USER SUSCEPTIBILITY TOWARDS PHISHING ATTACK BASED ON BIG FIVE PERSONALITY TRAITS

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USER SUSCEPTIBILITY TOWARDS PHISHING ATTACK BASED ON BIG FIVE PERSONALITY TRAITS

DURGA LETCHUMY A/P KUNASEGARAN

This report is submitted in partial fulfillment of the requirements for the Bachelor of Computer Science (Computer Networking)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2016

DECLARATION

I hereby declare that the project report entitled

USER SUSCEPTIBILITY TOWARDS PHISHING ATTACK BASED ON BIG FIVE PERSONALITY TRAITS

is written by me and is my own effort and that no part has been plagiarized without citations.

STUDENT : Durga **Date:** 24/08/2016

(DURGA LETCHUMY A/P KUNASEGARAN)

I hereby declare that I have read this project report and found this project report is sufficient in term of the scope and quality for the award of Bachelor of Computer Science (Computer Networking) With Honours.

SUPERVISOR: _____ **Date:** 24/08/2016

(PN.SYARULNAZIAH BINTI ANAWAR)

DEDICATION

Special thanks to my family, project supervisor and friends.

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ABSTRACT

Social engineers prefer to exploit the user rather than the technology that is used by the user because it is much easier to manipulate a user psychologically rather than manipulating a particular network or system that could take days, months or even years to get pass through it. An user's mind is much more penetrable compared to a network or a system because an attacker just have to talk and sound believable to an end user in order to deceive or scam them in order to retrieve their personal data's or important information. The attacker would not even require a strong knowledge in network or system instead they only require knowledge in how to mimic and deceive a person emotionally or psychologically. Phishing is a form of social engineering attack and the rate of success through phishing attack is high because many websites, mails or URL's seems very legitimate that it deceives most of the user making the attack rate more successful. There are studies saying that a user's respond to a phishing attack is due to certain trigger to their personality traits. This shows that personality trait of a certain individual does affect their susceptibility to fall victim for a phishing attack. Big Five model which consist of openness, conscientiousness, extraversion, agreeableness and neuroticism is a model that is used widely in predicting human behavior which is used in phishing susceptibility framework to determine the susceptibility of a user to phishing attacks. This study will give an empirical value to the phishing susceptibility framework to determine which personality trait relates to the success or failure of a phishing attack which could benefit many organization in future to come up with a mitigation strategy according to the personality traits or even predict the type of attack that could be faced by them due to the personality traits carried out by the users that are using their network.

ABSTRAK

Jurutera sosial lebih gemar untuk mengeksploit pengguna daripada teknologi-teknologi yang digunakan oleh pengguna kerana ia adalah lebih mudah untuk memanipulasi psikologi pengguna daripada memanipulasi sebuah rangkaian atau sistem tertentu yang boleh mengambil beberapa hari, bulan malah tahun untuk menggodamnya. Minda seorang pengguna adalah lebih mudah untuk ditembusi daripada sesebuah rangkaian atau sebuah sistem kerana pemangsa hanya perlu bercakap dan kelihatan baik untuk dipercayai kepada seseorang pengguna untuk menipu mereka untuk mendapatkan maklumat peribadi atau maklumat penting mereka. Penyerang tidak memerlukan pengetahuan yang banyak dalam bidang rangkaian atau sistem malah mereka hanya perlu kebolehan untuk meniru tingkah laku seseorang dan menipu seseorang dari segi emosi dan psikologi. *"Phishing"* adalah sejenis bentuk serangan kejuruteraan sosial dan kadar kejayaan melalui serangan "phishing" adalah tinggi kerana kebanyakkan laman web, e-mel atau URL kelihatan sangat sah sehingga boleh memperdayakan kebanyakkan pengguna dan menjadikan kadar kejayaannya lebih tinggi. Terdapat kajian yang menyatakan bahawa tindak balas pengguna kepada sesebuah serangan *"phishing"* adalah kerana cetusan tertentu terhadap personaliti mereka. Ini menunjukkan bahawa sifat-sifat peribadi seseorang individu mempengaruhi kecendurangan mereka untuk menjadi mangsa serangan *"phishing". "Big Five Model"* yang terdiri daripada keterbukaan, sifat berhati-hati, extrovert, bersetuju kepada semua benda, dan berfikiran negative adalah sebuah model yang digunakan secara meluas untuk meramal tindak balas pengguna yang digunakan untuk mengetahui kecenderungan pengguna terhadap serangan *"phishing".* Kajian ini akan memberikan nilai empirikal untuk rangka kerja kecenderungan *"phishing"* untuk mengetahui sifat peribadi mana yang berkait dengan kejayaan dan kekalahan sesebuah serangan *"phishing"* yang sangat berguna untuk organisasi dalam masa akan datang dengan sebuah strategi untuk menggurangkan serangan-serangan yang boleh dihadapi disebabkan oleh sifat peribadi seorang pengguna yang menggunakan rangkaian tersebut.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Over the decades, a lot of things have been upgraded and improved. Previously, it could be seen that people have to go to a specific place to complete their chores such as going to a post office to send letters to those who are far away from them, going to a bank to make any transactions, going to a shopping mall to make any purchases and many more. However, nowadays everything has changed. All those house chores could be done from home itself.

Many applications and businesses have become online thus enabling the end user to perform it from home or anywhere given that they have an Internet connection. This situation had made it easier for human kind but there are also some drawbacks on it. The current situation where everything is performed online has made the end users to perform more sensitive tasks online and end users are storing more of their private data on their computers.

Even though there are many large industry that is dedicated to the design and marketing of security related devices of software and hardware development such as firewall and anti-viruses, many end users are not aware that protection for external attack only are not enough to secure their computers, desktop or other network devices purchased by them. End users have to be aware that their personality traits actually effects their decision making sense when they are online. They fail to secure their personal data due to their openness or extraversion personality sometimes.

The act that exploits the attributes of a human being instead of exploiting the technology or the technology devices is known as a social engineering attack. The rate of social engineering attack has increased by the year because it is much easier to obtain information needed by the social engineer through a human being instead of the technology. Besides, there are many factories or companies that exists to come up with new technologies to protect the current technology devices such as firewalls and patches and many more but there is still yet a way to be found to prevent a human beings personality from being exploited or preventing a human being from acting according to their emotions or making decision according to their personality.

The process when an attacker tries to obtain a victim's sensitive information or important information by making the victim's believe that an electronic communication such as email is from an established legitimate organization or company is known as phishing. Phishing attack is considered as a form of social engineering attack. The attacker will usually send a link that requires the user to click on it. The user will be redirected to a bogus website where they will be asked to update their personnel information and any information that is inserted by the users will be captured and stolen by the attacker. Many end users fall for this scam because they are not aware of the attack and sometimes the victim's personality trait is also one of the factors why they fall for the phishing scam easily.

In conclusion, the defense measures that are used currently such as patches, anti-virus software and many more is not functioning as a full security mechanism for the end users because they are their biggest threat. Therefore, this study will be able to determine which of the individual personality traits that makes them more susceptible to the phishing attacks. Thus providing information in the factors that makes an individual to be in a certain personality trait and how that personality trait effects them in being susceptible to the phishing attack.

1.2 Problem Statement

The end user is often referred to as the weakest link in the computer security and information security. This is because no one individual has the same personality trait as other individuals. Thus this makes it hard for any organization or companies to come up with a proper mitigation strategy for each individual personality trait to prevent them from being a victim of phishing attacks. This is considered as the problem that influences this topic because without a proper mitigation strategy that is catered properly for users that possesses different personality, someone will somehow be subjected to phishing attack in that particular organization regardless on the type of organization or they type of educational background possessed by the user. Besides that, users' general experiences in life and technological experiences also will influence the type of personality trait that will be possessed by a user while handling or interacting with the security system which affects their susceptibility of an user towards phishing.

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Table1.1: Summary of Problem Statement

PS	Problem Statement
PS1	No empirical study has been done about the affect of Big Five Personality Model towards phishing susceptibility.
PS2	Lack of experience in security technology knowledge increases the probability of a user being more susceptible towards phishing.

1.3 Project Question

Based on the problem statement stated in Table 1.1, three project questions has arise that is required to be answered which are :

Table1.2: Summary of Project Questions

PS	PQ	Project Question
PS1	**PQ1**	Does Big 5 Personality Model theory explain the relationship of personality traits elements towards phishing susceptibility?
	PQ2	Does self-monitoring trait and Big 5 personality trait has inverse relationship in relation with phishing susceptibility?
PS2	**PQ3**	Does experiential factor influences the personality trait of a user towards phishing susceptibility?

1.4 Project Objective

Based on the problem statement and the project questions stated in Table 1.1 and Table 1.2 previously, the objective of this research could be seen in Table 1.3 below:

Table1.3 : Summary of Project Objective

PS	PQ	PO	Project Objective
PS1	**PQ1**	**PO1**	To analyze the significance of personality trait towards phishing susceptibility.
	PQ2	**PO2**	To analyze the inverse relationship between self-monitoring trait and Big 5 Personality trait in relation with phishing susceptibility.
PS2	**PQ3**	**PO3**	To evaluate whether experiential factors influences the personality trait of a user towards phishing susceptibility.

1.5 Project Scope

1.5.1 Personality Traits

Personality is known to be unique for each individual. It is known as a way on how each person responds to the situation in their environment and their behavior in certain event. In previous studies, it is stated that there some researchers from the University of Arkansas and Louisiana Tech that have

performed a study about the “Big - Five” personality trait that relates phishing attack with the victims personality. (Darwish, Zarka, & Aloul, Towards Understanding Phishing Victims' Profile, 2013) Therefore, in this study the personality traits defined in Big-Five personality trait is used to determine the personality trait of the user. Besides that, Self-Monitoring is also known as one of the most frequently used personality traits for research purposes. (Day, Unckless, Schleicher, & Hiller, 2002) Thus, self-monitoring is also included as one of the personality trait that could be studied to determine the users susceptibility to phishing.

1.5.2 Type of Respondent

This respondent of this study does not regard their gender and age group but only those who are working are allowed to be a respondent since it is organizational based. Besides that, the respondent will be divided into two which is those who are from an IT organization and those who are not working in an IT organization.

1.5.3 Experiential Factors

The experiential factors such as the general experiences, technological experiences and professional experiences were used in this study to determine whether these factors influences the type of personality traits possessed by the user. General experiences measures the positive experiences and negative experiences that the user have faced online. While on the other hand, technological experiences measure the ability of the user to properly handle a technology and the professional experiences is defined by the educational background and also the users working environment and experiences.

1.5.4 Phishing Susceptibility

The likelihood of a user responding to a situation that would subject them to phishing attack is known as phishing susceptibility in this current study. On the other hand, the likelihood of the user to respond actually partially depends on the users' personality trait and their experiential factors such as their general experiences, technological experiences and professional experiences.

1.6 Project Contribution

From this research, there are many benefits and this research does contribute in studying the human layer security more thoroughly to determine the type of experiential factors and the personality traits that are possessed by an user that makes them subject to phishing more compared to others.

Table 1.4: Summary of Project Contribution

No.	Contribution Type	Contribution
1.	Practical Contribution	Validated questionnaire for users' susceptibility towards phishing based on user personality traits.
2.	Organizational contribution	Increases awareness in an organization on which personality traits are more subject to a phishing attack.
3.	Organizational contribution	Guidelines for organization to provide security policies that could cater all the personality type that exist in their organization.

1.7 Thesis Organization

Chapter 1: Introduction.

- This chapter discusses about the introduction of our research topic. This chapter goes in detail about the project by discussing about the problem statement, project question, project objectives, project scope and project contribution. This ensures that the project is well thought off.

Chapter 2: Literature Review

- Chapter 2 discusses more about the previous related work that is similar to the topic to help to give a better understanding on the variables that have been experimented before and the previous results that could help in the upcoming research.

Chapter 3: Project Methodology

- This chapter gives detailed information on how this research is going to be carried out and who will be involved in the research as the respondents.

Chapter 4: Design and Data Collection

- This chapter will discuss on how the data required will be extracted from the respondents such as through a questionnaire.

Chapter 5: Result Analysis

- The collected data's from the respondent will be analyzed in this chapter.

Chapter 6: Conclusion

- This chapter brings the research into a conclusion by discussing the result extracted from the respondent and the analyzed data,

and determines whether the objective of this research is achieved or not.

1.8 Conclusion

Through this chapter, the process of identifying the problem statement, project questions, project objectives, project scope and project contributions has been carried out. Further studies related to the research topic will be shown and discussed in detail in the next chapter.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter contains the related studies of literature review about the topic being researched. A number of articles, books and websites have been referred for this literature review to gain more information and to get a better idea about the related topic. This topic discusses about Social Engineering definition, type of social engineering attacks which are divided into two which would be Human Based and Technology Based, a more detailed study about phishing and phishing attack processes and also about the personality traits that affects the susceptibility towards phishing.

seen that respondents between the age group of 21 to 30 years old have higher level of technological experience which means that they are up to date about the latest technological update while respondents between 31 to 40 years old have higher level of general experiences which means that they have experienced some good and bad experience during their usage of technology which makes them to possesses a higher level of *Conscientiousness* trait and *Neuroticism* compared to other age group respondents. As for the personality trait variables, respondents between the age 21 to 30 and 51 to 60 only possesses higher level of *Self-Monitoring* trait and *Agreeableness* trait respectively. On the other hand, the respondent between the ages 41 to 50 possess higher mean in the remaining traits which are *Extroversion* and *Openness*. Furthermore, for the phishing susceptibility that measures which group possesses user behavior that is not susceptible to phishing, it could be seen that respondents between the age 31 to 40 possesses a higher mean in user behavior that is less susceptible to phishing attack compared to respondents from other age group.

5.6 Correlation

In this study, Pearson correlation analysis will be used because it is the suitable analysis for interval data type. Pearson correlation value ranges from -1 to +1. If the value is -1, it shows that when one variable increases the other variable tend to decrease. On the other hand, if the value is +1, it shows that both the variables increases or decreases simultaneously. It is determined as no relationship only if the value is 0. Since the value of correlation shows how strongly both the variables are related, therefore when the value is +1 it represents a perfect positive linear relationship and if the value is -1 it represents a perfect negative linear relationship. The table below shows the Pearson product moment correlation coefficient (r) value interpretation that determines the

strength of the association between both variables according to a guide suggested by Evan (1996).

Table 5.8: Pearson product moment correlation coefficient (r) value interpretation

Value	Correlation Strength
0.00 – 0.19	Very weak positive linear relationship
0.20 – 0.39	Weak positive linear relationship
0.40 – 0.59	Moderate positive relationship
0.60 – 0.79	Strong positive linear relationship
0.80 – 1.0	Very strong linear relationship

*Similar use for negative values.

5.6.1 Correlation between Variables

Table 5.9: Pearson's Correlation between Variables

	EV	AG	CS	NE	OP	SM	UB
Extroversion (EV)	1	0.658**	-0.223**	-0.166**	-	-	-0.533**
Agreeableness (AG)	0.658**	1	-	-	-	-	-0.400**
Conscientiousn-ess (CS)	-0.223**	-	1	0.505**	-0.142*	-	0.306**
Neuroticism (NE)	-0.166**	-	0.505**	1	-0.141*	-	-0.142*
Openness (OP)	-	-	-0.142*	-0.141*	1	-	0.010
Self Monitoring (SM)	-	-	-	-	-	1	-0.414**
User Behavior (UB)	-0.533**	-0.400**	0.306**	-0.142*	0.010	-0.414**	1

** Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

Table 5.9 shows the result of the Pearson's product moment correlation between the variables in this study. Based on the result, the correlation value of the variable *Extroversion* with User Behavior is -0.533 and it shows the significant value as 0.000. This shows that the variable *Extroversion* is negatively moderately correlated with the user behavior. It is negatively correlated because the increase in the variable *Extroversion* could reduce the level of user behavior that is not susceptible to phishing and vice versa. Besides, it also has a significant correlation at a 0.01 level.

The correlation value of the variable *Agreeableness* with User Behavior is -0.400 and it shows the significant value of 0.000. This shows that the variable *Agreeableness* is negatively moderately correlated with the user behavior. It is negatively correlated because the increase in the variable *Agreeableness* could reduce the level of user behavior that is not susceptible to phishing and vice versa. Besides, it also has a significant correlation at a 0.01 level.

The correlation value of the variable *Conscientiousness* with User Behavior is 0.306 and it shows the significant value of 0.000. This shows that the variable *Conscientiousness* is positively weakly correlated with the user behavior. It is positively correlated because the increase in the variable *Conscientiousness* supposedly should be able to increase the level of user behavior that is not susceptible to phishing and vice versa. Besides, it is also significantly correlated at a 0.01 level.

