Perceived Factors Influencing the Acceptance and Adoption of Self-service Technology

Chang Mexen

A research project submitted in partial fulfilment of the requirement for the degree of

Master of Business Administration

Universiti Tunku Abdul Rahman

Faculty of Accountancy and Management

March 2015

Perceived Factors Influencing the Acceptance and Adoption of Self-service Technology

By

Chang Mexen

This research project is supervised by:

Sia Bik Kai
Senior Lecturer
Department of Economics
Faculty of Accountancy and Management

DECLARATION

I hereby declare that:

(1) This Research Project is the end result of my own work and that due acknowledgement has been given in the references to all sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) The word count of this research report is 18,128.

Name of Student	:	Chang Mexen
Student ID	:	10 UKM 07187
Signature	:	
Date	:	27 March 2015

ACKNOWLEDGEMENT

I would like to acknowledge gratitude to Mr Sia, my supervisor for his invaluable advice and guidance along the way of my research project. I could not imagine how messy my work will be without his guidance. Without his tremendous support I won't be able to complete the research project smoothly, not even dare to imagine that I'm writing on the acknowledgment page.

I appreciate for my family members and friends who help me on my data collection; in way of showing supporting they took further steps to share the questionnaire link to their extended friends and family. Thank you for your helping hands and share my stress during my data collection period. I won't know how difficult it is until I realized it in action.

My family members always are the biggest supporters in my life. I feel sorry that I am not around and could not help up much during the critical time and I really feel touch as they given me all the supports and loves during my difficult period.

DEDICATION

To my love Eugene Goh,

No words can describe how emotional I can be when I drafting this. This honor did not belong to me alone, but for both of us. Your life didn't stop where you were, I am so glad that I can help you to achieve one of your goal - completion of MBA. I have been struggle all this while; I believe the determination and strength came from you.

I wish you be happy always.

Thanks for being my special one.

Love, Mexen

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURE

PREFACE

This research project is original, unpublished, independent work by the author, Chang, M.

ABSTRACTION

The purpose of the research project is to determine influential perceived factors on using self-service technology (SST), through perceived factors to find out Malaysian's attitude and behavior intention towards SST. The results of this research would also be able to show if consumer perceived SST as supportive role or already become a vital role for daily life. In this study include six independent variables, namely perceived usefulness, individual perceived control, expected outcome quality, technology anxiety, need for interaction and hedonic value to measure the relationship towards attitude on SST. Further examine the relationship on attitude and behavioural intention towards the actual used of SST.

Secondary data was used for literature review; the proposed research framework was the results after analysing information from literature review contributed from many researchers. TAM model was adopt for the study with some modification, added more perceived factors that has been prove to be significant to SST in research done by other researchers. Primary data was collected 210 questionnaire surveys using non-probability sampling technique, through online self-administered questionnaire.

This research found that only perceived usefulness, expected outcome quality and hedonic value are positive related to attitude on SST. Attitude on SST is positively related to behaviour intention on SST and behaviour intention on SST is positively related to actual used of SST. The findings of this study contribute to business management as well as government over Malaysia behaviour over using self-service technologies.

CHAPTER 1

RESEARCH OVERVIEW

1.1 Introduction

This chapter given an overview of the research project that help to understanding the perceived factors influencing the acceptance and adoption of self-service technology (SST) in the context of Malaysia. Specifically, the study aims to examine the causal effect on perceived factors over attitude, intention behaviour and actual used of SST. There are six main areas which will be discussed in this chapter, including the research background, the problem statement, the research objectives, the research questions, the significance of the study and lastly the chapter layout on the research project.

