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Propose an educational plan for computer ethics and information security

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Abstract

As the general public becomes increasingly computer literate, the gap between technology and peoples' mental power notably shrinks. However, at the same time computer technology may raise some unethical issues with current life style and developments. Information security and ethics are defined as an all-encompassing term that refers to all activities needed to secure information and systems that supports educational center and students with practical educational frameworks. The purpose of this paper is to design an instructional and realistic plan for introducing ethical subject with respect to information security in educational context.

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1. Introduction

The current development in information and communication technologies have impacted all sectors in our daily life where does not matter whether it is technical or routine. To ensure effective working of information security, various controls and measures had implemented like the current policies and guidelines between computer developers. However, lack of proper computer ethics within information security is affecting educational society day by day.

Computer ethics is defined as the analysis of the nature and social impact of computer technology and the corresponding formulation and justification of policies for the ethical use of such a technology. The number and kinds of application of computing increase dramatically each year and the impact of computing has felt around the planet. Understanding computer ethics in security element is an important feature, in fact it has served as the organizing of major conferences. Those responsible for the development and application of computer technology faced with decisions of increasing complexity, which are accompanied by many ethical dilemmas. Such person explains that computer technology is a special and unique technology, and hence the associated ethical issues warrant special attention.

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As information technology and the internet become ubiquitous and pervasive in our daily lives, a more thorough understanding of issues and concern over the information security and ethics is becoming one of the hottest trends in the whirlwind of research and practice of information technology. This is chiefly due to the recognition that whilst advances in information technology have made it possible for generation, collection, storage, processing and transmission of data at a staggering rate from various sources (Hamid, 2007).

The internet has enormous impact on society, hacking, spam, denial of service attack are now common (Mellisa, 2006). Computer ethics can be define as the process of reflection on the moral meaning of action. This definition is meant to be broad and foundational and to incorporate several components of computer ethics in education (Waskul and Douglass, 1996). In fact, there was no comprehensive research that influences with Malaysian educational system in security area where in technology development it roles such an important factor to train our students and future engineers in order to alert them from social impact. Students should aware that computer ethics it is not simply a study in which grasp some fundamental truth in one static moment of time. It is rather an ongoing process in which one is constantly engaged in a dialogue with ideas, people, history, tradition, other discipline and issues.

In order to provide students with an understanding of why ethical behaviour is necessary and how to make the widest decisions when faced with ethical dilemmas, an instructional plan is needed, so again the main objective of this study is to propose an instructional plan for introducing ethical subject with respect to information security in educational context.

2. Computer and Educational Society

The prominence of information technology resulting in dependence on computer as necessary tool has penetrated all of society (Langford, 2000), including education aspects. However, the speed at which technological advancements have progressed appears to have been far faster than consideration of their impact upon cultural norms and values or the development or norm governing the use of technologies. In addition, these new technologies have caused new ethical and legal question to emerge (Langford, 2000).

Information technology represents skills so that some argue that makes unique ethical claims and triggers distinct nations about right and wrong. Some of key areas of ethical concern that have been raised include, accessing without authorization, illegal copying of licensed soft ware hacking in to the network that violets university codes of conduct (Langford, 1995).

inadequate of ethical codes and teaching about computer ethical issues become even more apparent in today's controversial and constantly changing technological environment. In this environment, new ethical dilemmas are created and acting wrongfully becomes easier. Educational leaders must address these ethical issues because they have a unique opportunity to help educate computer users to make the best moral decision.

3. Topics in Computer Ethics

No matter which re-definition of computer ethics one chooses, the best way to understand the nature of the field is through some representative examples of the issues and problems that have attracted research and scholarship. Consider, for example, the following topics:

3.1. Computers in the Workplace

Although computers occasionally need repair, but they don't require sleep, don't get tired, they don't go home ill or take time off for rest and relaxation. At the same time, computers are often far more efficient than humans in performing many tasks. Therefore, economic incentives to replace humans with computerized devices are very high.