The correlation value of the variable *Neuroticism* with User Behavior is -0.142 and it shows the significant value of 0.024. This shows that the variable *Neuroticism* is negatively very weakly correlated with the user behavior. It is negatively correlated because the increase in the variable *Neuroticism* supposedly should be able to increase the level of user behavior that is not

susceptible to phishing and vice versa. Besides, it is also significantly correlated at a 0.05 level.

The correlation value of the variable *Openness* with User Behavior 0.010 and it has the significant value of 0.879. This shows that the variable *Openness* is close to no association with the User Behavior and the significant value of the variable *Openness* shows that it is not statistically significant to User Behavior.

The correlation value of the variable *Self-Monitoring* with User Behavior is -0.414 and it shows the significant value of 0.003. This shows that the variable *Self-Monitoring* is negatively moderately correlated with the user behavior. It is negatively correlated because the increase in the variable *Self-Monitoring* could reduce the level of user behavior that is not susceptible to phishing and vice versa. Besides, it also has a significant correlation at a 0.01 level.

The strength of association between the variables is based on the Pearson analysis that has been carried out. Since most of the associations are moderate and weak therefore only the variable with the significant level of 0.01 will be chosen and taken into consideration. Thus only the variables which are *Extroversion*, *Agreeableness*, *Conscientiousness* and *Self-Monitoring* have a significant level of 0.01, thus only this variables will be used in the multiple regression analysis. The other variables which are *Openness* and *Neuroticism* will be dropped.

5.6.2 Pearson Correlation between General Experiences and Variables

Table 5.10: Pearson Correlation between General Experiences and Variables

	EV	AG	CS	NE	OP	SM	GE
Extroversion (EV)	1	0.658**	-0.223**	-0.166**	-	-	-0.422**
Agreeableness (AG)	0.658**	1	-	-	-	-	-0.481**
Conscientiousness (CS)	-0.223**	-	1	0.505**	-0.142*	-	0.236**
Neuroticism (NE)	-0.166**	-	0.505**	1	-0.141*	-	-0.069
Openness (OP)	-	-	-0.142*	-0.141*	1	-	0.010
Self Monitoring (SM)	-	-	-	-	-	1	-0.208**
General Experiences (GE)	-0.422**	-0.481**	0.236**	-0.069	0.010	-0.208**	1

** Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

Table 5.10 shows the result of the Pearson's product moment correlation between the general experiences and the personality trait in this study. Based on the table above, the correlation value between *General Experiences* and *Extroversion* is -0.422 and it shows the significant value of 0.000. This shows that the variable *General Experience* is negatively moderately correlated with the *Extroversion* trait. It is negatively correlated because the increase in *General Experiences* in a respondent reduces the level of *Extroversion* in a respondent thus making them less susceptible to phishing. Besides, it also has a significant correlation level of 0.01.

The correlation value of the variable *General Experiences* with *Agreeableness* is -0.481 and it shows the significant value of 0.000. This shows that the variable *General Experiences* is negatively moderately correlated with the *Agreeableness* trait. It is negatively correlated because the increase in the variable *General Experiences* could reduce the level of *Agreeableness* in a respondent thus making them less susceptible to phishing and vice versa. Besides, it also has a significant correlation at a 0.01 level.

The correlation value of the variable *General Experiences* with *Conscientiousness* is -0.280 and it shows the significant value of 0.008. This shows that the variable *General Experiences* are negatively weakly correlated with the *Conscientiousness* trait. It is negatively correlated because the increase in the variable *General Experiences* could decrease the level of *Conscientiousness* in a respondent thus making them susceptible to phishing and vice versa. Besides, it also has a significant correlation at a 0.01 level.

The correlation value of the variable *General Experiences* with *Self-Monitoring* is -0.208 and it shows the significant value of 0.001. This shows that the variable *General Experiences* are negatively weakly correlated with the *Self-Monitoring* trait. It is negatively correlated because the increase in the variable *General Experiences* could reduce the level of *Self-Monitoring* in a respondent thus making them less susceptible to phishing and vice versa. Besides, it also has a significant correlation at a 0.01 level.

The variable *Neuroticism* and *Openness* is not taken into consideration because it has a correlation value of -0.069 and 0.010 respectively which is very weakly correlated and the variable has a significant value of 0.275 and 0.872 respectively thus making it statistically insignificant.

The strength of association between the variables is based on the Pearson analysis that has been carried out. Since most of the associations are moderate

and weak therefore only the variable with the significant level of 0.01 will be chosen and taken into consideration. Since only *Extroversion, Agreeableness, Conscientiousness* and *Self-Monitoring* have a significant level of 0.01, thus all this variables will be used in the multiple regression analysis.

5.6.3 Pearson Correlation between Technological Experiences and Variables

Table 5.11: Pearson Correlation between Technological Experiences and Variables

	EV	AG	CS	NE	OP	SM	TE
Extroversion (EV)	1	0.658**	-0.223**	-0.166**	-	-	-0.553**
Agreeableness (AG)	0.658**	1	-	-	-	-	-0.407**
Conscientious-ness (CS)	-0.223**	-	1	0.505**	-0.142*	-	-0.487 **
Neuroticism (NE)	-0.166**	-	0.505**	1	-0.141*	-	-0.179
Openness (OP)	-	-	-0.142*	-0.141*	1	-	0.057
Self Monitoring (SM)	-	-	-	-	-	1	-0.347**
Technological Experiences (TE)	-0.553**	-0.407**	-0.487**	-0.179	0.057	-0.347**	1

** Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

Table 5.11 shows the result of the Pearson's product moment correlation between the technological experiences and the personality trait in this study. Based on the table above, the correlation value between *Technological Experiences* and *Extroversion* is -0.553 and it shows the significant value of 0.000. This shows that the variable *Technological Experiences* is negatively

moderately correlated with the *Extroversion* trait. It is negatively correlated because the increase in *Technological Experiences* in a respondent reduces the level of *Extroversion* in a respondent thus making them less susceptible to phishing. Besides, it also has a significant correlation level of 0.01.

The correlation value of the variable *Technological Experiences* with *Agreeableness* is -0.407 and it shows the significant value of 0.000. This shows that the variable *Technological Experiences* is negatively moderately correlated with the *Agreeableness* trait. It is negatively correlated because the increase in the variable *Technological Experiences* could reduce the level of *Agreeableness* in a respondent thus making them less susceptible to phishing and vice versa. Besides, it also has a significant correlation at a 0.01 level.

The correlation value of the variable *Technological Experiences* with *Conscientiousness* is -0.487 and it shows the significant value of 0.006. This shows that the variable *General Experiences* are negatively moderately correlated with the *Conscientiousness* trait. It is negatively correlated because the increase in the variable *General Experiences* could decrease the level of *Conscientiousness* in a respondent thus making them susceptible to phishing and vice versa. Besides, it also has a significant correlation at a 0.01 level.

The correlation value of the variable *Technological Experiences* with *Self-Monitoring* is -0.347 and it shows the significant value of 0.009. This shows that the variable *Technological Experiences* are negatively weakly correlated with the *Self-Monitoring* trait. It is negatively correlated because the increase in the variable *Technological Experiences* could reduce the level of *Self-Monitoring* in a respondent thus making them less susceptible to phishing and vice versa. Besides, it also has a significant correlation at a 0.01 level.

The variable *Neuroticism* and *Openness* is not taken into consideration because it has a correlation value of -0.179 and 0.057 respectively which is very

weakly correlated and the variable has a significant value of 0.365 and 0.190 respectively thus making it statistically insignificant.

The strength of association between the variables is based on the Pearson analysis that has been carried out. Since most of the associations are moderate and weak therefore only the variable with the significant level of 0.01 will be chosen and taken into consideration. Since only *Extroversion*, *Agreeableness*, *Conscientiousness* and *Self-Monitoring* have a significant level of 0.01, thus all this variables will be used in the multiple regression analysis.

5.6.4 Pearson Correlation between General and Technological Experiences

Table 5.12: Pearson Correlation between General and Technological Experiences

	General Experience	Technological Experience
General Experience	1	0.705**
Technological Experience	0.705**	1

** Correlation is significant at the 0.01 level (2-tailed)

Table 5.12 shows the result of the Pearson's product moment correlation between the General Experience and Technological Experience in this study. Based on the result shown, the correlation between General Experience and Technological Experience is 0.705 with a 0.000 significant level. This means that General Experience is strongly positively correlated with Technological Experience. Besides it also has a significant correlation at the 0.01 level.

5.6.5 Revised Framework based on Correlation Analysis

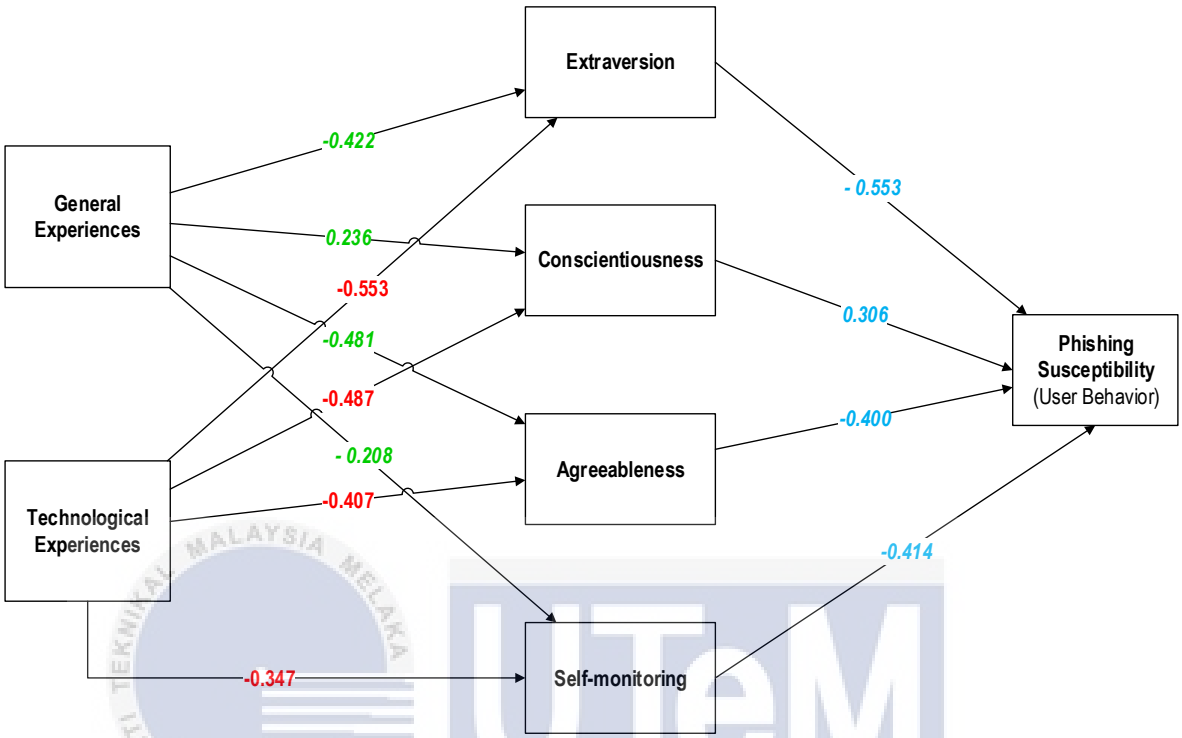

Figure 5.1: Revised Phishing Susceptibility Framework after Correlation Analysis

5.7 Multiple Regression Analysis

In this study, multiple regression method is used because there are multiple independent variables and also stepwise regression method is used. Stepwise multiple regression method eliminates the weakest correlated variable and gives out the best model by carrying out multiple regression process for a number of times.

5.7.1 Multiple Regressions for the dependent variable User Behavior.

Table 5.13: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.333[a]	.111	.107	.97800
2	.350[b]	.123	.115	.97356
3	.355[c]	.126	.115	.97357
4	.382[d]	.146	.132	.96417

a. Predictors: (Constant), Extroversion

b. Predictors: (Constant), Extroversion, Agreeableness

c. Predictors: (Constant), Extroversion, Agreeableness, Conscientiousness

d. Predictors: (Constant), Extroversion, Agreeableness, Conscientiousness, SelfMonitoring

Table 5.13 above shows the model summary of the multiple regression analysis. As shown in the table above, R Square column tells the percentage of variability in the Dependent Variable which is the user behavior that is not susceptible to phishing is accounted for by all the Independent Variables put together. Meanwhile the R column tells us about the multiple correlation

coefficients which determine the quality of the prediction of the Dependent Variable which is the user behavior that is not susceptible to phishing. As shown in the table above the best model is model 4 which has the value of 0.382. In R Square column the value is 0.146 which indicates that the independent variable could explain 14.6% of the variability of the dependent variable.

Table 5.14: ANOVA Values

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.843	1	29.843	31.200	.000[b]
	Residual	239.121	250	.956		
	Total	268.964	251			
2	Regression	32.956	2	16.478	17.385	.000[c]
	Residual	236.009	249	.948		
	Total	268.964	251			
3	Regression	33.898	3	11.299	11.921	.000[d]
	Residual	235.066	248	.948		
	Total	268.964	251			
4	Regression	39.345	4	9.836	10.581	.000[e]
	Residual	229.619	247	.930		
	Total	268.964	251			

a. Dependent Variable: UserBehaviour

b. Predictors: (Constant), Extroversion

c. Predictors: (Constant), Extroversion, Agreeableness

d. Predictors: (Constant), Extroversion, Agreeableness, Conscientiousness

e. Predictors: (Constant), Extroversion, Agreeableness, Conscientiousness, SelfMonitoring

Table 5.14 shows the ANOVA table of the multiple regression analysis that displays the F-test which associates with the p-value. The p-value is represented by the "Sig." column in the table. The threshold of the "Sig." value is 0.05 to indicate that the independent variable and dependent variable is statistically significant. Therefore the "Sig." value has to be below 0.05 in order for it to be statistically significant. As shown in the table above it could be seen

that all the models has a "Sig." value of 0.000 which is lower than the threshold which is 0.05. Therefore all the models are statistically significant and it could be interpreted that Model 4 is able to improve the capability to predict user behavior that is not susceptible to phishing significantly.

Table 5.15: Coefficients of User Behavior

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.011	.161		24.872	.000
	Extroversion	-.293	.052	-.333	-5.586	.000
2	(Constant)	4.233	.202		20.951	.000
	Extroversion	-.210	.069	-.239	-3.035	.003
	Agreeableness	-.139	.077	-.143	-1.812	.071
3	(Constant)	4.441	.290		15.312	.000
	Extroversion	-.227	.071	-.258	-3.183	.002
	Agreeableness	-.132	.077	-.136	-1.714	.088
	Conscientiousness	-.058	.058	-.061	-.997	.320
4	(Constant)	4.953	.357		13.885	.000
	Extroversion	-.235	.071	-.267	-3.325	.001
	Agreeableness	-.121	.076	-.124	-1.586	.014
	Conscientiousness	-.067	.057	-.070	-1.159	.043
	SelfMonitoring	-.150	.062	-.143	-2.421	.016

a. Dependent Variable: UserBehaviour

Table 5.15 shows the coefficient table of the multiple regression analysis. The table consists of un-standardized coefficient column which determines how much does the dependent variable change together with the independent variable when the other variables are constant. All the independent variable negatively influences the dependent variable. This shows that there is an inverse relationship between the two variables. This would shows that the increase in the

independent variable will cause the decrease in the dependent variable. As shown in the coefficient table it could be seen that all the variables are significant predictors of the independent variables since all the "Sig." values or p-values is lower that the threshold which is 0.05. Based on the result given in the Table 5.14, an equation can be predicted based on Model 4 which consists of all the variables and the regression equation that would be predicted would be as shown below:

$$\textbf{\textit{Phishing Susceptibility}} = 4.953 - 0.235\,E - 0.150S - 0.121A - 0.067C$$

Where:

E = *Extroversion*

A = *Agreeableness*

C = *Conscientiousness*

S = *Self-Monitoring*

According to the regression equation, it could be seen that all the variables are negatively associated towards user behavior that is susceptible to phishing attack. This could also mean that as the the variables have inverse relationship with the dependent variable. Which means that as the value of dependent variable increases, the value of independent variable decreases and vice versa.

Table 5.16: Excluded Variables

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Agreeableness	-.143[b]	-1.812	.071	-.114	.568
	Conscientiousness	-.071[b]	-1.154	.250	-.073	.950
	SelfMonitoring	-.144[b]	-2.434	.016	-.152	1.000
2	Conscientiousness	-.061[c]	-.997	.320	-.063	.942
	SelfMonitoring	-.138[c]	-2.350	.020	-.148	.997
3	SelfMonitoring	-.143[d]	-2.421	.016	-.152	.993

a. Dependent Variable: UserBehaviour

b. Predictors in the Model: (Constant), Extroversion

c. Predictors in the Model: (Constant), Extroversion, Agreeableness

d. Predictors in the Model: (Constant), Extroversion, Agreeableness, Conscientiousness

Table 5.16 shows the table for excluded variables. This table shows the variables that have been excluded from each model. Model 4 is not included in the excluded variables table which shows that Model 4 is a suitable model since all the variables are included in the model and gives significance to user behavior.

