

DEVELOPMENT OF COMPUTER ETHICAL FRAMEWORK FOR  
INFORMATION SECURITY  
(EDUCATIONAL CONTEXT)

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A thesis submitted in fulfillment of the  
requirements for the award of the degree of  
Master of Computer Science (Information Security)

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MARCH 2009

## ABSTRACT

Information security and ethics have viewed as one of the foremost areas of concern and interest by academic researchers and industry practitioners. They are defined as an all-encompassing term that refers to all activities needed to secure information and systems that supports it in order to facilitate its ethical use. In this research, this very important part of current studies introduced and the fundamental concepts of a security framework are discussed. To achieve the goals of information security and ethics in Malaysian setting, there is a need of proper research and Malaysian students at Universiti Teknologi Malaysia *International Campus* Kuala Lumpur are chosen as a case study. Many kinds of technology-induced issues involve economic, political, social, operational and others. However, the most important and controversial issues often deals with such legal and ethical matters as security and privacy from educational aspects. Using survey research, insight is provided regarding the extent to which and how university student have dealt with issues of computer ethics and results of designed information security and computer ethics framework on their future career and behavioral experience are addressed.

## ABSTRAK

Keselamatan maklumat dan etika dilihat sebagai satu daripada bidang utama yang menjadi perhatian dan menarik minat para penyelidik akademik dan pengamal industri. Ia ditakrifkan sebagai istilah terangkum yang merujuk kepada semua aktiviti yang diperlukan untuk menyelamatkan maklumat dan sistem yang menyokongnya, dengan tujuan untuk memudahkan penggunaan secara beretika. Dalam penyelidikan ini, kajian semasa keselamatan maklumat dan etika diperkenalkan dan konsep asas rangka kerja keselamatan dibincang. Sejarah etika komputer yang meluas juga dikaji. Untuk mencapai matlamat keselamatan maklumat dan etika dalam persekitaran Malaysia, suatu kajian yang tersusun diperlukan dan pelajar-pelajar di Universiti Teknologi Malaysia *International Campus* Kuala Lumpur telah dipilih sebagai kajian kes. Terdapat banyak jenis teknologi yang menyebabkan tercetusnya isu-isu yang berkait dengan ekonomi, politik, sosial, operasi dan lain-lain. Walau bagaimanapun, isu kontroversi paling utama adalah yang berhubung dengan isu undang-undang dan etika seperti keselamatan dan kerahsiaan daripada aspek pendidikan. Dengan menggunakan penyelidikan kaji selidik, kefahaman mendalam tentang bagaimana pelajar-pelajar universiti menangani isu-isu etika komputer dikemukakan dan dapatan kajian rangka kerja keselamatan maklumat dan etika komputer yang dibangunkan terhadap kerjaya masa depan pelajar dan pengalaman lakuan dibentang.

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# **CHAPTER 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.

Undoubtedly, the most important of these controls is to define an understandable framework or model for students who roles future computer engineer or scientist. Hence, this project examines awareness (Hamid, 2007) and information of students in computer ethics from educational aspect. The complex interaction among engineering, technology and social, needs new educational challenges programs to prepare professional and technical skills (Boehlefeld, 1996).

In today's life it is an undeniable issue about the effects of ethics in our routine and technological life. Even though, engineer, technician, student or undemanding user, are connecting to internet from moment to moment but still they may not be aware of computer ethics that has become somewhat of a cottage industry recently in this era.

Understanding computer ethics in security element is an important feature, in fact it has served as the organizing of major conferences (Kluwer, 2000). Those responsible for the development and application of computer technology faced with decisions of increasing complexity, which are accompanied by many ethical

dilemmas (Moor, 1998). Such person explains that computer technology is a special and unique technology, and hence the associated ethical issues warrant special attention.

Indeed, points out that there is a need to understand the basic cultural, social, legal and ethical issues inherent in the discipline of computing. For these reasons, it is imperative that as a future computer professionals taught the meaning of responsible conduct (Langford, 2000).

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).

## **1.1 Background of Problem**

Activities of computer are matters of calculation and not judgment. As computing become more prevalent, computer ethics becomes more difficult to minimize the threat and risks to the current technological century (Hamid, 2007). Similar to other technological invention throughout history, information technology tends to have both positive and negative effects on society, and tends to raise moral and ethical concern (Tavani, 2001).