Even when a job is not eliminated by computers (Floridi, 1999) it can be radically altered. For example, airline pilots still sit at the controls of commercial airplanes but during much of a flight the pilot simply watches as a computer flies the plane. Similarly, those who prepare food in restaurants or make products in factories may still have jobs; but often they simply push buttons and watch as computerized devices actually perform the needed tasks.

3.2. Computer Crime

In this era of computer "viruses" and international spying by "hackers" who are thousands of miles away, it is clear that computer security is a topic of concern in the field of Computer ethics (Floridi, 1999). The problem is not so much the physical security of the hardware (protecting it from theft, fire, flood, etc.) but rather logical security, which is divided into several aspects such as; Privacy and confidentiality, Integrity, Unimpaired service, Consistency, Controlling access to resources.

3.3. Privacy

It may define as the claim of individuals to determine for themselves when, to whom, and to what extent individually identified data about them is communicated or used (Smith, 2002). Most invasions of privacy are not this dramatic or this visible. Rather, they creep up on us slowly as, for example, when a group of diverse files relating to a student and his or her activities are integrated into a single large database (Smith, 2002).

3.4. Intellectual Property

One of the more controversial areas of computer ethics concerns the intellectual property rights connected with software ownership. Ownership is a complex matter, since there are several different aspects of software that can be owned and three different types of ownership: copyrights, trade secrets, and patents (Bynum, 2011).

3.5. Accuracy

Represents the legitimacy, precision and authenticity with which information is rendered. Because of the pervasiveness of information about individuals and organizations contained in information systems, special care must be taken to guard against errors and to correct known mistakes.

3.6. Accessibility

Regarding this important aspect of research this question may come across the people's mind (Adam, 2001), who is held accountable for errors? Who can you trust in order to outsource your project? In fact, in term computer ethics accessibility means, what kind of information would available for the legal users and students.

3.7. Morality

Unlike the other aspects where knowledge is object, this dimension is qualitatively different in that subject is explored in relation to object. In other words seeks to have students explore, explain, defend, question, deconstruct, and redefine their personal beliefs of right and wrong against the backdrop (Melissa, 2006).

3.8. Awareness

The most important factor in effective computer security is people their attitudes, their actions, and their sense of right and wrong (Huff and Frey, 2005). Problems and issues raised in the computing environment, Topics to be discussed include misuse of computers, concepts of privacy, codes of conduct for computer professionals, disputed rights to products, defining ethical, moral, and legal parameters, and what security practitioners should do about ethics (Forcht. et al, 1998).

4. Proposed Instructional Plan

The guideline for appropriate computing behaviour and ethical conduct consist of a fourteen-week instructional plan for introducing ethical subject with respect to information security in educational context. This module may be included within any existing computer course. However, an introductory and short review had been studied in this part of research. Each topic is introduced by the instructor and followed by class discussion. While students should have already read the policy, they may not be aware of what would be the full content of such a security and

academic policy. However, this would be staff mission to describe the advantages of such those policies and try to make the student more into information security concepts.

Ethics education is a critical component for overall success of a computer ethics framework and to encourage ethical behaviour in all educational centres which are invested the future intention in to information security. Many educational leaders and administrators also hesitate to develop ethical education policies and courses. Some have suggested that if computer ethics were a required course at institution, it would be legitimizes and professors or others would be more anxious to teach it.

4.1. Importance of Ethical Instruction

Some people may felt that ethical instruction would be unnecessary within educational context. It is interesting to note that at the same time many indicated high occurrences of unethical behaviour that could potentially be avoided by better educating computer users. As argued (Namayandeh. et al, 2009) teaching the ethical aspect of computer and information security is just as important as teaching the basic computer concepts and skills. Many educational institutes have found this to be the case and have implemented various types of activities designed to empower their students for ethical actions. Many researchers' advised that education should assist students to become more alert at discovering moral issues, should teach them the ethical issues, and should clarify moral and aspiration of lack of awareness. Some educators and administrative leaders debate whether to provide ethical instruction within all computer courses or to offer just one. Many scholars believe that ethics education is best taught and learned throughout the curriculum with a variety of ethics activities rather than compartmentalized within one course.