5.7.2 Regression Analysis among Variables

Verification of the correlation between the variables and the value for the model is determined by carrying out the regression analysis among the variables. The significantly correlated value that was chosen previously was 0.01, therefore the same value will be chosen in the analysis.

5.7.2.1 Linear Regression between General Experiences and Extroversion

Table 5.17: Coefficient of Linear Regression between General Experiences and Extroversion

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.531	.205		17.213	.000
	GeneralExperience	-.269	.075	-.222	-3.592	.000

a. Dependent Variable: Extroversion

Table 5.17 shows the association between General Experiences to the *Extroversion* trait which is significant at a 0.01 level with a coefficient of -0.269.

5.7.2.2 Linear Regression between General Experiences and Agreeableness

Table 5.18: Coefficient of Linear Regression between General Experiences and Agreeableness

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.074	.182		22.349	.000
	GeneralExperience	-.308	.067	-.281	-4.623	.000

a. Dependent Variable: Agreeableness

Table 5.18 shows the association between Experiences to *Agreeableness* trait which is significant at a 0.01 level with a coefficient of -0.308.

5.7.2.3 Linear Regression between General Experiences and Conscientiousness

Table 5.19: Coefficients of Linear Regression between General Experiences and Conscientiousness

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.428	.195		17.600	.000
	GeneralExperience	-.090	.071	-.280	-4.262	.008

a. Dependent Variable: Conscientiousness

Table 5.19 shows the association between General Experiences to *Conscientiousness* trait which has a significant level of 0.01 with the coefficient value of -0.090.

5.7.2.4 Linear Regression between Experiences and Self Monitoring

Table 5.20: Coefficient of Linear Regression between Experiences and Self Monitoring

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.852	.172		22.357	.000
	GeneralExperience	-.212	.063	-.208	-3.366	.001

a. Dependent Variable: SelfMonitoring

Table 5.20 shows the association between Experiences to *Self-Monitoring* trait which has a significance level of 0.01 with a coefficient value of -0.212.

5.7.2.5 Linear Regression between Technological Experiences and Extroversion

Table 5. 21: Coefficient of Linear Regression between Technological Experiences and Extroversion

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.734	.227		16.418	.000
	TechnologicalExperience	-.259	.063	-.253	-4.138	.000

a. Dependent Variable: Extroversion

Table 5.21 shows the association between Technological Experiences to the *Extroversion* trait which is significant at a 0.01 level with a coefficient of -0.259.

5.7.2.6 Linear Regression between Technological Experiences and Agreeableness

Table 5.22: Coefficient of Linear Regression between Technological Experiences and Agreeableness

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.264	.202		21.107	.000
	TechnologicalExperience	-.284	.056	-.307	-5.104	.000

a. Dependent Variable: Agreeableness

Table 5.22 shows the association between Technological Experiences to the *Agreeableness* trait which is significant at a 0.01 level with a coefficient of -0.284.

5.7.2.7 Linear Regression between Technological Experiences and Conscientiousness

Table 5.23: Coefficient of Linear Regression between Technological Experiences and Conscientiousness

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.483	.218		16.006	.000
	TechnologicalExperience	-.083	.060	-.087	-1.378	.029

a. Dependent Variable: Conscientiousness

Table 5.23 shows the association between Technological Experiences to the *Conscientiousness* trait which is significant at a 0.05 level with a coefficient of -0.083.

5.7.2.8 Linear Regression between Technological Experiences and Self-Monitoring

Table 5.24: Coefficient of Linear Regression between Technological Experiences and Self-Monitoring

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.745	.195		19.229	.000
	TechnologicalExperience	-.126	.054	-.147	-2.357	.019

a. Dependent Variable: SelfMonitoring

Table 5.24 shows the association between Technological Experiences to the *Self-Monitoring* trait which is significant at a 0.05 level with a coefficient of -0.126.

5.7.2.9 Linear Regression between General Experiences and User Behavior

Table 5.25: Coefficient of Linear Regression between General Experiences and User Behavior

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.477	.145		10.193	.000
	GeneralExperience	.664	.053	.622	12.552	.000

a. Dependent Variable: UserBehaviour

Table 5.25 shows the association between General Experiences to the User Behavior which is significant at a 0.01 level with a coefficient of 0.664.

5.7.2.10Linear Regression between Technological Experiences and User Behavior

Table 5.26: Coefficient of Linear Regression between Technological Experiences and User Behavior

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.991	.147		6.758	.000
	TechnologicalExperience	.634	.040	.705	15.724	.000

a. Dependent Variable: UserBehaviour

Table 5.26 shows the association between Technological Experiences to the User Behavior which is significant at a 0.01 level with a coefficient of 0.634.

5.7.3 Phishing Susceptibility Framework based on Regression Values

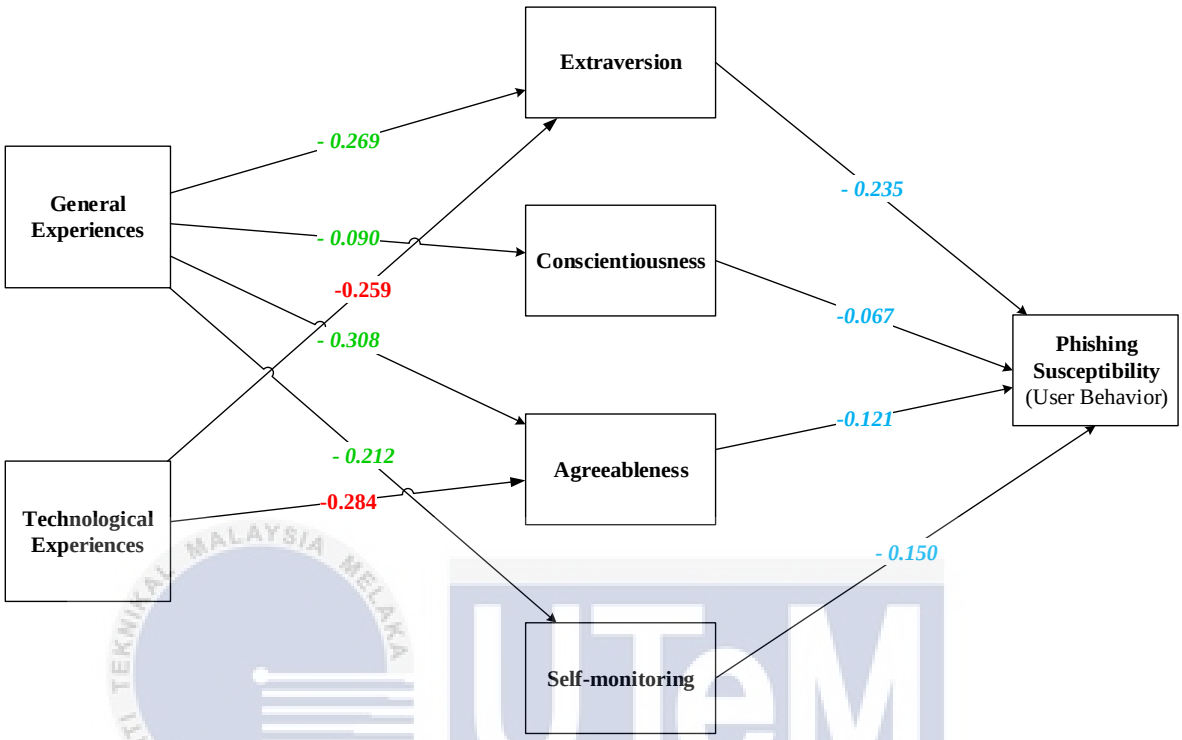

Figure 5.2: Framework for Phishing Susceptibility based on Regression analysis

Figure 5.2 shows the regression value obtained after the regression analysis. The value in green shows the regression value between the variable General Experience towards *Extroversion*, *Conscientiousness*, *Agreeableness* and *Self-Monitoring*. The value in red shows the regression value of Technological Experiences towards *Extroversion* and *Agreeableness*. The value in blue shows the regression value between Extraversion, *Conscientiousness*, *Agreeableness* and *Self-Monitoring* towards User Behavior. The value in black shows the regression value between General Experience and Technological Experience towards User Behavior.

5.8 Path Analysis

Before carrying out path analysis, a diagram that shows the direction or the flow of the cause and effect has to be prepares. In this study, that diagram has been prepared after the multiple regression analysis as shown in Figure 5.3. This diagram will be used in Path Analysis to identify the variables that are influencing other variables. Path analysis is known as one of the techniques in causal modeling which is a technique where the inter-correlation pattern among the variables are used to identify whether it represents the theory brought up by the researcher in determining which variables is causes by which variable. In this study, path analysis will be carried out to determine if the diagram produced during the multiple regression analysis and the relationship between the variables are significant for a fit model or not.

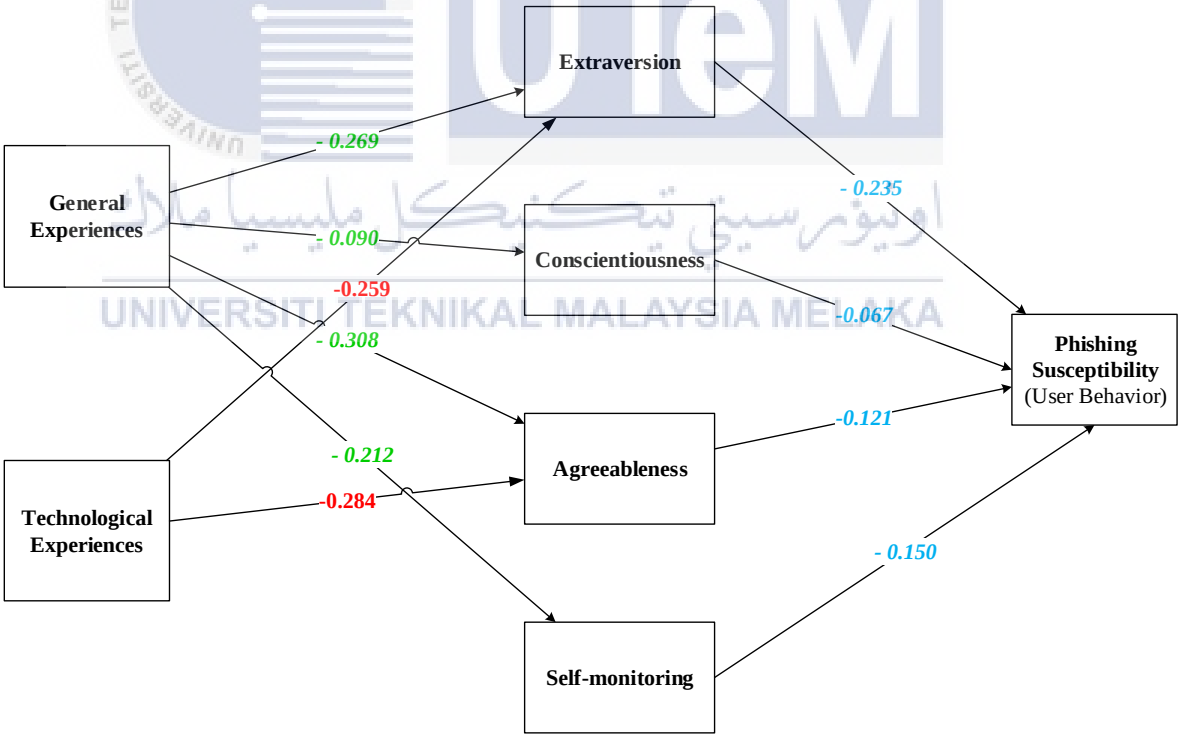

Figure 5.3: Framework for Phishing Susceptibility

Figure 5.3 shows the framework that will be used in the path analysis and this framework have been interpreted from the multiple regression analysis carried out previously.

Table 5.27: First layer multiple regression for full model

Dependent Variable	R	R Square	Standardized Coefficients	Sig.
			Beta	
Extroversion	0.260	0.068	-0.086	0.006
Agreeableness	0.320	0.103	-0.227	0.003
Conscientiousness	0.280	0.078	-0.280	0.008
Self Monitoring	0.208	0.043	-0.208	0.001

- Independent Variable : General Experience

Dependent Variable	R	R Square	Standardized Coefficients	Sig.
			Beta	
Extroversion	0.260	0.068	-0.193	0.002
Agreeableness	0.320	0.103	-0.217	0.009

- Independent Variable :Technological Experience

Table 5.27 shows the multiple regression value for the first layer of the full model which is from General and Technological Experience which is the Independent variable towards the personality trait variables which consist of *Extroversion*, *Agreeableness*, *Conscientiousness* and *Self-Monitoring* which acts as a dependent variable.

Table 5.28: Second Layer multiple regression for full model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.744[a]	.553	.542	.70067

a. Predictors: (Constant), SelfMonitoring, Extroversion, Conscientiousness, TechnologicalExperience, Agreeableness, GeneralExperience

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.228	.361		3.404	.001
	GeneralExperience	.251	.065	.235	3.843	.000
	TechnologicalExperience	.457	.055	.508	8.290	.000
	Extroversion	-.148	.052	-.169	-2.874	.004
	Agreeableness	.035	.057	.136	2.627	.031
	Conscientiousness	.032	.042	.094	1.768	.043
	SelfMonitoring	-.021	.046	-.120	-1.446	.026

a. Dependent Variable: UserBehaviour

The tables showed in Figure 5.28 shows the multiple regression value for the second layer of the full model. Thus it shows the regression value from the first layer to second layer of the model which is from General Experience and Technology Experience to Personality Traits variable to the dependent variable which is the User Behavior that is not susceptible to phishing

Based on the subtopic before this, the value that is required for the path analysis has been determined. The path coefficients are the Beta value from the Standardized Coefficient value from the multiple regression analysis for each specific layer depending on its dependent variable. Therefore the full model path analysis would be as shown below:

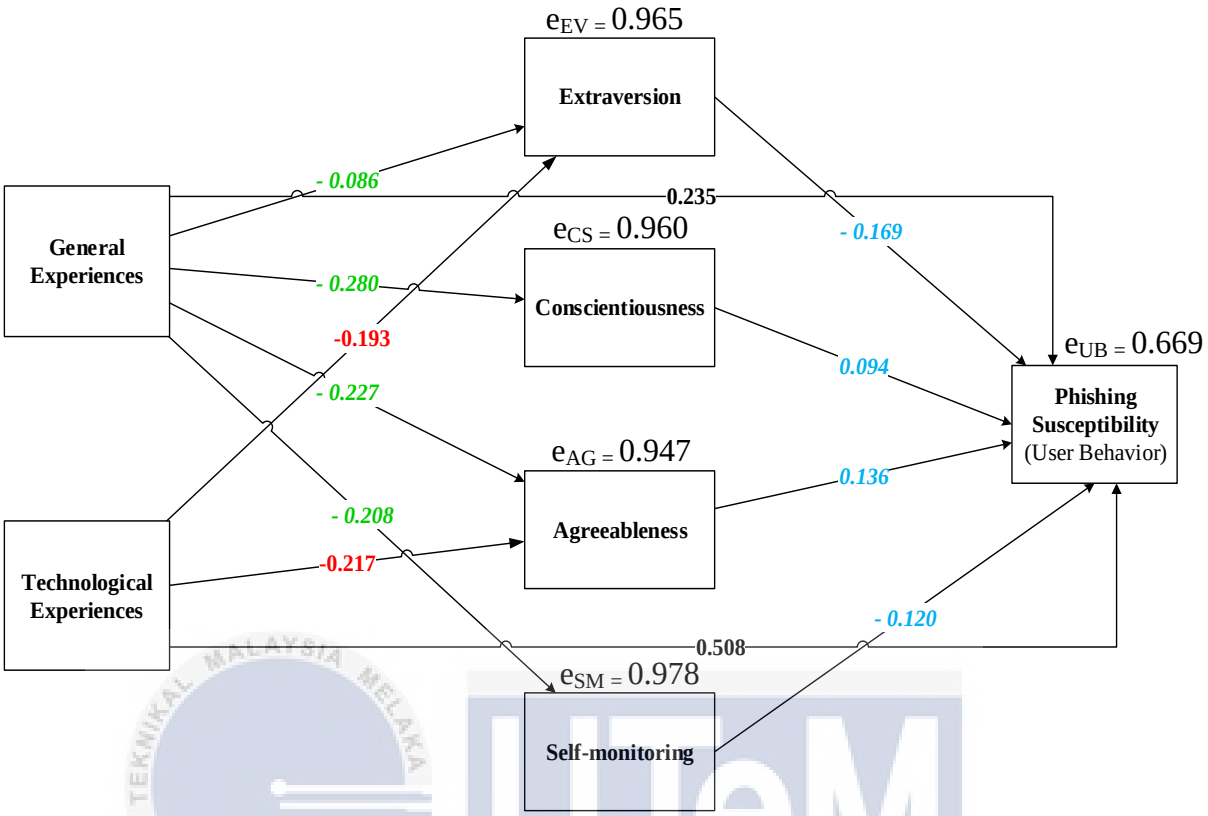

Figure 5.4: Full Model Path Analysis

Figure 5.4 shows the full model path analysis. As could be seen in the figure the each path coefficient value is taken from the Beta value from the Standardized Coefficient column from the result of the multiple regression analysis result in Table 5.27 and Table 5.28. The "e" values are the roughly error variance which is determined through the formula as shown below:

$$e_{ab} = \sqrt{(1 - (R^2))}$$

The equation below shows how the "e" value or also known as the roughly error variance for each dependent variable is determined:

1. *Extroversion* , $e_{EV} = \sqrt{(1 - (0.068))} = 0.965$

2. *Conscientiousness*, $e_{CS} = \sqrt{(1 - (0.078))} = 0.960$
3. *Agreeableness*, $e_{AG} = \sqrt{(1 - (0.103))} = 0.947$
4. *Self-Monitoring*, $e_{SM} = \sqrt{(1 - (0.043))} = 0.978$
5. User Behavior, $e_{UB} = \sqrt{(1 - (0.553) = 0.669}$

After the roughly error variance or the "e" value have been determined, the significant value for each variable is seen to determine the direct and indirect effect that it has on the dependent variable. As shown in Table 5.27 and Table 5.28, it could be concluded that:

- The personality trait variables which consist of *Extroversion*, *Conscientiousness*, *Agreeableness* and *Self-Monitoring* have a direct effect to user behavior that is not susceptible to phishing.