1.2 Research Background

Self-service technologies (SST) are technologies that enable individual to perform a task or transaction without any interaction with service personnel and require consumer actively participate in the operation process. We explore to SSTs in our daily life widely. Self-service technology (SST) play a role in Malaysians' daily life, it started back in 1981 when Maybank introduced Malaysia's first self-service automated teller machine (ATM) (Moreira, 2013). There after Malaysia banking industry successively introduced self-service kiosk such as cash deposit machine and cheque deposit machine to assist in the heavy daily transactions in banking industry. Air Asia even make it mandatory for local flight's customers to do self-check in either through online web check in or using self-service kiosk provided in airport, otherwise a penalty will be impose if check in via counter (Air Asia, n.d). In December 2013, Malaysia first fully self-service kiosk cinema started its operation in Premium-X Cinemas by MCT Consortium Berhad (Cinema Online,

2014). While one of the Sakae Sushi selling point is their Ipad menu, besides picking up the sushi on the conveyor belt, customers can place their order by browsing and clicking on the Ipad menu, the order will straight away goes to the kitchen and it will be serve by the waiter once the dishes are ready.

Furthermore, SST also implemented in launderette segment. Self-service laundry is on a growing trend as well. It was introduced to Malaysia 30 years ago but it was not widely accepted by the public until recently. From year 2009, the biggest market player of self-service laundry is Clean Pro. Clean Pro already had 100 branches in Malaysia in year 2014, not to forget the other 2 major players which are Laundrybar and Adan Laundry, who also providing self-service laundry services using token or coin for washing machine and dryer services (Lee & Tan, 2014).

Along with Malaysia government introduced on e-Government, seven government agencies has initiated online self-service system aim to improve the overall efficiency and effectiveness in serving the public, these agency include Services Portal (myGovernment), e-Tanah, e-Consent, e-Filing, e-Local Government (e-PBT), e-Kehakiman, Custom Information System (SMK), Pensions Online Workflow Environment (POWER), and Training Information System (e-SILA) (Suki & Ramayah, 2010). All these are self-service platform for public to do filling, application, checking status and other service through SST. Such implementation benefits both government and the users, in various perspectives. For example ever year on April is the peak season for personal income tax submission. With the implementation of e-filling SST, individual are able to submit instantly online in the template prepared. In addition it also able to assist user to calculate automatically on the final outcome on how much tax payment needed. It make the whole process effective and efficient as both party can save time and enhance the data accuracy and calculation accurately as no manual calculation and data input are required, tax payer can make the payment instantly thereafter.

Previous researches on self-service technology

There are lots of studies conducted on the innovation and in the field of information technology, such as Sandnes & Hagen (2010) conducted a study on universally designed kiosk prototype established on a multimodal intelligent user interface which adjust according to user's physical features. Many researches has been conducted on this area, however, these engineering researcher did not help marketers and business owner to understand why SST was not able to fully adopted by end user given the large gain in efficiency, convenience and other benefits mention above.

Thus, another group of researchers started to conduct research to fill up the gap. Various studies have been conducted focusing on the acceptance and factor that attracting consumer to conduct activities through SST in various areas. Bashir & Albarbarawi (2011) conducted SST study focus on the use of smart phones and tablet computers; Liu, Huang & Chiou (2012) conducted SST study on online stock trading system brokers; where by Cho (2011) conducted SST study on apparel retail settings; Huang & Martin-Taylor (2013) conducted SST study in the context on human resource management.

In Bashir & Albarbarawi (2011) study, they have pointed out several reasons on why peoples are not willing to adopt SST. Based on their initial research, the most significant reasons was due to personal behaviour and the need to use SST. Further breakdown on the personal behaviour, Bashir & Albarbarawi found that cultures and values play an important role, while some of the user chooses to be an innovator and some of them choose to adopt the technology on a much later period which we used to categories them as laggards. This is very similar with product adoption model, which supported by Roger (1995), where people behave differently and this has been segmented into five different groups of consumer that has been normally distributed into innovators, early adopters, early majority, late majority and the laggards.

While the second reason user not using SST discussed by Bashir & Albarbarawi (2011) was because of users are scared of making mistake. They feel risky and worried when using SST that the services or products purchased were not up to their expectation which might causing waste of time and money. Besides, complex interface and language become one of the reasons that restrain user from using SST.

The purpose of this research study is to determine influential perceived factors on using SST, through perceived factors to find out consumers attitude towards SST and behaviour intention towards SST in a Malaysia context.

