and institutional ethics and values. Similarly, the increased use of computers forces the students to be knowledgeable about computer ethics and the related social and legal issues. The authors collected data from one hundred and fifty-nine undergraduate computer science students from two public universities in Malaysia.

The study found that there were some significant differences in ethical awareness of computer use amongst undergraduate computer science students from UTM and IIUM. Interestingly, the results revealed that the level of computer ethics awareness among IIUM undergraduate computer science students was significantly higher than UTM undergraduate computer science students. The rationale behind the results could be due to the nature and culture of IIUM whereby in IIUM, the emphasis on Islamic and ethical values are more prevalent. Moreover, in IIUM, the students are required to take several ethics related courses throughout their study. Meanwhile, in UTM the computer ethics topic is integrated in the management information system course. Therefore, this condition may give some influences to the level of computer ethics awareness of students from both universities.

The result also indicated that significant differences existed between male and female undergraduate computer science students in their ethical beliefs namely, male undergraduate computer science students have a higher ethical behaviour on “Copy or use proprietary software for which you have not paid” and “Appropriate other people’s intellectual output” than female students. Based on the results of this study, even though the support came from only two behaviour items we concluded that significant differences existed between male and female undergraduate computer science students in their ethical beliefs. The result was in line with the study done by McCarthy, Halavi, and Aronson (2005).

In terms of age factor, the results showed that there was support that significant difference does exist between senior undergraduate computer science students and junior undergraduate computer science students pertaining to ethical perceptions on computer use ethics. The support was not strong due to the number of junior students was more than senior students that may have influenced the results.

Further, the results revealed that generally undergraduate computer science students were neutral neither ethical nor unethical with respect to behaviours associated with piracy, property and social impact when analysed by duration of computer use except for a behaviour on “Use other people’s computer resources without authorization or proper compensation.” In this instance, it should be noted that in both cases the students had not received formal training related to computer ethics within their program of study.

The use of ICT resources provides an opportunity for colleges and universities to clarify their student’s standards for behaviour, to clarify their values, and to create or strengthen community norms. To be fully effective and a part of life-long learning, ethical awareness should become a main part of the educational system. Once university students become employees in the business environment, their ethical education should not cease.

The evaluation on the climate of ICT technology and students orientation on all facets of ethics in the academic environment needs to be done regularly. Therefore, in order to help university students and other members increase their awareness of computer ethics issues, we recommend the following:

- i. Provide workshops on computer ethics for all computer users in the university (eg. students, faculty members and staffs). This could be done by the Centre of Information and Communication Technology (CICT) or any university computer centres. A computer ethics course should be introduced into the curriculum for computer students of each faculty in Malaysia. Computer science and ICT instructors or teachers or lecturers are responsible to teach and instil values and ethics in every student.
- ii. Conduct periodic computer ethics surveys to monitor the awareness of computer users on campus. The purpose is to see their progress and provide them with specific ethics awareness information.
- iii. Include a special section on computer ethics in the university training programs.

There are some limitations of the present study. The sample is composed basically of undergraduate students, which may not be representative of the general population. Another limitation is only two universities are involved in the study. The inclusion of a broader group of users, and the identification of certain types of users such as information system or information technology professionals might result in more generalizability. In addition, the use of single-item measures for recognition of an ethical awareness may be perceived as a limitation. Nevertheless, the results from the present study make a meaningful contribution to our knowledge concerning computer ethics awareness in higher education institutions, particularly in the Malaysian setting.

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## APPENDIX 1

### Survey Items

#### *Demographics*

- University
- Gender
- Age
- Duration of computer use per week for job related purposes (academic / non-academic)

#### *Code of Ethics*

- Use a computer to harm other people.
- Interfere with other people's computer work.
- Snoop around in other people's computer files.
- Use a computer to steal.
- Use a computer to bear false witness.
- Copy or use proprietary software for which you have not paid.
- Use other people's computer resources without authorization or proper compensation.
- Appropriate other people's intellectual output.
- Think about the social consequences of the program you are writing or the system you are designing. (*Reverse code*)
- Always use a computer in ways that ensure consideration and respect for your fellow humans. (*Reverse code*)

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