- General Experiences and Technological Experiences do have direct effect towards user behavior towards phishing susceptibility.

- General Experience also has an indirect effect towards user behavior that is not susceptible to phishing through *Extroversion*, *Conscientiousness*, *Agreeableness* and also *Self-Monitoring*.

- Technological Experience also has an indirect effect towards user behavior that is not susceptible to phishing through *Extroversion* and *Agreeableness*.

5.9 Conclusion

This chapter concludes the respond given out by the respondent through the data collected from them. The most reliable research instrument is selected to be analyzed through the validation of the research instrument in this chapter. The analysis that was conducted in this chapter was carried out to validate the hypotheses that were formed in the beginning of the study. From the result of the analysis, two of the hypotheses was rejected which is *Openness* and *Neuroticism* does not influence the user behavior towards phishing susceptibility. The framework was finalized through the multiple regression analysis and path analysis to ensure the direct effect and indirect effect that influenced the variables. The framework produces in this chapter will be validated in the next chapter.

CHAPTER 6

VALIDATION AND DISCUSSION

6.1 Introduction

Statistical validation is conducted and discussed in this chapter based on the result of the analysis. Statistical validation is done to validate the finding of the study and to conclude the finding of the study. Structural Equation Modeling (SEM) is used to validate the result obtained during the regression analysis from the phishing susceptibility framework. The statistical validation is carried out using IBM SPSS Amos. The data set that is used in this statistical validation is the same exact data that is used during the regression analysis.

6.2 Structural Equation Modeling (SEM)

Structural Equation Modeling or also known as SEM is a modeling technique which is generally statistical. This modeling technique is extensively used in the behavioral science field and it is also viewed as a grouping of factor analysis and regression or path analysis. The root of structural equation modeling

is in path analysis and it was created or founded by the geneticist Sewall Wright in 1921. The must in starting a SEM analysis is through a path diagram which consist of boxes or circles that are connected to each other through arrows that could be single-headed or double-headed. The use of single headed arrows represents the regression coefficients while the use of double-headed arrows represents covariance or correlations. On the other hand, the use of a box is for observed variable while the use of circle or ellipse is for latent factors (Hox & Bechger). Thus in this study, Structural Equation Modeling is used to validate the model that is constructed throughout this analysis since it is able to identify and evaluate whether or not the model is a good fit for this study.

6.3 Validated Framework in Phishing Susceptibility

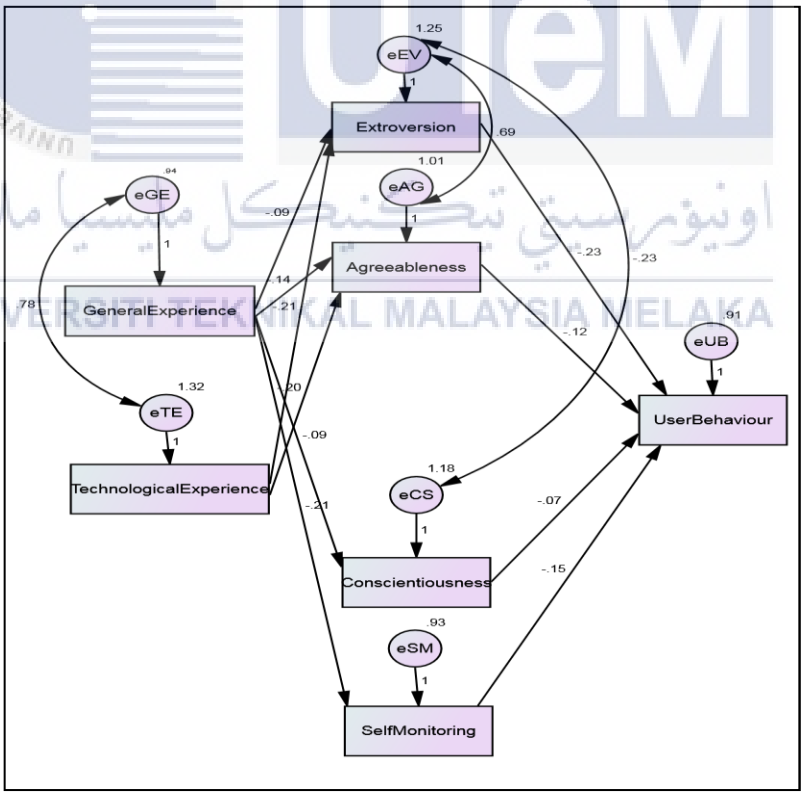

Figure 6.1: Phishing Susceptibility Framework

Figure 6.1 shows the framework that was obtained from the regression analysis and was constructed again in IBM SPSS Amos software to carry out the Structural Equation Modeling to confirm that the framework is a fit model. The Amos software computes a number of goodness-of-fit indices but only certain values will be taken into account such as the Goodness of Fit Indices (GFI), Tucker- Lewis Index (TLI), Normed Fit Index (NFI), Comparative Fit Index (CFI) and Root Mean Square (RMR). According to Hu and Bentler, (1999), the acceptable model fit that is indicated for the CFI value is 0.90 or greater (Suhr).On the other hand, other model fits such as GFI, TLI, NFI and CFI should have at least the value of 0.90 to be accepted as a fit model but a good model should have at least 0.95 and greater (Hox & Bechger). According to Browne and Cudeck (1993), the RMR value should be less that 0.05 to make the model a good fit.

Model	**x^2/df**	**GFI**	**CFI**	**TLI**	**NFI**	**RMR**
Accepted Value	<=5	>0.95	>0.95	>0.95	>0.95	<0.05
Value from framework	2.511	0.965	0.971	0.968	0.961	0.041

Table 6.1: Fit Indices

Table 6.2: Regression Output

			Estimate	S.E.	C.R.	P	Label
Extroversion	<---	GeneralExperience	-.095	.102	-3.927	***	
Agreeableness	<---	GeneralExperience	-.140	.092	-3.512	***	
Conscientiousness	<---	GeneralExperience	-.090	.071	-1.265	.008	
SelfMonitoring	<---	GeneralExperience	-.212	.063	-3.373	***	
Extroversion	<---	TechnologicalExperience	-.209	.085	-2.450	.014	
Agreeableness	<---	TechnologicalExperience	-.201	.078	-2.580	.010	
UserBehaviour	<---	Extroversion	-.235	.070	-3.355	***	
UserBehaviour	<---	Agreeableness	-.121	.076	-1.604	.014	
UserBehaviour	<---	Conscientiousness	-.067	.057	-1.172	.043	
UserBehaviour	<---	SelfMonitoring	-.150	.061	-2.444	.015	

Table 6.2 above shows the regression weight obtained during the SEM analysis of the phishing susceptibility framework. The table above shows all the direct and indirect relationship of the variables in the study. The table consists of the Estimate value which is the regression value between the variables, S.E which stands for Standard Error and C.R which is Critical Ratio. The P value shows the significance between the variables and if it consists of three asterisk symbols, it represents that the relationship between the variables is very significant. Based on the result in Table 6.2, it could be seen that all the values are significant. Based on the estimate value obtained during the SEM analysis, the regression equation that was obtained during multiple regression analysis could be verified since all the estimates are the same as the value obtained previously.

$$\text{Phishing Susceptibility} = 1.228 - 0.235E - 0.150S - 0.121A - 0.067C$$

Based on the equation obtained, the highest contributor for user behavior that is not susceptible to phishing is *Extroversion* with the value of -0.235,

followed by *Self Monitoring* with -0.150, *Agreeableness* at -0.121 and *Conscientiousness* with the value of -0.067.

As a conclusion the phishing susceptibility framework is a good fit model because the fit indices value that is shown in Table 6.1 shows that the value of fit indices for the framework for this current study meets all the threshold requirement thus making it a good fit model.

6.3 Discussion

This study is carried out to test the relationship between the personality element of Big 5 personality trait and *Self-Monitoring* towards user behavior towards phishing susceptibility. This study focuses more on phishing susceptibility because phishing attacks has become very sophisticated to the extent of no organization or person could detect that they are being attacked until later. Even though nowadays organization have a stringent security policies, procedures and carries out frequent security assessment, they focus more on the tangible vulnerabilities such as in software and also network infrastructures. It fails to give information about the organization or the employees' susceptibility to phishing attacks (Moore, 2013). Thus this study is able to produce an insight and provide guidelines to organizations in what personality traits in a user that makes them susceptible to phishing and do experiences influence their personality traits towards phishing susceptibility.

In the beginning of the study, six variables are proposed related to phishing susceptibility. All the variables are defined according to phishing susceptibility. The defined variables are later on used to produce the research instrument which is the questionnaire to be used for data collection. The research instrument has to be validated before it could be used during the data collection. The research instrument was validated by three experts to confirm that all the variables are related to the study carried out. No variables have been rejected during the validation of the research instrument but some items of the variables have been changed to be more related and clear about the variables. After the data collection, some of the items have been dropped to produce a variable with higher Cronbach alpha but none of the variables are dropped.

Based on the findings, it could be seen that respondents working in Information Technology (IT) Department possesses higher level of general and *Technological Experience* compared to respondents working in Non-Information

Technology (IT) Department. Besides that, respondents working in Non-Information Department possess higher level on most of the personality traits that could make them more susceptible to phishing attack such as *extroversion*, *agreeableness*, *neuroticism*, *openness* and *self monitoring*. As a result, it could be seen that respondents working in Information Technology (IT) Department has higher level of user behavior that is not susceptible to phishing attacks compared to respondents working in Non-Information Technology (IT) Department.

The relationship among the six variables which is *Extroversion*, *Agreeableness*, *Conscientiousness*, *Neuroticism*, *Openness* and *Self-Monitoring* towards user behavior towards phishing susceptibility was analyzed using Pearson correlation technique. Based on the analysis of Pearson Correlation, it is found that most of the relationships are weak and moderate only. Thus only the variable with the significant level of 0.001 will be taken into consideration which is *Extroversion, Agreeableness*, *Conscientiousness* and *Self-Monitoring*. The other two variables which are *Openness* and *Neuroticism* are dropped during this analysis. The correlation between *General Experience* and *Technological Experience* directly towards user behavior in phishing susceptibility shows a significant relationship that is strong. Therefore new paths were included in the path analysis to although in the hypothesized relationship there is no direct relation between the experiential factors towards phishing susceptibility. Thus, two extra paths were added in the model during path analysis. Through path analysis, it could be seen that *General Experience* and *Technological Experience* have direct influence and indirect influence towards user behavior that is not susceptible to phishing attack.

Based on the findings, all variable which are *Extroversion*, *Agreeableness*, *Conscientiousness* and *Self-Monitoring* has negative association towards user behavior that is not susceptible to phishing attack. Structural Equation Modeling (SEM) method is used to statistically validate the variables. The regression equation is formed from the multiple regression analysis that was

carried out. Based on the regression equation it could be found that *Extroversion* gives the highest effect on user behavior that is not susceptible to phishing followed by *Self-Monitoring*, *Agreeableness* and finally *Conscientiousness*. The findings of this study have been supported by previous studies.

Extroversion gives out the highest effect based on the regression equation on user behavior that is not susceptible to phishing while there were previous studies that state *Extroversion* as a trait that makes a user with higher risk to fall prey for a phishing attack (Uebelacker & Quiel, 2014) (Darwish, Zarka, & Aloul, 2013). According to Workman (2008), the study has stated that the high affective commitment which could be represented by the *Extroversion* trait of an employee could lead the employee to want to feel accepted thus making them to give out important information. High affective commitment is related to *Extroversion* because it defines a individual with a strong commitment that is very much involved and enjoys being a part of their organization according to Allen & Meyer (1990) (Shore & Wayne, 1993). This is because many of the employees in organization would want to be accepted among the other employees in the organization. According to Weirich and Sasse (2001), employees in an organization is considered as less sociable and a recluse which shows low level of *Extroversion* if they do not give out their sensitive information such as their password (Uebelacker & Quiel, 2014). Thus this could be the reason why the extroversion value has the highest influence towards user behavior that is not susceptible to phishing attack. The higher the extroversion value the lower the user behavior that is not susceptible to phishing attack value.

An objective of this study is to determine whether does *Self-Monitoring* trait influence the level of other personality traits which means does the increase in *Self-Monitoring* trait reduces the influence of other personality trait. Based on the correlation result, the *Self-Monitoring* trait does not have any significance correlation with other personality trait. This could be due to the lower value possessed by *Extroversion* trait value throughout the current study thus the *Self-Monitoring* trait has not been able to come through the respondents. *Self-*

Monitoring is highly correlated to *Extroversion* trait according to Schleicher & Day, (2002). Besides that, this could also be due to the respondents working environment which has a stringent security policies and procedures that cause the respondents to possess low *Self-Monitoring* trait. A study has said that an individual that has low *Self-Monitoring* trait tries hard to be authentic and follows a set of core principles and thinking (Barrick, Parks, & Mount, 2005).

During correlation analysis, *Openness* was rejected due to the weak correlations towards the dependent variable which is the user behaviour that is not susceptible to phishing and it does not have asignificant value at a 0.01 level. On the other hand, a study carried out by Ibrahim Alseadoon, Taizan Chan, Emest Foo and Juan Gonzalez Nieto (2012), opennes trait shows a positive association towards phishing susceptibility eventhough the opennes trait has been rejected in this current study. This could be due to the different method that the experiment was conducted and the type of respondents used in the study. *Openness* trait effect towards phishing susceptibility was experimented trough actual situation where the researcher sent an actual email to the respondent to check on their response and the study was carried out among undergradute students in Saudi Arabia (Alseadoon, Chan, Foo, & Nieto, 2012) while the current study used survey method only and focused more on respondents working in an organization. Thus, the *Openness* trait in the respondents could not be captured clearly because they were not intelectually stimulated (Uebelacker & Quiel, 2014). Besides that, it could also be due to the age group of the undergraduate students which is between 18 to 25 years old that made them more susceptible to phishing due to lack of experience and training (Sheng, Holbrook, Kumaraguru, Cranor, & Downs, 2010) compared to the respondents that were used in this current study that was already working and is older.

The modifying factors which consist of *General Experience* and *Technological Experience* is taken into consideration due to the relation in the previous studies. Both the *General Experience* and *Technological Experience* is

hypothesized to have direct influence to the personality development of an individual (Parrish, Courtney, & Bailey, 2009). Besides that, based on the study carried out by Steve Sheng, Mandy Holbrook, Ponnurangam Kumaraguru, Lorrie Cranor and Julie Downs (2010) it is shown that previous experiences and *Technological Experience*s of an individual is asked before their study is carried out to determine which individuals falls prey for phishing based on their demographic value (Sheng, Holbrook, Kumaraguru, Cranor, & Downs, 2010).