1.3 Problem Statement

From the above mention SST trend in Malaysia has clearly showed that there are trends booming in utilising SST. SST has become an interesting topic to study and worth to research whether Malaysian had accept SST and whether the role of SST had change from not only supporting role but also become one of the selling point to attract more customer to the business. It would also be interesting to see Malaysian's perceived SST as a supportive role or it has been slowly turn into an irreplaceable role over the time ever since the first SST in used in Malaysia.

Many researches over self-service technology have been conducted previously, but most of them are conducted outside Malaysia. In Malaysia, not much of the research has been carrying out to examine the overall acceptance of SST. For instance, Chai (2008) has study SST on internet banking while Esman, Embi and Jusoh (2010) have conducted a research on SST over e-Debit System. Although many similar studies have been carried out by overseas researches, however Malaysia somehow has its own unique. A study by Google on consumer barometer survey results found that 31% of the respondent online only using smartphone, while 9% of these respondents used smartphone online more often than using computer. This result shows behavioural differences compare with other countries such as USA and Australia. USA and Australia only have 11% and 7% of the respectively respondent are only using smartphone to online, while 16% and 14% of these respective respondents used smartphone online more often than using computer. This phenomenon shows the differences in behaviour of using smartphone from Western countries as well as other Asia countries, thus there is a need to study specifically on Malaysia context towards various perceived factors on attitude, behaviour intention and used of self-service technology.

Besides measuring the acceptance and adoption of SST in Malaysia, it would also be interesting to see the integrated results from difference perceived factors from difference researchers that have been conducted the research on similar topic.

1.4 Research Objectives

With the above problem statement in mind, the objectives of this research are set as below:

1. To identify significant relationship between perceived usefulness towards attitude on self-service technology.
2. To identify significant relationship between individual perceived control towards attitude on self-service technology.
3. To identify significant relationship between expected outcome quality towards attitude on self-service technology.
4. To identify significant relationship between technology anxiety towards attitude on self-service technology.
5. To identify significant relationship between need for interaction towards attitude on self-service technology.
6. To identify significant relationship between hedonic value towards attitude on self-service technology.
7. To identify significant relationship between attitude and behaviour intention over self-service technology.
8. To identify significant relationship between behaviour intention over actual used of self-service technology.

1.5 Research Question

The research problem above can be framed in the following eight research questions:

1. How does perceived usefulness factor inference in relationship with attitude towards self-service technology?
2. How does individual perceived control factor inference in relationship with attitude towards self-service technology?
3. How does expected outcome quality factor inference in relationship with attitude towards self-service technology?
4. How does expected technology anxiety factor inference in relationship with attitude towards self-service technology?
5. How does need for interaction factor inference in relationship with attitude towards self-service technology?
6. How does hedonic value factor inference in relationship with attitude towards self-service technology?
7. How does attitude over self-service technology inference in relationship with behaviour intention over self-service technology?
8. How does behaviour intention over self-service technology inference in relationship with actual used of self-service technology?

1.6 Significance of the Study

The results of the study will provide valuable insight for business management and government to identify the Malaysian acceptance and adoption of SST. From literature review six factors has been identify to examined in this study which include perceived usefulness, individual perceive control, expected outcome quality, technology anxiety, need for interaction and hedonic value. These factors help to find out if there any significant relationship that impact on attitude towards SST that will have influence over behaviour intention and actual used of SST.

As this research will be conducting using causal model, hypothesizing if the actual used of SST is affected by consumers' behavioural intention that affected by attitude towards SST used. The results of this research will reflect the most influential perceived factors over attitude and behaviour intention towards SST. The positive results on attitude, behaviour intention towards SST reveals the acceptance and adoption of self-service technology in Malaysia.

