A PROTOTYPE TO EVALUATE INFORMATION SECURITY AWARENESS LEVEL FOR TEACHER AND STUDENT IN SECONDARY SCHOOL

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Dedicated to Nadim and Eti

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ABSTRACT

This study attempted to develop a prototype to evaluate information security awareness level for teacher and student in secondary school. It identifies the information security awareness level by measure the level using an assessment model and automated tool. The assessment model for this study is Affect, Behavior, Cognitive (ABC) model from social cognitive theory where it equals with three dimensions which are attitude, behavior, and knowledge that have been used as measurement component for this study. The methodology for the whole study is System Development Life Cycle (SDLC) by applying waterfall model. The awareness level is evaluated based on the three dimensions from five focus areas for each teacher and student category. The user testing has been done among some teachers and students to test the prototype. As a result, all of the prototype function are working properly and able to produce the expected output. It shows that the prototype can be implemented in real world with some improvement for better result.

ABSTRAK

Kajian ini dilakukan untuk membina prototaip bagi menilai tahap kesedaran maklumat di kalangan guru dan pelajar sekolah menengah. Ia menilai tahap kesedaran keselamatan maklumat dengan mengukurnya menggunakan model penilaian. Model penilaian untuk kajian ini adalah ABC model, dari teori kognitif sosial. Model berkenaan bersamaan dengan tiga dimensi iaitu pengetahuan, kelakuan dan tingkah laku yang digunakan sebagai komponen pengukur untuk kajian ini. Metodologi untuk kajian ini adalah Kitar Hayat Pembangunan Sistem dengan mengaplikasikan model *waterfall*. Tahap kesedaran dinilai menggunakan tiga dimensi tersebut berpandukan lima topik utama untuk setiap kategori guru dan pelajar. Ujian pengguna telah dijalankan untuk mengenalpasti kebolehfungsian prototaip ini. Hasilnya, ia berjaya berfungsi seperti yang dirancang dan mengeluarkan output yang dikehendaki. Ini menunjukkan prototaip ini boleh dilaksanakan dengan sedikit penambahbaikan untuk menghasilkan produk dan keputusan yang lebih baik.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATION

ABC	- Affect, Behavior, Cognitive
ICT	- Information and Communication technology
ISATS	- Information Security Awareness Level for Teacher and Student Tool
SDLC	- System Development Life Cycle (SDLC)
SMKTTDI	- Sekolah Menengah Kebangsaan Taman Tun Dr Ismail

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Overview

This study is to develop a prototype to evaluate information security awareness level for teacher and student in secondary school. The purpose of the prototype is to identify the level of information security awareness based on assessment model.

This chapter describes the problem background of this project, problem statements, objectives, scopes and plans for this project.

1.2 Problem Background

Information and Communication Technology (ICT) has rapidly evolved and impacted on all age level. Most youth are ICT literate nowadays and topic like Friendster, MySpace, e-mail, and chatting have became their daily conversation. In

addition, most school especially in urban area also provides computer facilities with Internet service provided.

Information security is the one of the concern when people use Internet. Particularly, secondary school students are gain exposure to the Internet technology but do they really aware on information security? Are they aware with the terms like Trojan horse, spyware, spamming and so on? Furthermore, do their teachers aware with information security issue? In fact, the level of security awareness among teachers must be addressed as well as they are suitable person to educate students.

There are three reasons for information security professional need to aware of people attitude towards information security. As described in Information Security Management Handbook (2007), the three reasons are:

i) Behavior predictor – Attitude is a good predictor of behavior. That is the point where survey can be a tool to determine the behavior of target population toward information security issues. The information can be used to predict how secure the environment will be.
ii) Target of change - Subtly or directly change someone attitude, consequently change behavior.
iii) Source of risk -Extreme attitude toward someone or something can lead to irrational cognitive function and behavior.

According to above reasons, survey can be a tool to predict the security of an environment based on user behavior. In Malaysia, there is still no study to identify teacher and student information security awareness level.

Research findings by Chai, et.al. in 2006 suggest that students, who have strong self-efficacy toward Information Security on the Internet and have an exposure of information security from school, parents and media, are more likely to practice information security such as updating anti-virus software, not opening e-mails from unknown senders, and protecting personal information on the Internet. To motivate students' information security behavior, we need to provide more

information security education opportunities to students as well as chances for students to be exposed to information security issues.

1.3 Problem Statements

a) There is no proper assessment model to evaluate the information security awareness level for teacher and student in secondary school.

b) There is a need to identify teacher and student awareness level to have perception or give idea of their information security awareness level.

1.4 Project Objectives

The objectives of this project will be as follows:

i) To develop an appropriate model of information security awareness to secondary teacher and student.
ii) To develop a prototype to evaluate information security awareness level for teacher and student in secondary school.
iii) To identify the level of information security awareness in secondary school teachers and students.

1.5 Project Scope

The prototype will focus on capture user input for questionnaire answer and generate the outputs as the survey result. The survey result will indicate the awareness level of user. Besides, the prototype will generate the average level of users according to their category. It will be evaluated from their knowledge, behavior, and attitude towards information security. The total of those three dimensions would be their total awareness level. The calculation and scale is based on reviewed previous study.

In addition, there is an administrator to monitor and maintain the prototype. Administrator will manage the data of the prototype and only administrator has access to view the overall survey result. The end user only can view their individual result only.

1.6 Summary

This project is carried out to develop an automated tool that can identify the information security awareness level so that it can be use to give input for more effective information security awareness program. This chapter highlights the problem background, project objective, problem statement, and project scope. Chapter 2 discusses the related secondary sources with this study like journal, article, and so on.