4.2. Designed Course

The effectiveness of computer ethics initiatives is dependent upon the influence of a common core of beliefs, attitudes and customs. Faculty, staff, and students must believe that computer ethics and information security are important and critical to the mission of global and developed society.

This is one of the reasons why the computer ethics policy should begin in educational centres, on the other hand, ethical system can easily influence with attitudes after an ongoing process rather than a short analysis. This will help insure long term success by maintaining accountability between existing members and enabling new members to adapt positive norms of behaviour. This fourteen weeks course is designed in order to influence the students into concepts of information security and ethics towards their future professional career. Figure 1 shows the course chart and Table 1 briefly explains per week plan.

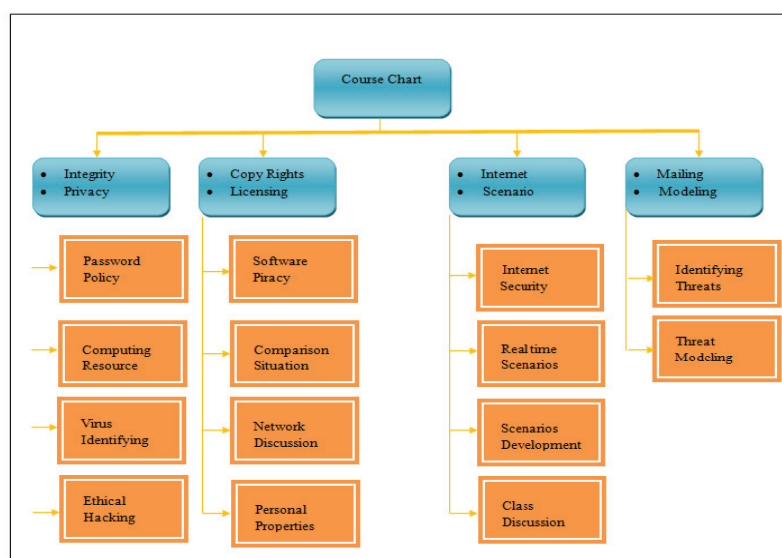


Figure 1. Computer Ethics Course Chart

Table 1. Computer Ethics and Information Security Course Chart Description

Main Target	Week	Description
Integrity and Accuracy	1	Sharing user access or password, cracking password or unauthorized data access
	2	Using computing resources for personal gain
	3	Knowingly, transmitting and creating computer viruses
	4	Hacking and cracking courses conducted by certified person
Copyright and Licensing	5	Engaging in software piracy, illegally copying of software or infringing upon software license
	6	Loading, downloading from violated software and compare with the original versions
	7	Discussing on privacy and security of other users, data or networks
	8	Discuss on personals properties such as passwords, mails and files
Internet and Scenarios	9	Engaging on inappropriate materials on internet and its social impact on educational society
	10	Lessons on Microsoft threat modeling's software and develop their own real time scenarios as the final recommendation about the course
	11	To develop real time scenarios
	12	Class discussion
Mailing and Modeling	13	This course been designed in order to understand the mailing conceptions and methods of current and future analysis
	14	Microsoft threat modeling course which is the only option in hands of security analysis for further evaluations

5. Conclusion

As discussed previously, educational leaders within higher education, remain the main body of computer ethics instructions. On the other hand, the new ethical dilemmas are concern to occur and Students must be encouraged into more effective policies and instruction to insure that computer ethics remains important. This will help to insure long term success by maintaining accountability between existing students and enabling new students to adapt positive norms of behavior. This fourteen weeks course is designed in order to influence the students into concepts of information security and ethics towards their future professional career.

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