The results will somehow affect organisation decision over the implementation of SST in future including but not limit to self-service kiosk, online trading platform, vending machine as well as mobile application that able to install in smartphone. Although organisation will evaluate using cost and benefits evaluation method, however, it will not turn into desire outcome as planned as market acceptance and adaptation will always remain as an unknown factor in any type of innovative process. Although smartphone usage in Malaysia is high, it does not come to any conclusion that people performing self-service via smartphone. From consumer barometer survey (2014) found that the top 3 activities using smartphone are visiting social network, using search engines and checking email. Thus, this research is still important for organisation that looking into implementing mobile applications

In additional, one of the hypotheses on hedonic value is significant to marketing manager. If hedonic value over SST resulting a significant impact, marketing manager should include SST as one of the selling point when advertising to the public. The results would need to be taking into consideration when designing the marketing plan for better resources allocation.

On the other hand, this study also provides valuable information to government. The results of the study give an in sign on the nation's ability to accept the used of SST, government department can then modify the current practice to adopt SST due to the various benefits. This can not only reduce the public waiting time, but also enable them to focus more on society group that needed their attention.

1.7 Chapter Layout

Chapter 1: Research Overview

Chapter one give an overview idea on the research study on perceived factors influencing the acceptance and adoption of self-service technology. It also give a brief research background, stating the problem statement, research objectives, research questions, hypotheses of the study and also elaborate the importance of the research topic contributed to organisations as well as to government.

Chapter 2: Literature Review

Chapter two will start with a briefly explain on self-service technology and discusses about literature review on previous researcher findings and results on the similar topic. The review of literate includes the relevant theoretical models, proposed research framework, showcase the all the independent and dependent variables in the hypotheses development.

Chapter 3: Methodology

Chapter three illustrate on the research design, theoretical framework, hypotheses statements, data collection method, sampling design, research instrument, constructs measurement, data processing and method of data analysis.

Chapter 4: Data Analysis

Chapter four presents the analysed results of data collection using SPSS.

Chapter 5: Discussions Conclusion and Implication

Chapter five illustrate the summary of the research project in term of statistical analyses, major findings and implication as well as limitation of the study. Nevertheless, also include suggestion and recommendation for future research.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter illustrate review of secondary data over self-service technology as well as the relevant factors that influencing perceived value over SST by consumer as well as relevant theory applied. This chapter kick start with a brief introduction on SST including classification as well as the pros and cons of implementing SST in the business environment. The second part discusses about the perceived factors variables that influencing the adaptation and acceptation of using SST which contributed to the proposed research framework. Relevant theory will also have a brief discussion in this chapter follow by the proposed research framework.

2.1 Review of the Literature

2.1.1 Self-service technologies (SSTs)

Meuter, Ostrom, Roundtree, Bitner (2000) define self-service technologies (SSTs) as technological interfaces that enable consumer to produce a service independently from the interaction of direct service-employee involvement. One of the most well-known self-service technologies is automated teller machine (ATM), which was invented back in 1967 and it was 1st installed in London by Barclays Bank (Milligan, 2007). Only by year 1981, ATM was introduced to Malaysian by Maybank (Moreira, 2013). Besides that, SSTs also include online banking, self-service laundry service, check-in kiosk in airport or hotel, m-commerce and etc.

Classification of self-service technologies (SSTs)

As SST cover widely, Meuter et al. (2010) had contributed a table of classification on SST base on interface (interactive, telephone, Internet, kiosks, video/CD) and purpose (customer service, transactional, self-help) to distinguishing SSTs. This consumer-based perceptual map of SSTs has been broadly discuss by several researchers such as Chai (2008), Kaur & Gupta (2012), Cunningham,Young & Gerlach (2008) and others.

Table 2.1: Classification of SSTs on base of interface and purpose

Interface / Purpose	Telephone/Interactive Voice Response	Online/ Internet	Interactive Kiosks	Video / CD*
Customer Service	• Telephone Banking. • Flight Information. • Order Status.	• Package tracking. • Account information.	• ATMs. • Hotel checkout.	
Transactions	• Telephone Banking. • Prescription refills.	• Retail purchasing. • Financial transactions.	• Pay at the pump. • Hotel checkout. • Car rental.	
Self-Help	• Information telephone lines.	• Internet information search. • Distance learning.	• Blood pressure machines. • Tourist information.	• Tax preparation software. • Television/ CD-based training.