During path analysis, *Technological Experience* is considered as one of the important factor towards the dependent variable. This may be because most of the respondents are working in an organizations and most of the organizations has a well maintained technology use causing the respondent to have higher level of technology experience. *Technological Experience* refers to the amount of usage of the technology and also the training for an appropriate way of technology usage and is the main action to prevent phishing attacks or any other social engineering attacks (Parrish, Courtney, & Bailey, 2009). Thus this study supports the present study that is carried out that *Technological Experience* is positively related to the user behavior that is not susceptible to phishing attack. According to Halevi, Lewis, & Memon (2013), there were previous studies that are related to phishing attacks that looked into lack of technical understanding as a reason that makes an user to fall for phishing. Besides that, in a study conducted by Sheng, Holbrook, Kumaraguru, Cranor, & Downs (2010), they found that 47% of their participants on average fell for an phishing attack before undergoing any training while the number decreased to 28% after their participants have undergone training. This shows that technology experience does effect the user behavior that is not susceptible to phishing.

6.4 Conclusion

As a conclusion, it could be seen that the phishing susceptibility framework developed throughout the correlation and multiple regression analysis is validated in this chapter using the Structural Equation Modeling (SEM) technique. Based on the validated framework, the result shows the fit indices value that portrays the framework as a good model fit. The results obtained during the analysis phase were further discussed in this chapter to validate the findings. The next chapter will be the final chapter for the current study and it all the chapters will be concluded in that chapter.

CHAPTER 7

CONCLUSION

7.1 Introduction

This chapter represents the final chapter of this current study which will conclude and summarize all the outcome and findings from the previous chapters. Besides discussing the outcome and the findings from the previous study, this chapter also discusses about the contribution, limitation and also the future work regarding this study.

7.2 Project Summarization

Based on this study, there were a few objectives that was made before carrying out this study. The first objective is to test the relationship between the personality trait elements of Big 5 Personality Model theory towards phishing susceptibility. This objective was achieved by developing a questionnaire and

validating the content of the questionnaire to suit the study. The validated questionnaire is then used for data collection and the data collected was analyzed through descriptive analysis. There were six variables that were used which are Extroversion, Agreeableness, Openness, Neuroticism, Conscientiousness and Self-Monitoring. From this variables, openness and neuroticism did not possess the correlation value of 0.01 level thus was these two variables were dropped after the correlation analysis. Other variables which are Extroversion, Agreeableness, Conscientiousness and Self Monitoring possess the correlation value that was significant at a 0.01 level even though it was negatively weak and moderately correlated. The multiple regression analysis that was carried out shows that Extroversion, Agreeableness, Conscientiousness and Self Monitoring significantly influences the user behavior that is not susceptible to phishing. The second objective is to analyze the inverse relationship between self-monitoring trait and Big 5 Personality trait in relation with phishing susceptibility. Based on the finding, it is shown that there were no inverse relationship between the self-monitoring trait and the Big 5 Personality trait. This could be due to the limited number of respondents and due to no variation in the type of respondents. The final objective is to evaluate whether experiential factors influences the personality trait of a user towards phishing susceptibility. Based on the findings from the correlation analysis, multiple regression analysis and path analysis, it could be seen that the experiential factors has a direct and indirect influences towards user behavior that is not susceptible to phishing. Thus it shows that experiential factor does influence the personality trait of a user towards phishing susceptibility. Therefore, all objectives are achieved in this current study.

7.3 Project Contribution

Based on the current study that was carried out, it contributes in the means of practical contribution and organizational contribution. In practical contribution, this current study contributes in providing validated questionnaire for users susceptibility towards phishing attacks based on the users personality traits and experiential factor as the modifying factor. As per the organizational contributions, the current study contributes by providing insight on which personality trait in an individual could make them susceptible towards phishing attacks and it also provides guidelines for organization to come up with security policies that could cater all the personality type that exist in their organizations.

7.4 Project Limitation

The current study that was carried out consists of a few limitations. Firstly, the data collection method does not consist of various types of respondents. Most of the respondents are from the same working environment thus there was not much of a variety in the responses for the questionnaires that was distributed in data collection because the data collection was mainly focused in Information Technology (IT) Company and Non-Information Technology (IT) Company. Besides that, the current study focuses mainly on phishing attacks instead of social engineering attacks as a whole.

7.5 Future Works

The current study could be improved in the future by expanding the type of attacks by focusing on the whole social engineering attacks instead of focusing on phishing attack only. Besides that, more modifying factors could be included into the current framework. Furthermore, this study could be generalized to different type of respondents such as university students to see how much does their personality trait differ from the respondents that are in a working environment and how susceptible they are to phishing.

7.6 Conclusion

This final chapter has concluded and summarized all the findings from the previous chapter based on the current study that has been carried out. The limitations that have been identified could be improved in the future works to overcome the limitations.

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APPENDIX A

QUESTIONNAIRE
SOAL SELIDIK

TITLE : USERS SUSCEPTIBILITY TOWARDS PHISHING BASED ON USER PERSONALITY TRAITS

TAJUK: KECENDERUNGAN PENGGUNA TERHADAP "PHISHING" BERDASARAKAN PERSONALITI INDIVIDUAL

This study is conducted to identify the user behavior in an organization that contributes to users susceptibility towards *Phishing* which is a form of social engineering attack. *Phishing* attack is mostly launched through falsified e-mail messages to obtain user's personal information such as their passwords, credit card numbers and many more. The rate of success through *phishing* attack is high because many websites and e-mail seems very legitimate that it deceives most of the user. Therefore, this questionnaire is developed to determine which personality trait of the user makes them susceptible towards *phishing* attack.

Kajian ini adalah bertujuan untuk mengenal pasti kelakuan pengguna di dalam sebuah organisasi yang menyumbang kepada kecenderungan mereka terhadap serangan "phishing". "Phishing" adalah sebuah kejuruteraan sosial yang dilancarkan melalui e-

mel palsu untuk mendapatkan maklumat sensitif pengguna seperti kata laluan, nombor kredit kad dan sebagainya. Serangan "phishing" selalu berjaya kerana kebanyakkan laman web dan e-mel nampak serupa dengan yang asal dan memperdayakan kebanyakkan pengguna. Oleh itu, soal selidik ini disediakan untuk mengenal pasti sifat-sifat keperibadian pengguna yang menyebabkan mereka cenderung terhadap serangan "phishing".

This questionnaire consists of four (4) sections:
Soal selidik ini mengandungi empat (4) bahagian:

Section/ *Bahagian*	**Purpose / *Tujuan***
A	Demographic Profile /*Profil Demografi*
B	Experiential Factors / *Faktor Pengalaman*
C	Personality Test / *Ujian Personaliti*
D	User Behaviour subject to Phishing / *Tingkah Laku Pengguna yang tertakluk kepada "Phishing"*

Your response and personal information will be kept confidential. Your responses will give valuable insights on the personality trait that influences the user's susceptibility towards phishing. Your cooperation and responses are highly appreciated.

Maklum balas anda dan maklumat peribadi anda akan dirahsiakan. Maklum balas yang diberikan akan memberi gambaran yang lebih jelas mengenai sifat-sifat peribadi yang mempengaruhi kecenderungan pengguna terhadap "phishing". Pandangan dan pendapat anda juga akan digunakan sebagai garis panduan oleh pelajar lain. Kerjasama dan maklum balas anda amat dihargai.

Thank you.

Terima kasih.

Durga Letchumy Kunasegaran
Bachelor Degree Student
Faculty of Information and Communication Technology
Universiti Teknikal Malaysia Melaka.

SECTION A: DEMOGRAPHIC PROFILE / BAHAGIAN A: PROFIL DEMOGRAFI

This section is to retrieve some of the basic information about your background.

Bahagian ini adalah bertujuan untuk mendapatkan maklumat asas mengenai latar belakang anda.

INSTRUCTIONS

Please tick (√) the correct statement as the answer.

Sila tandakan (√) pada pernyataan yang betul untuk jawapan.

1. Gender / *Jantina*: ☐ Male / Lelaki ☐ Female / Perempuan

2. Age / *Umur*:

☐ Less than 20 years old / *Kurang daripada 20 tahun*

☐ 21 – 30 years old / *21 – 30 tahun*

☐ 31 – 40 years old / *31 – 40 tahun*

☐ 41 – 50 years old / *41 – 50 tahun*

☐ 51 – 60 years old / *51 – 60 tahun*

3. Education Majoring / *Jurusan Pendidkan*:

☐ Information and Communication Technology (ICT) / *Teknologi Maklumat dan Komunikasi*

☐ Engineering / *Kejuruteraan*

☐ Business / *Keusahawanan*

☐ Medical / *Perubatan*

☐ Others / *Lain-lain* : _____

4. Working Department / *Jabatan Kerja*:

☐ Information Technology (IT) Department / *Jabatan Teknologi Maklumat*

☐ Non-Information Technology(IT) Department / *Bukan Jabatan Teknologi Maklumat*

5. Organization Type / *Jenis Organisasi* :

☐ Information Technology (IT) Company / *Syarikat Teknologi Maklumat*

☐ Non-Information Technology(IT) Company / *Bukan SyarikatTeknologi Maklumat*

SECTION B: EXPERIENTIAL FACTORS / *BAHAGIAN B : FAKTOR PENGALAMAN*

The purpose of this section is to identify what type of experiential factors that influences an individual to possess a certain personality trait.

Bahagian ini adalah untuk mengenal pasti jenis faktor pengalaman yang mempengaruhi seseorang individu untuk memiliki sifat-sifat keperibadian tertentu.

INSTRUCTIONS / *ARAHAN*

In the table below, for each statement, please circle the number as the answer that reflects you in with the scale 1- 5

Dalam jadual di bawah , bagi setiap pernyataan, sila bulatkan nombor sebagai jawapan yang menggambarkan anda di dalam kotak dengan skala 1- 5

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

GENERAL EXPERIENCES / *PENGALAMAN UMUM*

General experiences are not related to an individual's career or with technology instead it could be something that happened in their life generally. It could be positive or negative experience in which both could influence the reason for them to possess a certain personality trait.

Pengalaman umum tidak berkaitan dengan pekerjaan individu atau pengalaman mereka dengan teknologi tetapi ia adalah sesuatu yang berlaku dalam kehidupan harian. Pengalaman boleh dibahagikan kepada pengalaman baik atau buruk yang boleh mempengaruhi seseorang individu untuk memiliki sifat keperibadian yang tertentu.

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

No.	Questions / *Soalan*					
GEQ1	Have anyone used your information to create a fake account in social media such as Facebook or Instagram? *Pernahkah maklumat anda didgunakan oleh seseorang untuk mewujudkan akaun palsu di media sosial seperti Facebook atau Instagram?*	1	2	3	4	5
GEQ2	Have you ever won any prize or bargains offered online? *Adakah anda pernah memenangi sebarang hadiah atau tuntutan yang ditawarkan dalam talian?*	1	2	3	4	5
GEQ3	Have your money been deducted from your bank account even after the online bank transaction is shown as successful? *Pernahkan wang anda ditolak dari akaun bank anda walaupun selepas transaksi bank atas talian ditunjukkan sebagai transaksi yang telah berjaya?*	1	2	3	4	5
GEQ4	Have your computer been affected by virus after downloading an attachment from an e-mail? *Pernahkah komputer anda dijangkiti virus setelah memuat turun lampiran daripada e-mel?*	1	2	3	4	5
GEQ5	Have you experienced anyone using your online social media account to get information from another user when you leave your computer open without your presence? *Pernahkah sesiapa menggunakan akaun sosial media anda untuk mendapatkan maklumat daripada akaun orang lain apabila anda meninggalkan komputer anda terbuka tanpa kehadiran anda?*	1	2	3	4	5

TECHNOLOGICAL EXPERIENCE / PENGALAMAN DALAM TEKNOLOGI

Technology experiences are regarding the prior usage of a certain technology by an individual. Besides that, technological experience also refers to the training of an individual in the proper use of a technology.

Pengalaman dalam teknologi adalah berkenaan dengan pengalaman penggunaan sesebuah teknologi oleh seseorang. Selain itu, pengalaman dalam technologi juga merujuk kepada latihan yang diberikan kepada seseorang individu untuk menggunakan sebuah teknologi dengan betul.

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

No.	**Questions /** ***Soalan***					
TEQ1	Have you performed online bank transaction? *Pernahkah anda melakukan transaksi bank atas talian?*	1	2	3	4	5
TEQ2	Have you updated your antivirus software in your computer? *Pernahkah anda mengemaskini perisian antivirus dalam komputer anda ?*	1	2	3	4	5
TEQ3	Have you used the same password for all your online accounts? *Pernahkah anda menggunakan kata laluan yang sama untuk semua akaun atas talian anda?*	1	2	3	4	5
TEQ4	Have you unchecked the “Save Password” feature in browsers? *Pernahkan anda memadamkan pilihan "Simpan Kata Laluan" di pelayar web?*	1	2	3	4	5
TEQ5	Have you e-mailed your personal information or banking information to your friends or family? *Pernahkah anda menghantar maklumat peribadi anda atau maklumat bank anda kepada keluarga ata kawan melalui e-mel?*	1	2	3	4	5

SECTION C : PERSONALITY TEST / BAHAGIAN C: UJIAN PERSONALITI

This is a personality test that will help to understand the type of personality trait that you possess.

Bahagian ini adalah mengenai ujian personaliti yang akan membantu untuk memahami jenis sifat personaliti yang kamu miliki.

INSTRUCTION

In the table below, for each statement, please circle the number for the answer that reflects you in the box

Dalam jadual di bawah , bagi setiap pernyataan, sila bulatkan pada nombor bagi jawapan yang menggambarkan anda di dalam kotak dengan skala 1- 6 di mana

Strongly Disagree Strongly Agree
1 2 3 4 5 6
Sangat tidak setuju *Sangat setuju*

No	Questions						
EVQ1	I make an occasion lively. *Saya memeriahkan sesuatu majlis.* **(Extroversion)**	1	2	3	4	5	6
AGQ1	I feel little concern for others. *Saya tidak prihatin terhadap orang lain.* **(Agreeableness)**	1	2	3	4	5	6
CSQ1	I am always prepared to face any situation. *Saya sentiasa bersedia untuk berhadapan dengan apa-apa situasi.* **(Conscientiousness)**	1	2	3	4	5	6
NEQ1	I get stressed out easily. *Saya mudah berasa tertekan.* **(Neuroticism)**	1	2	3	4	5	6
OPQ1	I have a rich vocabulary. *Saya mempunyai pembendaharaan kata yang luas.* **(Openness)**	1	2	3	4	5	6
EVQ2	I don't talk a lot to other people. *Saya tidak banyak bercakap dengan orang lain.* **(Extroversion)**	1	2	3	4	5	6
AGQ2	I am interested to interact with people. *Saya berminat untuk berbual dengan orang.* **(Agreeableness)**	1	2	3	4	5	6

CSQ2	I leave my belongings around. *Saya suka meninggalkan barang saya merata-rata.* **(Conscientiousness)**	1	2	3	4	5	6
NEQ2	I am relaxed most of the time. *Saya bersantai untuk kebanyakan masa.* **(Neuroticism)**	1	2	3	4	5	6
OPQ2	I have difficulty understanding abstract ideas. *Saya mempunyai kesukaran memahami idea tersirat.* **(Openness)**	1	2	3	4	5	6
EVQ3	I feel comfortable around people. *Saya berasa selesa berada di kalangan orang ramai.* **(Extroversion)**	1	2	3	4	5	6
AGQ3	I talk bad about people. *Saya bercakap buruk mengenai orang lain.* **(Agreeableness)**	1	2	3	4	5	6
CSQ3	I pay attention to details *Saya memberi perhatian kepada setiap perincian* **(Conscientiousness)**	1	2	3	4	5	6
NEQ3	I worry about things. *Saya suka risau mengenai sesuatu perkara.* **(Neuroticism)**	1	2	3	4	5	6
OPQ3	I have a vivid imaginations. *Saya mempunyai imaginasi yang jelas.* **(Openness)**	1	2	3	4	5	6
EVQ4	I do not want to be known by others. *Saya tidak mahu dikenali oleh orang ramai.* **(Extroversion)**	1	2	3	4	5	6
AGQ4	I sympathize with others' feelings *Saya bersimpati dengan perasaan orang lain* **(Agreeableness)**	1	2	3	4	5	6
CSQ4	I make a mess of things *Saya menjadikan sesuatu perkara itu berserabut* **(Conscientiousness)**	1	2	3	4	5	6
NEQ4	I seldom feel sad *Saya jarang berasa sedih* **(Neuroticism)**	1	2	3	4	5	6
OPQ4	I am not interested in theoretical ideas *Saya tidak berminat dalam idea teori* **(Openness)**	1	2	3	4	5	6
EVQ5	I start conversations *Saya suka memulakan perbualan* **(Extroversion)**	1	2	3	4	5	6

