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Attitudes of Undergraduate Management Information Systems Students Towards Computer Ethics at Al-Balqa' Applied University

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Abstract: The present study was conducted to evaluate the attitudes of undergraduate management information systems students towards computer ethics at Al-Balqa' Applied University. A self questionnaire was designed to measure the participant's attitudes towards computer ethics. It was containing 21 items categorized in three ethical fields; maintaining the rights of others, maintaining the property rights and ethics of information system specialists. The results showed that the trends of students and their attitudes toward the extent of their commitment to the computer ethics was high inthe field of ethics of information system specialist, medium in the fields of maintaining the rights of others and the maintaining the property rights. In conclusion, the undergraduate students in management information systems have awareness and adequate recognition of computer ethics.

Key words: Awareness, code of ethics, moral, trend, rights

INTRODUCTION

Computer has become a part of the educational environment whereby students of all majors are using computer as research and communication tools as a result of technological advances that have a great impact on society (Namlu and Odabasi, 2007). Recently, there are great challenges involved in the management of computer information systems to take special measures to secure their information systems. This is more apparent in university settings, especially when computer resources became available to the different student populations (North *et al*., 2006). Moreover, it was widely reported that some computer users of the general public disregard the copyright and make the unauthorized copied of computer software resulting an economic threat for software companies (Bowyer, 2001; Gattiker and Kelley, 1999).

North *et al*. (2006) reported that the most weakness in the university computer security systems is the lack of student awareness for Computer Ethics (CE). Computer ethics were defined as a set of moral principles that regulate the use of computers (North *et al*., 2006). Maner (1980) stated that CE are coupled with ethical problems aggravated, transformed or created by computer technology. In addition, Moor (1985) described the CE as a field concerned with policy vacuums and conceptual muddles regarding the social and ethical use of information technology. According to Terrell Ward Bynum who developed abroad definition of computer ethics, 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-fulfillment and others (Bynum and Moor, 1998).

Masrom *et al*. (2009) have examined the awareness of computer ethics among undergraduate computer science students in two Malaysian higher educational institutions. They concluded that computer ethics awareness training is needed for university users when they found the ethical awareness of computer use for the students was mostly significantly different on the basis of the university itself. Hay *et al*. (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. Their results indicated that the ethical perceptions of the students in computer related situations were significantly different on the basis of their cultural backgrounds. This is confirmed by the results of Gerhardt (2001) who found that students had an increased knowledge and a stronger concern for ethical issues and a greater awareness of the importance of ethics in the workplace by the end of a course in systems analysis and design that was a part of the computer science and information systems curriculums. On the other hand, McCarthy *et al*. (2005) found significant differences between male and female computer information systems students in their ethical beliefs that revealed the software piracy and hacking tend to be more prevalent amongst males than females.

According to my knowledge, there are no documented data related to the computer ethics studies conducted in AL-Balqa' Applied University (BAU). Therefore, this study was designed to evaluate the attitudes of undergraduate management information systems students towards computer ethics in BAU.

MATERIALS AND METHODS

A self questionnaire was designed as the research instrument. The questionnaire had one part which measured participant's attitudes towards computer ethics. It was containing 21 items which had been obtained from the code of ethics. The code of ethics is the standard of conduct that guides decisions and actions, based on duties derived from core values (North *et al*., 2006). Many computer groups such as the Association for Computing Machinery (ACM) and the Institute of Electrical and Electronic Engineers (IEEE) have developed codes of ethics for their members. In this study, researcher used the principles reported by the Association for Computing Machinery (ACM) to measure the students attitudes. Researcher categorized the 21 items into three fields: maintaining the rights of others, maintaining the property rights and ethics of information system specialist. A five point Likert scale was used ranging from 5 (strongly agree), 4 (agree), 3 (undecided), 2 (disagree) and 1 (strongly disagree), based on the main items.

The collected data were processed and statistically analyzed by using SPSS. Range of means and their standard deviations values were used to measure the student attitudes for computer ethics. Larger values of a mean indicated higher levels of computer ethical attitudes and lower values implied lower levels of computer ethical attitudes. Intensity of computer ethics were categorized into three levels based on the values of means. There were low, moderate and high when the mean value was ≤2.32, 3.66-2.33 and ≥3.67, respectively. Another statistical analysis instrument is a reliability coefficient, Cronbach's alpha used to estimate the scale of consistency among items. The internal consistency, represented by coefficient alpha, of all items was 0.723. It indicates to the existence of cohesive internal relationships between all measurements items of computer ethics. The questionnaire study was applied on a random sample of 120 undergraduate management information systems students in November 2013.