Note. From Matthew L. Meuter, Amy L. Ostrom, Robert I. Roundtree, Mary Jo Bitner (*2000*) Self-Service Technologies: Understanding Customer Satisfaction with Technology-Based Service Encounters. *Journal of Marketing*: July 2000, Vol. 64, No. 3, pp. 50-64.

In this research study will only focus on two types of interfaces, which are using online or internet and interactive kiosk throughout all purposes. The reasons simply because the users need to provide full and interaction on the web page, applications or the kiosk in order to complete the task. Meaning that these types of SSTs have more self-control and almost nil interaction with service employees to complete the task, which is closer to the definition of self-service define above. However, distinction from other types of SSTs' interfaces, video or CD interface did not cover all of the purposes, while interactive voice responds or telephone interface, user have the options to talk to the service personnel while the service employees will do the rest of the task, as so interactive voice respond nor video or CD interfaces will not be the focus on this study.

Pros and cons on self-service technologies (SSTs)

It is not easy for business management to make decide on change their operation model using SSTs interface either entirely or partially. As Implementing SSTs not only require high expenditure and overall collaboration, but it require a team of people that are experience in technical on both hardware and software as well as commercial expertise to support the SST operation. (Kiosk Solution, NA)

Regardless the troublesome mentions above, many big corporations still going for SSTs, mainly are attracted from the long run benefits on implementing SST. Cost are the biggest enemy for a business that all business wish to keep it at minimum; upon implementing SST, the business are expect to reduce cost per transaction (Honebin and Cammarano, 2006). The reason simple because SST replace service personnel, the yearly increasing wages and leaves are part of the operations cost. This becomes part of the burden to the management especially to meet workers' salary demand and bonus expectations. However, SST interface provide 24/7 services without hesitate. Corporation could spend the spare money on their core business or improve in productivity in order to stay competitive in the market.

The second concern of the business usually will be efficiency and effectiveness. Implementing SSTs system will reduce manual work from service employee and this will directly reduce human mistakes. Besides, the data require by management can generate as and when required as all data is on a real time basis.

Using SSTs reduce human interaction. This can solve the problems arise from human interaction between employees and consumer, such as complaint and arguments (Weijter, Rangarajan, Falk, & Schillewaert, 2007) Although there is a known mantra in business that "customer always right", which employees should put their customer as priority in order to achieve high customer satisfaction and attract repeat purchase. However some unreasonable customer or occasionally bad emotion will turn the overall outcome differently which lead to argument, complaint or even fighting if the environment are uncontrollable.

Besides, the convenient of SST help the business growth effective and efficient over the long run as results of increasing customer self-sufficient in the decision making process (Srikanth & Padmanabhan, 2002; Dabholkar, Bobbitt, & Lee, 2003). Especially internet and online interface allow user to perform the task anywhere at any time. While self-service laundry services that open 24/7, suitable for different habitual of customers that like to do their laundry at any time, day or night regardless is a sunny or raining day.

2.1.2 Perceived usefulness

Perceived usefulness is one of the most influential factors in technology acceptance model (TAM) that impacting on consumer attitude which also have a causal effect to consumer behaviour intention and actual used of a certain technology, this was supported by the studies conducted by Norazah, Ramayah and Norbayah (2008) and Fu, Farn, and Chao (2006). Perceived usefulness has been defined as the degree to a person believes in using a particular technology system that would improve productivity, performance and effectiveness (Davis, 1989). Perceived usefulness has been an important factor influencing behaviour, and has been widely used as part of TAM in measuring the acceptance and adoption level on self-service technology. For instant, Cho (2011) was using perceived usefulness on the study in self-service technology, investigation of the potential for adoption in apparel retail settings; the results shows perceived usefulness has significant relationship toward consumer attitude.