AGQ5	I am not interested in other people's problem *Saya tidak berminat dengan masalah orang lain* **(Agreeableness)**	1	2	3	4	5	6
CSQ5	I get work done right away *Saya menyiapkan kerja dengan kadar segera* **(Conscientiousness)**	1	2	3	4	5	6
NEQ5	I am easily disturbed *Saya mudah terganggu* **(Neuroticism)**	1	2	3	4	5	6
OPQ5	I have excellent ideas *Saya mempunyai idea yang hebat* **(Openness)**	1	2	3	4	5	6
EVQ6	I have little to say *Saya tidak mempunyai banyak perkara untuk diperkatakan* **(Extroversion)**	1	2	3	4	5	6
AGQ6	I have a soft heart *Saya mempunyai hati yang lembut* **(Agreeableness)**	1	2	3	4	5	6
CSQ6	I often forget to put things back in their proper place *Saya selalu lupa untuk meletakkan barang di tempat yang betul* **(Conscientiousness)**	1	2	3	4	5	6
NEQ6	I get upset easily *Saya mudah berasa kecewa* **(Neuroticism)**	1	2	3	4	5	6
OPQ6	I do not have a good imagination *Saya tidak mempunyai imaginasi yang baik* **(Openness)**	1	2	3	4	5	6
EVQ7	I talk to a lot of different people in occasions *Saya suka bercakap dengan ramai orang dalam sesuatu majlis* **(Extroversion)**	1	2	3	4	5	6
AGQ7	I am not really interested in others *Saya tidak begitu berminat dengan orang lain* **(Agreeableness)**	1	2	3	4	5	6
CSQ7	I like to take orders *Saya suka menerima arahan* **(Conscientiousness)**	1	2	3	4	5	6
NEQ7	I change my mood a lot *Saya selalu mengubah perasaan saya.* **(Neuroticism)**	1	2	3	4	5	6
OPQ7	I am quick to understand things. *Saya cepat memahami sesuatu perkara.* **(Openness)**	1	2	3	4	5	6

EVQ8	I don't like to draw attention to myself *Saya tidak suka menarik perhatian* **(Extroversion)**	1	2	3	4	5	6
AGQ8	I take time out for others *Saya suka meluangkan masa untuk orang lain* **(Agreeableness)**	1	2	3	4	5	6
CSQ8	I avoid doing my duties *Saya mengelak daripada menjalankan tanggungjawab saya* **(Conscientiousness)**	1	2	3	4	5	6
NEQ8	I have frequent mood swings *Saya kerap mengalami perubahan emosi.* **(Neuroticism)**	1	2	3	4	5	6
OPQ8	I use difficult word to understand *Saya menggunakan perkataan yang susah untuk difahami* **(Openness)**	1	2	3	4	5	6
EVQ9	I don't mind being the center of attention *Saya tidak kisah menjadi perhatian orang ramai* **(Extroversion)**	1	2	3	4	5	6
AGQ9	I feel others emotion *Saya memahami perasaan orang lain* **(Agreeableness)**	1	2	3	4	5	6
CSQ9	I follow a schedule to complete my work *Saya menyiapkan tugasan saya mengikut jadual.* **(Conscientiousness)**	1	2	3	4	5	6
NEQ9	I get irritated easily *Saya mudah berasa sakit hati* **(Neuroticism)**	1	2	3	4	5	6
OPQ9	I spend time reflecting on things *Saya meluangkan masa menilai sesuatu perkara* **(Openness)**	1	2	3	4	5	6
EVQ10	I am quiet around strangers *Saya menjadi pendiam di kalangan orang yang tidak dikenali* **(Extroversion)**	1	2	3	4	5	6
AGQ10	I make people feel at ease *Saya membuatkan orang berasa selesa* **(Agreeableness)**	1	2	3	4	5	6
CSQ10	I am very fussy about my work *Saya sangat cerewet tentang kerja saya* **(Conscientiousness)**	1	2	3	4	5	6
NEQ10	I often feel sad *Saya selalu berasa sedih* **(Neuroticism)**	1	2	3	4	5	6

OPQ10	I am full of ideas *Saya sentiasa mempunyai idea* **(Openness)**	1	2	3	4	5	6
SMQ1	I follow the behavior of other person when I do not know how to act in a certain situation. *Saya meniru tingkah laku orang lain ketika saya tidak tahu bagaimana untuk berkelakuan dalam situasi tertentu.* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ2	I do not attempt to please people *Saya tidak cuba untuk menggembirakan orang lain* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ3	I pretend that I am something that I am not *Saya berpura-pura menjadi sesuatu yang bukan diri saya.* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ4	I would not change my opinion or the way I do things to please others or to win their favor. *Saya tidak akan mengubah pendapat saya untuk menggembirakan hati orang lain atau untuk disukai mereka.* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ5	I may deceive people by being friendly when I really dislike them. *Walaupun saya tidak menyukai seseorang, saya boleh berlakon untuk menyukai mereka* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ6	I could not change my behavior to suit different people and different situations *Saya tidak boleh mengubah kelakuan saya untuk menyesuaikan diri dengan orang lain dan/atau keadaan yang berbeza.* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ7	I behave like what people want me to be to get along and be liked *Saya berkelakuan sepertimana yang dmahukan oleh orang ramai untuk disukai oleh mereka.* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ8	I am rarely the center of attention in a group of people *Saya jarang menjadi tumpuan perhatian di dalam kelompok orang ramai.* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ9	I am not good in impressing people *Saya tidak pandai menarik hati orang* **(Self-Monitoring)**	1	2	3	4	5	6

SMQ10	I feel awkward in public and don't behave as I usually would. *Saya berasa kekok di tempat awam dan tidak berkelakuan seperti biasa.* **(Self-Monitoring)**	1	2	3	4	5	6

SECTION D: USER BEHAVIOUR SUBJECT TO PHISHING / *BAHAGIAN D: TINGKAH LAKU PENGGUNA YANG TERTAKLUK KEPADA PHISHING*

This section is to determine the likeliness of an individual to respond to a situation that could risk an individual in falling into a phishing attack.

Bahagian ini adalah untuk mengetahui kebarangkalian seseorang individu untuk bertindak balas kepada sesuatu situasi yang boleh menyebabkan mereka menjadi seorang mangsa serangan "phishing".

INSTRUCTIONS / *ARAHAN*

In the table below, for each statement, please circle the number as the answer that reflects you in the box with the scale 1- 5

Dalam jadual di bawah, bagi setiap pernyataan, sila bulatkan pada nombor sebagai jawapan yang menggambarkan anda di dalam kotak dengan skala 1- 5

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

No.	Questions					
UBQ1	Have you responded to any e-mail that offers you a large sum of money? *Pernahkan anda membalas e-mel yang menawarkan sejumlah wang yang besar kepada anda?*	1	2	3	4	5
UBQ2	Have you verified the sender of the email before downloading or clicking on any link? *Pernahkan anda mengesahkan pengirim e-mel sebelum memuat turun atau tekan pada mana-mana pautan.*	1	2	3	4	5
UBQ3	Have you installed software from an advertisement or pop up window? *Pernahkan anda memuat turun perisian yang diiklankan melalui iklan atau "pop-up windows"?*	1	2	3	4	5

No.	Questions					
UBQ4	Have you responded to the e-mail from a fellow Malaysian that claim to be stranded in foreign country and require money to travel back to Malaysia? *Pernahkah anda membalas e-mel daripada seorang warganegara Malaysia yang mendakwa terkandas di sebuah negara asing dan memerlukan duit untuk pulang ke Malysia?*	1	2	3	4	5
UBQ5	Have you entered your personal information such as your email address and password if you received an email alerting you that you have been hacked and direct you to a verification page for you to login? *Pernahkan anda memasukkan maklumat peribadi seperti alamat e-mel dan kata laluan sekiranya anda menerima e-mel yang menyatakan bahawa anda telah digodam dan mengarahkan anda ke laman pengesahan untuk anda log masuk?*	1	2	3	4	5
UBQ6	Have you checked the email header to verify the sender of the e-mail? *Pernahkah kamu memeriksa kepala e-mel untuk mengesahkan pengirim e-mel?*	1	2	3	4	5
UBQ7	Have you clicked on a link that claims to be from a reputable news organization to read the full story? *Pernahkah kamu klik pada pautan yang mendakwa bahawa mereka adalah sebuah organisasi berita terkemuka untuk membaca berita penuh daripada pautan tersebut.*	1	2	3	4	5
UBQ8	Have you checked whether the website that performing online transaction is beginning with HTTPS or HTTP before sharing any banking information? *Pernahkah kamu memeriksa sama ada laman web yang melakukan transaksi atas talian bermula dengan HTTPS atau HTTP sebelum berkongsi apa-apa maklumat bank?*	1	2	3	4	5
UBQ9	While downloading a movie, you are redirected to another screen and you were asked to install a missing plug-in to continue the	1	2	3	4	5

	movie download. Have you downloaded the missing plug-in? *Apabila memuat turun sebuah filem, kamu dibawa ke skrin lain dan diminta untuk memuat turun sebuah program untuk teruskan memuat turun filem. Pernahkan kamu memuat turun program tersebut*?					
UBQ10	You received an urgent e-mail from you HR Department requesting you to urgently send your work e-mail and password to update the database. Have you reply to that type of email? *Kamu telah menerima sebuah e-mel kecemasan daripada Jabatan HR yang meminta anda untuk menghantar alamat e-mel kerja anda dan kata laluan anda untuk mengemaskini pangkalan data organisasi anda. Pernahkah kamu membalas kepada jenis e-mel tersebut?*	1	2	3	4	5

APPENDIX B

QUESTIONNAIRE AFTER REVISION

SOAL SELIDIK SELEPAS PENYEMAKAN

TITLE : USERS SUSCEPTIBILITY TOWARDS PHISHING BASED ON USER PERSONALITY TRAITS

TAJUK: KECENDERUNGAN PENGGUNA TERHADAP "PHISHING" BERDASARAKAN PERSONALITI INDIVIDUAL

This study is conducted to identify the user behavior in an organization that contributes to users susceptibility towards *Phishing* which is a form of social engineering attack. *Phishing* attack is mostly launched through falsified e-mail messages to obtain user's personal information such as their passwords, credit card numbers and many more. The rate of success through *phishing* attack is high because many websites and e-mail seems very legitimate that it deceives most of the user. Therefore, this questionnaire is developed to determine which personality trait of the user makes them susceptible towards *phishing* attack.

Kajian ini adalah bertujuan untuk mengenal pasti kelakuan pengguna di dalam sebuah organisasi yang menyumbang kepada kecenderungan mereka terhadap serangan "phishing". "Phishing" adalah sebuah kejuruteraan sosial yang dilancarkan melalui e-

mel palsu untuk mendapatkan maklumat sensitif pengguna seperti kata laluan, nombor kredit kad dan sebagainya. Serangan "phishing" selalu berjaya kerana kebanyakkan laman web dan e-mel nampak serupa dengan yang asal dan memperdayakan kebanyakkan pengguna. Oleh itu, soal selidik ini disediakan untuk mengenal pasti sifat-sifat keperibadian pengguna yang menyebabkan mereka cenderung terhadap serangan "phishing".

This questionnaire consists of four (4) sections:
Soal selidik ini mengandungi empat (4) bahagian:

Section/ *Bahagian*	**Purpose / *Tujuan***
A	Demographic Profile /*Profil Demografi*
B	Experiential Factors / *Faktor Pengalaman*
C	Personality Test / *Ujian Personaliti*
D	User Behaviour subject to Phishing / *Tingkah Laku Pengguna yang tertakluk kepada "Phishing"*

Your response and personal information will be kept confidential. Your responses will give valuable insights on the personality trait that influences the user's susceptibility towards phishing. Your cooperation and responses are highly appreciated.

Maklum balas anda dan maklumat peribadi anda akan dirahsiakan. Maklum balas yang diberikan akan memberi gambaran yang lebih jelas mengenai sifat-sifat peribadi yang mempengaruhi kecenderungan pengguna terhadap "phishing". Pandangan dan pendapat anda juga akan digunakan sebagai garis panduan oleh pelajar lain. Kerjasama dan maklum balas anda amat dihargai.

Thank you.

Terima kasih.

Durga Letchumy Kunasegaran
Bachelor Degree Student
Faculty of Information and Communication Technology
Universiti Teknikal Malaysia Melaka.

SECTION A: DEMOGRAPHIC PROFILE / BAHAGIAN A: PROFIL DEMOGRAFI

This section is to retrieve some of the basic information about your background.

Bahagian ini adalah bertujuan untuk mendapatkan maklumat asas mengenai latar belakang anda.

INSTRUCTIONS

Please tick (√) the correct statement as the answer.

Sila tandakan (√) pada pernyataan yang betul untuk jawapan.

1. Gender / *Jantina*: ☐ Male / Lelaki ☐ Female / Perempuan

2. Age / *Umur*:

☐ 21 – 30 years old / *21 – 30 tahun*

☐ 31 – 40 years old / *31 – 40 tahun*

☐ 41 – 50 years old / *41 – 50 tahun*

☐ 51 – 60 years old / *51 – 60 tahun*

3. Education Majoring / *Jurusan Pendidkan*:

☐ Information and Communication Technology (ICT) / *Teknologi Maklumat dan Komunikasi*

☐ Engineering / *Kejuruteraan*

☐ Business / *Keusahawanan*

☐ Teaching / *Perguruan*

☐ Others / *Lain-lain* : _____

4. Working Department / ***Jabatan Kerja*:**

☐ Information Technology (IT) Department / *Jabatan Teknologi Maklumat*

☐ Non-Information Technology(IT) Department / *Bukan Jabatan Teknologi Maklumat*

5. Organization Type / *Jenis Organisasi* :

☐ Information Technology (IT) Company / *Syarikat Teknologi Maklumat*

☐ Non-Information Technology(IT) Company / *Bukan SyarikatTeknologi Maklumat*

SECTION B: EXPERIENTIAL FACTORS / *BAHAGIAN B : FAKTOR PENGALAMAN*

The purpose of this section is to identify what type of experiential factors that influences an individual to possess a certain personality trait.

Bahagian ini adalah untuk mengenal pasti jenis faktor pengalaman yang mempengaruhi seseorang individu untuk memiliki sifat-sifat keperibadian tertentu.

INSTRUCTIONS / *ARAHAN*

In the table below, for each statement, please circle the number as the answer that reflects you in with the scale 1- 5

Dalam jadual di bawah , bagi setiap pernyataan, sila bulatkan nombor sebagai jawapan yang menggambarkan anda di dalam kotak dengan skala 1- 5

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

GENERAL EXPERIENCES / *PENGALAMAN UMUM*

General experiences are not related to an individual's career or with technology instead it could be something that happened in their life generally. It could be positive or negative experience in which both could influence the reason for them to possess a certain personality trait.

Pengalaman umum tidak berkaitan dengan pekerjaan individu atau pengalaman mereka dengan teknologi tetapi ia adalah sesuatu yang berlaku dalam kehidupan harian. Pengalaman boleh dibahagikan kepada pengalaman baik atau buruk yang boleh mempengaruhi seseorang individu untuk memiliki sifat keperibadian yang tertentu.

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

No.	Questions / *Soalan*					
GEQ1	Have anyone used your information to create a fake account in social media such as Facebook or Instagram? *Pernahkah maklumat anda didgunakan oleh seseorang untuk mewujudkan akaun palsu di media sosial seperti Facebook atau Instagram?*	1	2	3	4	5
GEQ2	Have you ever won any prize or bargains offered online? *Adakah anda pernah memenangi sebarang hadiah atau tuntutan yang ditawarkan dalam talian?*	1	2	3	4	5
GEQ3	Have your money been deducted from your bank account even after the online bank transaction is shown as successful? *Pernahkan wang anda ditolak dari akaun bank anda walaupun selepas transaksi bank atas talian ditunjukkan sebagai transaksi yang telah berjaya?*	1	2	3	4	5
GEQ4	Have your computer been affected by virus after downloading an attachment from an e-mail? *Pernahkah komputer anda dijangkiti virus setelah memuat turun lampiran daripada e-mel?*	1	2	3	4	5
GEQ5	Will you log out of your computer when you are not using it or when you are leaving your computer unattended? *Adakah anda akan log keluar daripada komputer anda ketika tidak menggunakannya atau apabila anda meninggalkan komputer anda tanpa pengawasan?*	1	2	3	4	5

TECHNOLOGICAL EXPERIENCE / PENGALAMAN DALAM TEKNOLOGI

Technology experiences are regarding the prior usage of a certain technology by an individual. Besides that, technological experience also refers to the training of an individual in the proper use of a technology.

Pengalaman dalam teknologi adalah berkenaan dengan pengalaman penggunaan sesebuah teknologi oleh seseorang. Selain itu, pengalaman dalam technologi juga merujuk kepada latihan yang diberikan kepada seseorang individu untuk menggunakan sebuah teknologi dengan betul.