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 (Johnson, 1985).The number and kinds of application of computing increase dramatically each year and the impact of computing has felt around the planet.

The ubiquitous use of electronic mail, electronics transfer, reservation systems, the World Wide Web etc, places millions of inhabitants on the planet in a global electronic village (Philip, 2007). Communication and action at a distance have never been easier and this is definitely evolution of computer generation. The area of improper computer used and computer ethics has not remained unattended situations.

Now, entire population of developed countries is in the permeation stage of revolution in which computers are rapidly moving into every aspect of daily life. Inspire by all the given views the question approaching our mind.

The effects of information technology parallel the impact of other revolution (Moor,1998) equates the computer revolution with the industrial revolution citing two distinct stages involving technological introduction and technological permeation where during the latter stage, society has dramatically transformed computer technology to become an integral part of all institutions.

Information age has important consequences for human being. Essentially, it has ushered a new range of emerging computer activities that have revolutionized the way that keeps the people connected but what if this important factor of the current life, itself become hazardous for educated users.

## **1.2 Problem Statement**

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.

Malaysia is ranked 8 out of 10 top-infected countries in the Asia Pacific region as a target for cyber attackers (Sani, 2006). Those who seek to understand the changes from impact to benefit are realizing that information technology not only has already influenced lives profoundly but also will continue to do so in even greater and diverse way.

In addition, it is necessary to understand the consequences of technology can be both positive and negative and raised ethical issues and concern. Computer ethics also called information technology ethics which is concerned with the ethical issues and conflicts that arise in the use of information technology and information systems.

Further, it is about revealing the more impacts of technology shocks which are morally controversial but people are facing problem due to lack of ethics awareness in computer science. Here this question may across our mind that why they are developing it in computer field. An appropriate answer would be computer ethics has not made for particular topic; it is about people who are unaware of social impact of computer.

In Malaysia, 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's rather an ongoing process in which one is constantly engaged in a dialogue with ideas, people, history, tradition, other discipline and issues (Sani, 2006).

### **1.3 Project Aim**

The aim of this project is to develop a computer ethical framework. In addition, to describe what information security represents from computer ethics in educational context.

## **1.4 Project Objective**

The objectives of research are

- To investigate student`s awareness on information security and ethical issues within university campus.
- To evaluate the concept of computer ethics in terms of information security.
- To develop a computer ethics framework to focus on ethical behavior and information security.

## **1.5 Project Scope**

The project scope is limited to University Technology Malaysia (International Campus, Kuala Lumpur) students to receive acknowledgment from the given questionnaire and discussions. It will be based on a more comprehensive understanding of key ethical issues, which are rooted in significant behavioral assumption. However, the scope focus on the given theories and related security concepts.

## **1.6 Importance of Study**

As computer scientist entered to new century of information technology, it is undeniable to see the growth of interest in research and practice of all aspects of information security and ethics where information security and ethics is the top IT priority-facing organizations. However, the major task is to build this important issues from the basis of the current educational system and aware the students about computer ethics and related information security.

## 1.7 Summary

The recent research indicates that there is an increasing demand for developing computer ethics as a field worthy of study. As a result, computer ethics is becoming a field in need of research based upon a necessity to provide information for education which is related to security concepts. The legal structure appears to be limited in its ability to provide ethical behavior effectively. While not wishing to be alarmists, research suggests the needs to be concerted effort on the part of the all the computer professional societies to update their ethical codes and to incorporate a process of continual security.

Computer practitioners do not have a single representative organization which can control membership in the profession; there is no representative organization to impose sanctions for the violations of professional behavior. The absence of a single organization does not impede the development of professional ethics standards. The focus of this approach to computer ethics is on the individual professional's responsibility in the practice of his craft. As the standards of this craft are being developed, so are the standards of professional computer ethics.

Computer ethics as presented here gives a clear description of the relation of values to the work of the computer professional and sets forth criteria for making ethical decisions in that process. The focus on stories about the failures of the product has misdirected us. They may be interesting stories to listen to, but they convey little information about computer ethics. Computer ethics as presented here gives a clear description of the relation of values to the work of the computer professional and sets forth criteria for making ethical decisions in that process.

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