Besides in appear industry, such as banking, airport, and trading industry also have the similar outcome, identified perceived usefulness as one of the major driver for attitude toward an SST (Cho, 2011; Liu, Huang and Chiou, 2012; Esman et al., 2010)

Dabholkar and Bagozzi (2002) mention it is difficult to measure perceived usefulness in SST as consumer of SST do not own the technology, despite the fact that they participate in using the technology. Unless this construct is measure on a consistently and accurately manner on a performing task.

2.1.3 Individual perceive control

Bateson (1985) found that one of the reasons customers prefer to use self-service processes is because of perceived control, although there are no additional advantages such as less waiting time or lower price. Consumers prefer to have some degree of control over a process or outcome (Anselmsson, 2001). Meanwhile consumer must have some extent of understanding or instruction given on how to operate the SST in order to have controllability over it (Lee & Allaway, 2002).

Collier (2006) study found that consumer who has a greater control in using SST will generate positive attitude on SST as a results from inner tension and overall anxiety from using SST. Similar results were concluded by Hui and Bateson (1991). Dabholkar (1996) pointed that perceived control is being associated with service quality, which consumer expect themselves to have some control to reduce the chance of service failure while performing a task using SST and thus stimulate SST adoption (Lee and Allaway, 2002). In contrast, the lesser perceive control, consumer will tend to have negative attitude towards SST.

Yet, increasing in individual perceived control implied the transferring power of control from employee to consumer. It became debateable topic on responsibilities as this may give rise to the chances of making mistake as employees are trained on the matter but not all individual could handle the same matter correctly. Misinterpretation may happen even instruction is given. The mistake may frustrated consumer as they would have to bear with the mistake and even absorb the cost of error. Therefore, options are important for consumer to correct their mistake or even cancel the whole transaction. (Collier, 2006)

Although consumer prefer to have options to control, but too much of options may results a negative out come as it might become too complicated to use if consumer cannot understand all the options available, thus finding a balance is

essential when designing on a SST (Collier, 2006). Wind and Rangaswamy (2001) also state that when an individual is faced with too many options or a lack of control when using a technology, they will psychologically shut down. When consumers take on the role o f a partial employee, they must feel capable and in control of the process. If a consumer is to perform a transaction without the assistance of an employee, then he or she should have the ability to request different options and also the ability to correct mistakes if they occur.

2.1.4 Expected outcome quality

In this dynamic and challenging business environment, expected outcome quality becomes an imperative for business continues to be sustainable in the market (Kaur & Gupta, 2012). A successful SST system must be able to provide the ultimate core value to the service where consumer's expectation on SST to do things perfectly with no error and generate the anticipated outcomes accordingly to its designated purpose (Dabholkar & Bagozzi, 2002; Lee & Allaway, 2002). Some researcher has found that expected outcome quality is positively associated with perceived usefulness and positive relationship with customer satisfaction level (Pai and Huang, 2011; Lee and Yang, 2013). Similarly in banking industry, Bowen and Hedges (1993) pointed out that expected outcome quality play an important major role as it could enhance the market share in banking industry.

Expected outcome quality is the consumer's expectation over a SST used to delivery experience that is about to occur and this expectation is normally form when information received by service promises made by the business (Bitner 1995), prior consumer experiences (Cadotte, Woodruff, and Jenkins, 1987), advertising (Mittal, 1999), or word of mouth (Bansal and Voyer, 2000). It can be further breakdown into desired service expectation and adequate service expectation. Desired service expectation is what consumer hope to receive; while adequate service expectation is the accepted level within the tolerance level given that the outcome might not always as per their wish (Zeithaml, Bitner and Gremler, 2009).

The study conducted by Zeithaml and Bitner (1996) found that consumers expectation outcome quality is build based on the belief of the service delivery are function as standards or reference points. Consumers also have a tendency to to assign different expectation on self-service options differently, such as higher and straighter expectation outcome quality on banking sector and using this as a reference points to judge it's service quality and performance. According to

Zeithaml et al. (2009), consumer will tend to have higher expectation on more important sectors, thus lesser tolerance given.