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

No.	Questions / *Soalan*					
TEQ1	Have you performed online bank transaction in website that does not start with "https"? *Pernahkah anda melakukan transaksi bank atas talian dalam laman web yang tidak bermula dengan "https"?*	1	2	3	4	5
TEQ2	Have you updated your antivirus software in your computer? *Pernahkah anda mengemaskini perisian antivirus dalam komputer anda ?*	1	2	3	4	5
TEQ3	Have you used the same password for all your online accounts? *Pernahkah anda menggunakan kata laluan yang sama untuk semua akaun atas talian anda?*	1	2	3	4	5
TEQ4	Have you unchecked the "Save Password" feature in browsers? *Pernahkan anda memadamkan pilihan "Simpan Kata Laluan" di pelayar web?*	1	2	3	4	5
TEQ5	How often do you update you antivirus software in your computer? *Berapa kerapkah anda mengemaskini perisian antivirus dalam komputer anda?*	1	2	3	4	5

SECTION C : PERSONALITY TEST / BAHAGIAN C: UJIAN PERSONALITI

This is a personality test that will help to understand the type of personality trait that you possess.

Bahagian ini adalah mengenai ujian personaliti yang akan membantu untuk memahami jenis sifat personaliti yang kamu miliki.

INSTRUCTION

In the table below, for each statement, please circle the number for the answer that reflects you in the box

Dalam jadual di bawah , bagi setiap pernyataan, sila bulatkan pada nombor bagi jawapan yang menggambarkan anda di dalam kotak dengan skala 1- 6 di mana

Strongly Disagree Strongly Agree
1 2 3 4 5 6
Sangat tidak setuju Sangat setuju

No	Questions						
EVQ1	I do not want to be known by others. *Saya tidak mahu dikenali oleh orang ramai.* **(Extroversion)**	1	2	3	4	5	6
EVQ2	I like to start conversations with other people. *Saya suka memulakan perbualan dengan orang lain.* **(Extroversion)**	1	2	3	4	5	6
EVQ3	I talk to a lot of different people in occasions *Saya suka bercakap dengan ramai orang dalam sesuatu majlis* **(Extroversion)**	1	2	3	4	5	6
EVQ4	I don't like to draw attention to myself *Saya tidak suka menarik perhatian* **(Extroversion)**	1	2	3	4	5	6
EVQ5	I am quiet around strangers *Saya menjadi pendiam di kalangan orang yang tidak dikenali* **(Extroversion)**	1	2	3	4	5	6
AGQ1	I feel little concern for others. *Saya tidak prihatin terhadap orang lain.* **(Agreeableness)**	1	2	3	4	5	6
AGQ2	I am interested to interact with people. *Saya berminat untuk berbual dengan orang.* **(Agreeableness)**	1	2	3	4	5	6

AGQ3	I sympathize with others' feelings *Saya bersimpati dengan perasaan orang lain* **(Agreeableness)**	1	2	3	4	5	6
AGQ4	I take time out for others *Saya suka meluangkan masa untuk orang lain* **(Agreeableness)**	1	2	3	4	5	6
AGQ5	I make people feel comfortable around me. *Saya membuatkan orang berasa selesa di samping saya.* **(Agreeableness)**	1	2	3	4	5	6
CSQ1	I am always prepared to face any situation. *Saya sentiasa bersedia untuk berhadapan dengan apa-apa situasi.* **(Conscientiousness)**	1	2	3	4	5	6
CSQ2	I pay attention to details *Saya memberi perhatian kepada setiap perincian* **(Conscientiousness)**	1	2	3	4	5	6
CSQ3.	I try to avoid from doing my duties. *Saya cuba untuk mengelakkan diri saya daripada menjalankan tanggungjawab saya.* **(Conscientiousness)**	1	2	3	4	5	6
CSQ4	I follow a schedule to complete my work *Saya menyiapkan tugasan saya mengikut jadual.* **(Conscientiousness)**	1	2	3	4	5	6
CSQ5	I am very fussy about my work *Saya sangat cerewet tentang kerja saya* **(Conscientiousness)**	1	2	3	4	5	6
NEQ1	I get stressed out easily. *Saya mudah berasa tertekan.* **(Neuroticism)**	1	2	3	4	5	6
NEQ2	I always worry about things. *Saya sentiasa risau mengenai sesuatu perkara.* **(Neuroticism)**	1	2	3	4	5	6
NEQ3	I get upset easily *Saya mudah berasa kecewa* **(Neuroticism)**	1	2	3	4	5	6
NEQ4	I have frequent mood swings *Saya kerap mengalami perubahan emosi.* **(Neuroticism)**	1	2	3	4	5	6
NEQ5	I am easily disturbed *Saya mudah terganggu* **(Neuroticism)**	1	2	3	4	5	6

OPQ1	I have a rich vocabulary. *Saya mempunyai pembendaharaan kata yang luas.* **(Openness)**	1	2	3	4	5	6
OPQ2	I have a vivid imaginations. *Saya mempunyai imaginasi yang jelas.* **(Openness)**	1	2	3	4	5	6
OPQ3	I have excellent ideas *Saya mempunyai idea yang hebat* **(Openness)**	1	2	3	4	5	6
OPQ4	I am quick to understand things. *Saya cepat memahami sesuatu perkara.* **(Openness)**	1	2	3	4	5	6
OPQ5	I am full of ideas *Saya sentiasa mempunyai idea* **(Openness)**	1	2	3	4	5	6
SMQ1	I follow the behavior of other person when I do not know how to act in a certain situation. *Saya meniru tingkah laku orang lain ketika saya tidak tahu bagaimana untuk berkelakuan dalam situasi tertentu.* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ2	I do not attempt to please people *Saya tidak cuba untuk menggembirakan orang lain* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ3	I would not change my opinion or the way I do things to please others or to win their favor. *Saya tidak akan mengubah pendapat saya untuk menggembirakan hati orang lain atau untuk disukai mereka.* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ4	I could not change my behavior to suit different people and different situations *Saya tidak boleh mengubah kelakuan saya untuk menyesuaikan diri dengan orang lain dan/atau keadaan yang berbeza.* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ5	I behave like what people want me to be to get along and be liked *Saya berkelakuan sepertimana yang dmahukan oleh orang ramai untuk disukai oleh mereka.* **(Self-Monitoring)**	1	2	3	4	5	6

SECTION D: USER BEHAVIOUR SUBJECT TO PHISHING / *BAHAGIAN D: TINGKAH LAKU PENGGUNA YANG TERTAKLUK KEPADA PHISHING*

This section is to determine the likeliness of an individual to respond to a situation that could risk an individual in falling into a phishing attack.

Bahagian ini adalah untuk mengetahui kebarangkalian seseorang individu untuk bertindak balas kepada sesuatu situasi yang boleh menyebabkan mereka menjadi seorang mangsa serangan "phishing".

INSTRUCTIONS / *ARAHAN*

In the table below, for each statement, please circle the number as the answer that reflects you in the box with the scale 1- 5 where

Dalam jadual di bawah, bagi setiap pernyataan, sila bulatkan pada nombor sebagai jawapan yang menggambarkan anda di dalam kotak dengan skala 1- 5 di mana

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

No.	Questions					
UBQ1	Have you verified the sender of the email before downloading or clicking on any link? *Pernahkan anda mengesahkan pengirim e-mel sebelum memuat turun atau tekan pada mana-mana pautan.*	1	2	3	4	5
UBQ2	Have you installed software from an advertisement or pop up window? *Pernahkan anda memuat turun perisian yang diiklankan melalui iklan atau "pop-up windows"?*	1	2	3	4	5
UBQ3	Have you checked the email header to verify the sender of the e-mail? *Pernahkah kamu memeriksa kepala e-mel untuk mengesahkan pengirim e-mel?*	1	2	3	4	5

UBQ4	Have you checked whether the website that performing online transaction is beginning with HTTPS or HTTP before sharing any banking information? *Pernahkah kamu memeriksa sama ada laman web yang melakukan transaksi atas talian bermula dengan HTTPS atau HTTP sebelum berkongsi apa-apa maklumat bank?*	1	2	3	4	5
UBQ5	While downloading a movie, you are redirected to another screen and you were asked to install a missing plug-in to continue the movie download. Have you downloaded the missing plug-in? *Apabila memuat turun sebuah filem, kamu dibawa ke skrin lain dan diminta untuk memuat turun sebuah program untuk teruskan memuat turun filem. Pernahkan kamu memuat turun program tersebut*?	1	2	3	4	5

APPENDIX C

QUESTIONNAIRE USED FOR DATA COLLECTION

SOAL SELIDIK YANG DIGUNAKAN UNTUK MENGUMPUL DATA

TITLE : USERS SUSCEPTIBILITY TOWARDS PHISHING BASED ON USER PERSONALITY TRAITS

TAJUK: KECENDERUNGAN PENGGUNA TERHADAP "PHISHING" BERDASARAKAN PERSONALITI INDIVIDUAL

This study is conducted to identify the user behavior in an organization that contributes to users susceptibility towards *Phishing* which is a form of social engineering attack. *Phishing* attack is mostly launched through falsified e-mail messages to obtain user's personal information such as their passwords, credit card numbers and many more. The rate of success through *phishing* attack is high because many websites and e-mail seems very legitimate that it deceives most of the user. Therefore, this questionnaire is developed to determine which personality trait of the user makes them susceptible towards *phishing* attack.

Kajian ini adalah bertujuan untuk mengenal pasti kelakuan pengguna di dalam sebuah organisasi yang menyumbang kepada kecenderungan mereka terhadap serangan "phishing". "Phishing" adalah sebuah kejuruteraan sosial yang dilancarkan melalui e-

mel palsu untuk mendapatkan maklumat sensitif pengguna seperti kata laluan, nombor kredit kad dan sebagainya. Serangan "phishing" selalu berjaya kerana kebanyakkan laman web dan e-mel nampak serupa dengan yang asal dan memperdayakan kebanyakkan pengguna. Oleh itu, soal selidik ini disediakan untuk mengenal pasti sifat-sifat keperibadian pengguna yang menyebabkan mereka cenderung terhadap serangan "phishing".

This questionnaire consists of four (4) sections:
Soal selidik ini mengandungi empat (4) bahagian:

Section/ *Bahagian*	**Purpose / *Tujuan***
A	Demographic Profile /*Profil Demografi*
B	Experiential Factors / *Faktor Pengalaman*
C	Personality Test / *Ujian Personaliti*
D	User Behaviour subject to Phishing / *Tingkah Laku Pengguna yang tertakluk kepada "Phishing"*

Your response and personal information will be kept confidential. Your responses will give valuable insights on the personality trait that influences the user's susceptibility towards phishing. Your cooperation and responses are highly appreciated.
Maklum balas anda dan maklumat peribadi anda akan dirahsiakan. Maklum balas yang diberikan akan memberi gambaran yang lebih jelas mengenai sifat-sifat peribadi yang mempengaruhi kecenderungan pengguna terhadap "phishing". Pandangan dan pendapat anda juga akan digunakan sebagai garis panduan oleh pelajar lain. Kerjasama dan maklum balas anda amat dihargai.

Thank you.

Terima kasih.

Durga Letchumy Kunasegaran
Bachelor Degree Student
Faculty of Information and Communication Technology
Universiti Teknikal Malaysia Melaka.

SECTION A: DEMOGRAPHIC PROFILE / BAHAGIAN A: PROFIL DEMOGRAFI

This section is to retrieve some of the basic information about your background.

Bahagian ini adalah bertujuan untuk mendapatkan maklumat asas mengenai latar belakang anda.

INSTRUCTIONS

Please tick (√) the correct statement as the answer.

Sila tandakan (√) pada pernyataan yang betul untuk jawapan.

1. Gender / *Jantina*: ☐ Male / Lelaki ☐ Female / Perempuan

2. Age / *Umur*:

☐ 21 – 30 years old / *21 – 30 tahun*

☐ 31 – 40 years old / *31 – 40 tahun*

☐ 41 – 50 years old / *41 – 50 tahun*

☐ 51 – 60 years old / *51 – 60 tahun*

3. Education Majoring / *Jurusan Pendidkan*:

☐ Information and Communication Technology (ICT) / *Teknologi Maklumat dan Komunikasi*

☐ Engineering / *Kejuruteraan*

☐ Business / *Keusahawanan*

☐ Teaching / *Perguruan*

☐ Others / *Lain-lain* : _____

4. Working Department / ***Jabatan Kerja*:**

☐ Information Technology (IT) Department / *Jabatan Teknologi Maklumat*

☐ Non-Information Technology(IT) Department / *Bukan Jabatan Teknologi Maklumat*

5. Organization Type / *Jenis Organisasi*:

☐ Information Technology (IT) Company / *Syarikat Teknologi Maklumat*

☐ Non-Information Technology(IT) Company / *Bukan SyarikatTeknologi Maklumat*

SECTION B: EXPERIENTIAL FACTORS / *BAHAGIAN B : FAKTOR PENGALAMAN*

The purpose of this section is to identify what type of experiential factors that influences an individual to possess a certain personality trait.

Bahagian ini adalah untuk mengenal pasti jenis faktor pengalaman yang mempengaruhi seseorang individu untuk memiliki sifat-sifat keperibadian tertentu.

INSTRUCTIONS / *ARAHAN*

In the table below, for each statement, please circle the number as the answer that reflects you in with the scale 1- 5 where

Dalam jadual di bawah , bagi setiap pernyataan, sila bulatkan nombor sebagai jawapan yang menggambarkan anda di dalam kotak dengan skala 1- 5 di mana

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

GENERAL EXPERIENCES / *PENGALAMAN UMUM*

General experiences are not related to an individual's career or with technology instead it could be something that happened in their life generally. It could be positive or negative experience in which both could influence the reason for them to possess a certain personality trait.

Pengalaman umum tidak berkaitan dengan pekerjaan individu atau pengalaman mereka dengan teknologi tetapi ia adalah sesuatu yang berlaku dalam kehidupan harian. Pengalaman boleh dibahagikan kepada pengalaman baik atau buruk yang boleh mempengaruhi seseorang individu untuk memiliki sifat keperibadian yang tertentu.

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

No.	Questions / *Soalan*					
GEQ1	Have anyone used your information to create a fake account in social media such as Facebook or Instagram? *Pernahkah maklumat anda didgunakan oleh seseorang untuk mewujudkan akaun palsu di media sosial seperti Facebook atau Instagram?*	1	2	3	4	5
GEQ2	Have you ever won any prize or bargains offered online? *Adakah anda pernah memenangi sebarang hadiah atau tuntutan yang ditawarkan dalam talian?*	1	2	3	4	5
GEQ3	Have your money been deducted from your bank account even after the online bank transaction is shown as not successful? *Pernahkan wang anda ditolak dari akaun bank anda walaupun selepas transaksi bank atas talian ditunjukkan sebagai transaksi yang tidak berjaya?*	1	2	3	4	5
GEQ4	Have your computer been affected by virus after downloading an attachment from an e-mail? *Pernahkah komputer anda dijangkiti virus setelah memuat turun lampiran daripada e-mel?*	1	2	3	4	5
GEQ5	Will you log out of your computer when you are not using it or when you are leaving your computer unattended? *Adakah anda akan log keluar daripada komputer anda ketika tidak menggunakannya atau apabila anda meninggalkan komputer anda tanpa pengawasan?*	1	2	3	4	5

TECHNOLOGICAL EXPERIENCE / PENGALAMAN DALAM TEKNOLOGI

Technology experiences are regarding the prior usage of a certain technology by an individual. Besides that, technological experience also refers to the training of an individual in the proper use of a technology.

Pengalaman dalam teknologi adalah berkenaan dengan pengalaman penggunaan sesebuah teknologi oleh seseorang. Selain itu, pengalaman dalam technologi juga merujuk kepada latihan yang diberikan kepada seseorang individu untuk menggunakan sebuah teknologi dengan betul.

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

No.	Questions / *Soalan*					
TEQ1	Have you performed online bank transaction in website that does not start with "https"? *Pernahkah anda melakukan transaksi bank atas talian dalam laman web yang tidak bermula dengan "https"?*	1	2	3	4	5
TEQ2	Have you updated your antivirus software in your computer? *Pernahkah anda mengemaskini perisian antivirus dalam komputer anda ?*	1	2	3	4	5
TEQ3	Have you used the same password for all your online accounts? *Pernahkah anda menggunakan kata laluan yang sama untuk semua akaun atas talian anda?*	1	2	3	4	5
TEQ4	Have you unchecked the "Save Password" feature in browsers? *Pernahkan anda memadamkan pilihan "Simpan Kata Laluan" di pelayar web?*	1	2	3	4	5
TEQ5	How often do you update you antivirus software in your computer? *Berapa kerapkah anda mengemaskini perisian antivirus dalam komputer anda?*	1	2	3	4	5

SECTION C : PERSONALITY TEST / BAHAGIAN C: UJIAN PERSONALITI

This is a personality test that will help to understand the type of personality trait that you possess.