RESULTS AND DISCUSSION

The results of means, standard deviations and attitudes of undergraduate management information systems students in BAU for each element measured in three different fields of computer ethics in this study, are presented in Table 1. The results showed that the field of

Table 1: Means±SD of student's attitudes towards computer ethics

Items	Mean±SD	Attitude
Maintaining the rights of others		
It must be obligated to protect fundamental human rights when designing or implementation of any system	4.69±0.531	High
Systems such as spyware to steal information should not be designed when designing or implementation of any system	4.13±1.144	High
Systems such as vandalism to destroy information should not be designed when designing or implementation of any system	4.16±1.188	High
When using your colleague set, you find his e-mail effective. Would you have a look?	1.72±1.155	Low
When you are at university laboratories, you download unwanted files to the hardware	1.58±1.018	Low
When you use your colleague set, you change his account data without his consent	1.52±1.898	Low
When joining the job, I'll maintain the employer's information system	4.51±0.756	High
At the end of my services, I'll maintain the employer's information system	4.51±0.767	High
Total mean of this field	3.35	
Maintaining the property rights		
Download software from the internet without taking the consent of producers	2.52±1.174	Moderate
Download software from the internet and make the most suitable for myself or others non-producer	1.76±0.987	Low
When gathering information from the internet, you make sure of them and attribute to their source	4.22±1.014	High
Taking the policy information system of an organization and apply it in another one without the consent of the first one	2.35±1.227	Moderate
Prefer to buy software of the producing company better than downloading it without buying	3.57±1.135	Moderate
Total mean of this field	2.88	
Ethics of information system specialist		
Seek to harm others	1.49±0.996	Low
Have truthfulness and honesty	4.53±0.888	High
A ware individuals of the importance of maintaining information system	4.42±0.717	High
Have justice and non-discrimination when dealing with information system	4.35±0.729	High
Maintaining copyrights patents and trade secrets	4.40±0.738	High
Respect the privacy of others	4.46±0.632	High
Maintaining the confidentiality of information	4.60±0.666	High
Helping colleagues in the field of information system	4.50±0.608	High
Total mean of this field	4.09	

"Ethics of information system specialist" obtained the highest mean value (4.09). It was observed that this value was higher than compared with the value which was assumed by the researcher (3.67). In this field, the item which stated on the "maintaining the confidentiality of information" had achieved the highest mean in this ethical area, where the mean was (4.6). The lowest mean value was recorded for the item "Seek to harm others" at a value of (1.49) within this ethical field area. The second, came in the ethical field of "maintaining the rights of others" with a mean value of 3.35. This mean value was in the average arrangement compared with the assumed value that was recognized by the researcher (3.66-2.33). In this area of computer ethics, the item stated on. "It must be obligated to protect fundamental human rights when designing or implementation of any system", got the highest rank with a mean value of 4.69. The lowest mean value in this ethical field was 1.52 for the item "When you use your colleague set, you change his account data without his consent". The least mean for all three ethical fields was recorded for the "maintaining the property rights". It was 2.88 which was in the middle range when compared with the assumed and recognized value by the researcher (3.66-2.33). The item stated that "When gathering information from the internet, you make sure of them and attribute to their source", had the highest mean value of 4.22 while the lowest mean value in this field was 1.76 for the item stated that "download software from the internet and make the most suitable for myself or others non-producer".

Through, the results of this study which was conducted on a representative sample of the students at BAU indicating that the trends of students and their attitudes toward the extent of their commitment to the computer ethics was high in terms of the ethics of information system specialist, mediumin the field of maintaining the rights of others and maintaining the property rights. This indicates that the students have ethical awareness about the discussed issues these fields. On the other hand, the results for the trends of students and their positions in the area of maintaining the property rights got the lowest mean value within this three studied fields. The reason for this may be due to the fact that some students using software without a license and that because of their inability to purchase the high price software. There are many previous studies indicated that the reason for the use and application ofsuch software in the computer without a license is due to its highly price. Siponen and Vartiainen (2007) carried out a study on 249 finish computing students toward the specify copying of computer software where they found that the main reason for copying software without a license was the high price of it. The results of this study confirmed that the trends of students at the university towards the computer ethics were positive and had an evidence of sufficient awareness to understand what is moral or immoral in computer ethics. These positive results may be explained by the culture and educational effects on the students where their up bringing on islamic principles and moral values. The islamic religion orders commitment with the best human morals, preserve the rights of others and to prevent abuse of the rights of others.

The results of this study were in agreement with the results obtained by North *et al*. (2006) who have found awareness and understanding of the students about computer ethics. In a study of Masrom *et al*. (2009) who conducted a study to compare two groups of university students in two universities in Malaysia to learn ethical examination of computer use. They found that the students ethical awareness of computer use was different in two universities. They reported that the higher positive results in IIUM university has been attributed to the computer ethics taught course and the culture of the university students which focused on the ethics and values as well as the study of Islamic culture.

CONCLUSION

The results of this study revealed that undergraduate students in management information systems at the BAU have awareness and adequate recognition of computer ethics. In order to increase the use of computer software in all areas of life, the student should be fully knowledgeable about computer ethics and social consequences. Researcher believed that the introduction of curricula regarding the computer ethics during the educational process is essential and that is not only taught to the students in faculty of information technology but also for all college students whatever their specialization.

RECOMMENDATIONS

It is recommended that:

- The inclusion of the subject of the computer ethics of seminar material within the student academic plan or integrated into the school materials such as computer skills course which is include all new students in Jordanian universities
- Workshops are held on the subject of computer software ethics for students
- Activation the official siteof the university to clarify computer ethics or connecting links to web sites raised the subject of the computer ethics
- The application of similar studies on other universities in Jordan with a view to increase awareness and knowledge of computer ethics

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