Failing to meet the expected quality, consumers feel disappointed and consequently would affecting the attitude towards the particular SST use that produce disappointment.

2.1.5 Technology Anxiety

In the recent decade, technology has playing an important role in daily life and yet it keeps changing, from the previous study conducted there is evidence showing that people is facing difficulty to keep themselves update with current technologies. To measure consumers accordance over technology, many researchers have included technology anxiety or computer anxiety is frequently used interchangeability in studies or research over acceptance towards certain technology in order to verify the impact and degree of technology anxiety on the public, which include Phongkusolchit (2008), Meuter (1999), Caramba-Coker (2009), Chai (2008) and a lot more researchers. The degree of technology anxiety in customers is a crucial indicator to reflect whether customers are willing to purchase or to use innovations technology-related product (Sinkovics, Stottinger, Schlegelmilch, & Ram, 2002).

Technology anxiety refers to a negative feeling towards technology, which have similar meaning for technophobia and computer aversion mentions in other research paper. Meuter et al. (2003) define technology anxiety as users mind set on ability and willingness to use and control over technology-related products (Meuter, Ostrom, Bitner, & Roundtree, 2003).

Technology anxiety did not mean that individual do not know how to use a computer, but is about confidence in their ability to handle with technology and the willingness to use technology product (Meuter et al, 2003). Kjerulff, Pillar, Mills & Lanigan (1992) study found that nurses with high technology anxiety view their work place as source of stress and frustration which supported by Doronina (1995) who illustrious that one's who anxiety to technology will be nervousness in using computers, give negative comments and feedback, attempts to minimise timing spent on using computers and avoiding using technology related product as much as possible. This is due to consumers lack confidence over the ability to effectively control and hand technology as results of rapid

change technology (Oyedele and Simpson, 2007).

Technology anxiety serves as one of the factors that impacting the technology readiness index (TRI), which the model introduced by Parasuraman (2000). TRI measure the propensity to embrace and use new technologies for accomplishing certain goals. These model has been incorporated several factors such as cultural, attitude, technology anxiety and one's capacity and willingness to use. Once technology readiness in individual is set, he or she will be more likely to have a try on new technology (Parasuraman , 2000).

2.1.6 Need for interaction

Need for interaction with employees become one of the barriers for SST get implementation on everything or processes as SST is not suitable for complex service and process. It may require human analysis and assistance to evaluate the situation on a case by case basis. For instance, banking industry implements SST with ATM, CDM online and phone banking services. However to get a bank loan is not suitable for SST, as this is a complex procedure. Besides collecting the relevant documentations, banker needs to evaluate the applicant's ability to payback, financial background and other factors that might differ the decision making from one individual to another. In the shoes of applicant, he or she may have extensive questions on the loan rate, tenure, clauses and other non-general questions that needed extensive consultations. In such case SST is not suitable.

SST are suitable to serve short, straight forward and routine process (Collier, 2006), such as self-service Laundromat service only required as simple as 5 steps to get the clothes washed. With the aid of picture and simples wordings of instructions, consumers have no issue to run the SST at their own convenient time. Beside that most of the online selling platform or website provide frequent asked question (FAQ) for user to refer and clear their doubts when encounter any issues during the transactions.

Esman et al. (2010)study found that consumer did not perceived need for interaction with bank employees as important factors to use SST, as longer waiting time are needed, similar results on the study conducted by Curran and Meuter (2005) found that consumer prefer to use ATM and online banking compare to heading over the counter.

Besides complexity of the process, Hornik (1992) study also found that making eye contact with customer are important as it will enhance the customer experience and satisfaction, feeling the personal touch thus would have a positive

attitude toward the particular restaurant.

A part from service processes, personal behaviour that vary from individual will reflect the different need for interaction with employees. Introversion people are quiet, reserved and shy. They are more confortable to do things without the face to face interaction with human (Koch and Pratarelli, 2004). These people prefer to read instruction and follow the steps given rather than approaching the employee; while outspoken people prefer to talk to people and prefer to have some interaction with employees (Collier, 2006; Phongkusolchit, 2008).