Bahagian ini adalah mengenai ujian personaliti yang akan membantu untuk memahami jenis sifat personaliti yang kamu miliki.

INSTRUCTION

In the table below, for each statement, please circle the number for the answer that reflects you in the box

Dalam jadual di bawah , bagi setiap pernyataan, sila bulatkan pada nombor bagi jawapan yang menggambarkan anda di dalam kotak dengan skala 1- 6 di mana

Strongly Disagree Strongly Agree
1 2 3 4 5 6
Sangat tidak setuju Sangat setuju

No	Questions						
EVQ1	I do not want to be known by others. *Saya tidak mahu dikenali oleh orang ramai.* **(Extroversion)**	1	2	3	4	5	6
EVQ2	I like to start conversations with other people. *Saya suka memulakan perbualan dengan orang lain.* **(Extroversion)**	1	2	3	4	5	6
EVQ3	I talk to a lot of different people in occasions *Saya suka bercakap dengan ramai orang dalam sesuatu majlis* **(Extroversion)**	1	2	3	4	5	6
EVQ4	I don't like to draw attention to myself *Saya tidak suka menarik perhatian* **(Extroversion)**	1	2	3	4	5	6
EVQ5	I am quiet around strangers *Saya menjadi pendiam di kalangan orang yang tidak dikenali* **(Extroversion)**	1	2	3	4	5	6
AGQ1	I feel little concern for others. *Saya tidak prihatin terhadap orang lain.* **(Agreeableness)**	1	2	3	4	5	6
AGQ2	I am interested to interact with people. *Saya berminat untuk berbual dengan orang.* **(Agreeableness)**	1	2	3	4	5	6

AGQ3	I sympathize with others' feelings *Saya bersimpati dengan perasaan orang lain* **(Agreeableness)**	1	2	3	4	5	6
AGQ4	I take time out for others *Saya suka meluangkan masa untuk orang lain* **(Agreeableness)**	1	2	3	4	5	6
AGQ5	I make people feel comfortable around me. *Saya membuatkan orang berasa selesa di samping saya.* **(Agreeableness)**	1	2	3	4	5	6
CSQ1	I am always prepared to face any situation. *Saya sentiasa bersedia untuk berhadapan dengan apa-apa situasi.* **(Conscientiousness)**	1	2	3	4	5	6
CSQ2	I pay attention to details *Saya memberi perhatian kepada setiap perincian* **(Conscientiousness)**	1	2	3	4	5	6
CSQ3	I try to avoid from doing my duties. *Saya cuba untuk mengelakkan diri saya daripada menjalankan tanggungjawab saya.* **(Conscientiousness)**	1	2	3	4	5	6
CSQ4	I follow a schedule to complete my work *Saya menyiapkan tugasan saya mengikut jadual.* **(Conscientiousness)**	1	2	3	4	5	6
CSQ5	I am very fussy about my work *Saya sangat cerewet tentang kerja saya* **(Conscientiousness)**	1	2	3	4	5	6
NEQ1	I get stressed out easily. *Saya mudah berasa tertekan.* **(Neuroticism)**	1	2	3	4	5	6
NEQ2	I always worry about things. *Saya sentiasa risau mengenai sesuatu perkara.* **(Neuroticism)**	1	2	3	4	5	6
NEQ3	I get upset easily *Saya mudah berasa kecewa* **(Neuroticism)**	1	2	3	4	5	6
NEQ4	I have frequent mood swings *Saya kerap mengalami perubahan emosi.* **(Neuroticism)**	1	2	3	4	5	6
NEQ5	I am easily disturbed *Saya mudah terganggu* **(Neuroticism)**	1	2	3	4	5	6

OPQ1	I have a rich vocabulary in all the languages that I know. *Saya mempunyai pembendaharaan kata yang luas dalam semua bahasa yang saya tahu.* **(Openness)**	1	2	3	4	5	6
OPQ2	I have vivid imaginations. *Saya mempunyai imaginasi yang jelas.* **(Openness)**	1	2	3	4	5	6
OPQ3	I have excellent ideas *Saya mempunyai idea yang hebat* **(Openness)**	1	2	3	4	5	6
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SECTION D: USER BEHAVIOUR SUBJECT TO PHISHING / *BAHAGIAN D: TINGKAH LAKU PENGGUNA YANG TERTAKLUK KEPADA PHISHING*

This section is to determine the likeliness of an individual to respond to a situation that could risk an individual in falling into a phishing attack.

Bahagian ini adalah untuk mengetahui kebarangkalian seseorang individu untuk bertindak balas kepada sesuatu situasi yang boleh menyebabkan mereka menjadi seorang mangsa serangan "phishing".

INSTRUCTIONS / *ARAHAN*

In the table below, for each statement, please circle the number as the answer that reflects you in the box with the scale 1- 5 where

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No.	Questions					
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UBQ2	Have you installed software from an advertisement or pop up window? *Pernahkan anda memuat turun perisian yang diiklankan melalui iklan atau "pop-up windows"?*	1	2	3	4	5
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APPENDIX D

VALIDATED QUESTIONNAIRE

SOAL SELIDIK YANG DISAHKAN

TITLE : USERS SUSCEPTIBILITY TOWARDS PHISHING BASED ON USER PERSONALITY TRAITS

TAJUK: KECENDERUNGAN PENGGUNA TERHADAP "PHISHING" BERDASARAKAN PERSONALITI INDIVIDUAL

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Kajian ini adalah bertujuan untuk mengenal pasti kelakuan pengguna di dalam sebuah organisasi yang menyumbang kepada kecenderungan mereka terhadap serangan "phishing". "Phishing" adalah sebuah kejuruteraan sosial yang dilancarkan melalui e-mel palsu untuk mendapatkan maklumat sensitif pengguna seperti kata laluan, nombor

kredit kad dan sebagainya. Serangan "phishing" selalu berjaya kerana kebanyakkan laman web dan e-mel nampak serupa dengan yang asal dan memperdayakan kebanyakkan pengguna. Oleh itu, soal selidik ini disediakan untuk mengenal pasti sifat-sifat keperibadian pengguna yang menyebabkan mereka cenderung terhadap serangan "phishing".

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Thank you.

Terima kasih.

Durga Letchumy Kunasegaran
Bachelor Degree Student
Faculty of Information and Communication Technology
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SECTION A: DEMOGRAPHIC PROFILE / BAHAGIAN A: PROFIL DEMOGRAFI

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Bahagian ini adalah bertujuan untuk mendapatkan maklumat asas mengenai latar belakang anda.

INSTRUCTIONS

Please tick (√) the correct statement as the answer.
Sila tandakan (√) pada pernyataan yang betul untuk jawapan.

1. Gender / *Jantina*: ☐ Male / Lelaki ☐ Female / Perempuan

2. Age / *Umur*:
☐ 21 – 30 years old / *21 – 30 tahun*
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☐ Teaching / *Perguruan*

☐ Others / *Lain-lain* : _____

4. Working Department / ***Jabatan Kerja*:**

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5. Organization Type / *Jenis Organisasi* :

☐ Information Technology (IT) Company / *Syarikat Teknologi Maklumat*

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SECTION B: EXPERIENTIAL FACTORS / *BAHAGIAN B : FAKTOR PENGALAMAN*

The purpose of this section is to identify what type of experiential factors that influences an individual to possess a certain personality trait.

Bahagian ini adalah untuk mengenal pasti jenis faktor pengalaman yang mempengaruhi seseorang individu untuk memiliki sifat-sifat keperibadian tertentu.

INSTRUCTIONS / *ARAHAN*

In the table below, for each statement, please circle the number as the answer that reflects you in with the scale 1- 5 where

Dalam jadual di bawah , bagi setiap pernyataan, sila bulatkan nombor sebagai jawapan yang menggambarkan anda di dalam kotak dengan skala 1- 5 di mana

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

GENERAL EXPERIENCES / *PENGALAMAN UMUM*

General experiences are not related to an individual's career or with technology instead it could be something that happened in their life generally. It could be positive or negative experience in which both could influence the reason for them to possess a certain personality trait.

Pengalaman umum tidak berkaitan dengan pekerjaan individu atau pengalaman mereka dengan teknologi tetapi ia adalah sesuatu yang berlaku dalam kehidupan harian. Pengalaman boleh dibahagikan kepada pengalaman baik atau buruk yang boleh mempengaruhi seseorang individu untuk memiliki sifat keperibadian yang tertentu.

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

No.	Questions / *Soalan*					
GEQ1	Have anyone used your information to create a fake account in social media such as Facebook or Instagram? *Pernahkah maklumat anda didgunakan oleh seseorang untuk mewujudkan akaun palsu di media sosial seperti Facebook atau Instagram?*	1	2	3	4	5
GEQ4	Have your computer been affected by virus after downloading an attachment from an e-mail? *Pernahkah komputer anda dijangkiti virus setelah memuat turun lampiran daripada e-mel?*	1	2	3	4	5
GEQ5	Will you log out of your computer when you are not using it or when you are leaving your computer unattended? *Adakah anda akan log keluar daripada komputer anda ketika tidak menggunakannya atau apabila anda meninggalkan komputer anda tanpa pengawasan?*	1	2	3	4	5

TECHNOLOGICAL EXPERIENCE / *PENGALAMAN DALAM TEKNOLOGI*

Technology experiences are regarding the prior usage of a certain technology by an individual. Besides that, technological experience also refers to the training of an individual in the proper use of a technology.

Pengalaman dalam teknologi adalah berkenaan dengan pengalaman penggunaan sesebuah teknologi oleh seseorang. Selain itu, pengalaman dalam technologi juga merujuk kepada latihan yang diberikan kepada seseorang individu untuk menggunakan sebuah teknologi dengan betul.

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

No.	Questions / *Soalan*					
TEQ2	Have you updated your antivirus software in your computer? *Pernahkah anda mengemaskini perisian antivirus dalam komputer anda ?*	1	2	3	4	5
TEQ4	Have you unchecked the "Save Password" feature in browsers? *Pernahkan anda memadamkan pilihan "Simpan Kata Laluan" di pelayar web?*	1	2	3	4	5
TEQ5	How often do you update you antivirus software in your computer? *Berapa kerapkah anda mengemaskini perisian antivirus dalam komputer anda?*	1	2	3	4	5

SECTION C : PERSONALITY TEST / *BAHAGIAN C: UJIAN PERSONALITI*

This is a personality test that will help to understand the type of personality trait that you possess.
Bahagian ini adalah mengenai ujian personaliti yang akan membantu untuk memahami jenis sifat personaliti yang kamu miliki.

INSTRUCTION

In the table below, for each statement, please circle the number for the answer that reflects you in the box

Dalam jadual di bawah , bagi setiap pernyataan, sila bulatkan pada nombor bagi jawapan yang menggambarkan anda di dalam kotak dengan skala 1- 6 di mana

Strongly Disagree Strongly Agree
1 2 3 4 5 6
Sangat tidak setuju Sangat setuju

No	Questions						
EVQ2	I like to start conversations with other people. *Saya suka memulakan perbualan dengan orang lain.* **(Extroversion)**	1	2	3	4	5	6
EVQ3	I talk to a lot of different people in occasions *Saya suka bercakap dengan ramai orang dalam sesuatu majlis* **(Extroversion)**	1	2	3	4	5	6
EVQ4	I don't like to draw attention to myself *Saya tidak suka menarik perhatian* **(Extroversion)**	1	2	3	4	5	6
EVQ5	I am quiet around strangers *Saya menjadi pendiam di kalangan orang yang tidak dikenali* **(Extroversion)**	1	2	3	4	5	6
AGQ2	I am interested to interact with people. *Saya berminat untuk berbual dengan orang.* **(Agreeableness)**	1	2	3	4	5	6

AGQ4	I take time out for others *Saya suka meluangkan masa untuk orang lain* **(Agreeableness)**	1	2	3	4	5	6
AGQ5	I make people feel comfortable around me. *Saya membuatkan orang berasa selesa di samping saya.* **(Agreeableness)**	1	2	3	4	5	6
CSQ2	I pay attention to details *Saya memberi perhatian kepada setiap perincian* **(Conscientiousness)**	1	2	3	4	5	6
CSQ4	I follow a schedule to complete my work *Saya menyiapkan tugasan saya mengikut jadual.* **(Conscientiousness)**	1	2	3	4	5	6
CSQ5	I am very fussy about my work *Saya sangat cerewet tentang kerja saya* **(Conscientiousness)**	1	2	3	4	5	6
NEQ1	I get stressed out easily. *Saya mudah berasa tertekan.* **(Neuroticism)**	1	2	3	4	5	6
NEQ2	I always worry about things. *Saya sentiasa risau mengenai sesuatu perkara.* **(Neuroticism)**	1	2	3	4	5	6
NEQ3	I get upset easily *Saya mudah berasa kecewa* **(Neuroticism)**	1	2	3	4	5	6
NEQ4	I have frequent mood swings *Saya kerap mengalami perubahan emosi.* **(Neuroticism)**	1	2	3	4	5	6
OPQ3	I have excellent ideas *Saya mempunyai idea yang hebat* **(Openness)**	1	2	3	4	5	6
OPQ4	I am quick to understand things. *Saya cepat memahami sesuatu perkara.* **(Openness)**	1	2	3	4	5	6
OPQ5	I am full of ideas *Saya sentiasa mempunyai idea* **(Openness)**	1	2	3	4	5	6
SMQ1	I follow the behavior of other person when I do not know how to act in a certain situation. *Saya meniru tingkah laku orang lain ketika saya tidak tahu bagaimana untuk berkelakuan dalam situasi tertentu.* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ2	I do not attempt to please people *Saya tidak cuba untuk menggembirakan orang lain* **(Self-Monitoring)**	1	2	3	4	5	6

SMQ3	I would not change my opinion or the way I do things to please others or to win their favor. *Saya tidak akan mengubah pendapat saya untuk menggembirakan hati orang lain atau untuk disukai mereka.* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ4	I could not change my behavior to suit different people and different situations *Saya tidak boleh mengubah kelakuan saya untuk menyesuaikan diri dengan orang lain dan/atau keadaan yang berbeza.* **(Self-Monitoring)**	1	2	3	4	5	6
SMQ5	I behave like what people want me to be to get along and be liked *Saya berkelakuan sepertimana yang dmahukan oleh orang ramai untuk disukai oleh mereka.* **(Self-Monitoring)**	1	2	3	4	5	6

SECTION D: USER BEHAVIOUR SUBJECT TO PHISHING / *BAHAGIAN D: TINGKAH LAKU PENGGUNA YANG TERTAKLUK KEPADA PHISHING*

This section is to determine the likeliness of an individual to respond to a situation that could risk an individual in falling into a phishing attack.

Bahagian ini adalah untuk mengetahui kebarangkalian seseorang individu untuk bertindak balas kepada sesuatu situasi yang boleh menyebabkan mereka menjadi seorang mangsa serangan "phishing".

INSTRUCTIONS / *ARAHAN*

In the table below, for each statement, please circle the number as the answer that reflects you in the box with the scale 1- 5 where

Dalam jadual di bawah, bagi setiap pernyataan, sila bulatkan pada nombor sebagai jawapan yang menggambarkan anda di dalam kotak dengan skala 1- 5 di mana

1	2	3	4	5
Never / ***Tidak pernah***	**Rarely /** ***Jarang sekali***	**Sometimes /** ***Kadang- kadang***	**Often /** ***Sering***	**Always /** ***Sentiasa***

No.	Questions					
UBQ1	Have you verified the sender of the email before downloading or clicking on any link from the email? *Pernahkan anda mengesahkan pengirim e-mel sebelum memuat turun atau tekan pada mana-mana pautan dalam e-mel tersebut?*	1	2	3	4	5
UBQ2	Have you installed software from an advertisement or pop up window? *Pernahkan anda memuat turun perisian yang diiklankan melalui iklan atau "pop-up windows"?*	1	2	3	4	5
UBQ3	Have you checked the email header to verify the sender of the e-mail? *Pernahkah kamu memeriksa kepala e-mel untuk mengesahkan pengirim e-mel?*	1	2	3	4	5

UBQ4	Have you checked whether the website that performing online transaction is beginning with HTTPS or HTTP before sharing any banking information? *Pernahkah kamu memeriksa sama ada laman web yang melakukan transaksi atas talian bermula dengan HTTPS atau HTTP sebelum berkongsi apa-apa maklumat bank?*	1	2	3	4	5
UBQ5	While downloading a movie, you are redirected to another screen and you were asked to install a missing plug-in to continue the movie download. Have you downloaded the missing plug-in? *Apabila memuat turun sebuah filem, kamu dibawa ke skrin lain dan diminta untuk memuat turun sebuah program untuk teruskan memuat turun filem. Pernahkan kamu memuat turun program tersebut*?	1	2	3	4	5