2.1.7 Hedonic Value

Hedonic value is very subjective to each individual and it arises from individual's capacity to build hedonic responses such as perceive enjoyment (Babin, Darden and Griffin, 1994). Building a positive hedonic value is important, as consumers with positive hedonic value tend to have significant positive behaviour including willingness to share verbal recommendations with others. Besides that researcher also found that adaptability had a significant relationship with hedonic value judgment over SST (Collier, 2006) .

The study from Matzler, Bidmon, & Grabner-Kräuter (2006) mention that consumer with hedonic value will increased loyalty and forming brand trust. This is supported by Kazakeviciute & Banyte (2012), researcher further investigated that hedonic value could be built through the consumers' social, emotion and epistemic experiences. Based on Holbrook & Hirschman (1982), utilitarian and hedonic products classify perceived enjoyment and playfulness as hedonic. As so in this research, hedonic value will investigate thru the perceive enjoyment and fun on SST.

Perceived enjoyment is a positive sensory stimulation such as joy and pleasure that emerge from using SST (Hirschman & Holbrook,1982; Teo, 2001) Many researchers found that perceived enjoyment or having fun in using SST has significant impact towards creating a positive attitude (Dabholkar and Bagozzi, 2002). Dabholkar (1994) found that the intrinsic motivation for consumer to used SST is perceive enjoyment and fun attract them in using technologies and this is supported by Igbaria, Parasuraman & Baroudi (1996). Consumer choose to use SST as they enjoy using SST, having fun and feel entertain compare to the traditional way of doing things (Koufaris, 2002).

In Cho (2011) study, perceived enjoyment has been used as part of the intrinsic motivation factors on measuring the consumer attitude towards using SST. The results showed significant positive outcome. Van der Heijden (2004) further

suggested that program developer should put in more effort to create hedonic content as in computer system, such as increase he visual layout, graphical and sound to make user feel the fun while using system as consumers use technological innovations for entertainment.

2.1.8 Attitude

Eagly and Chaiken (1993) define attitude as a psychological tendency that is expressing self-evaluation with a degree of favourable or unfavourable towards an object behavioural and this psychological tendency is difficult to change. While Hogg, & Vaughan (2005) define attitude as a reasonably persistent way of organizing one's beliefs, feelings, and behavioural tendencies towards generally significant objects, groups, events or symbols. Whereas Dabholkar & Bagozzi (2002) simply describe attitude as consumers' feelings towards using SST in his study. This attitude can be positive or negative based on consumers' own assessment.

Fishbein and Ajzen's (1975) had further split attitude into 2 constructs, which is attitude toward an object and attitude toward the specific behaviour. The second part on attitude toward a specific behaviour has been incorporated in TAM that has been discussed earlier showing a strong relationship over attitude and behaviour. One's positive attitude towards the used of SST will lead continuously used of SST in future or increase the frequency of using it.

Researcher has further breakdown attitude into 3 elements, which are: affective is referring to personal feelings and emotion towards an object; behavioural is refer to the ways the person act or behave and cognitive is refer to one's believe or knowledge towards an object, this is also known as ABC model of attitude (McLeod, 2009).

This has led to a board study over attitude –behaviour relationship, using attitude as an effective predictor of behaviour. The stronger the attitude the more likely it should affected in one's behaviour. In this research, to determine the SST attitude-behaviour relationship is straightforward and one's evaluation should linked to the perceived factors discussed earlier over the choice of using SST or employee service.

2.1.9 Attitude – behavior intention

Various previous studies have been conducted on attitude – behaviour intention relationship. The results indicated the behaviour intentions over SST are determined by the attitudes towards SST that determined by SST's various characteristic and advantages as well as individual perceived values (Curran et al., 2003; Dabholkar, 1996; Dabholkar and Bagozzi, 2002). Besides being a part of TAM, the attitude – behaviour intention relationship also had been studied in the theory of reasoned action (TRA) by Fishbein and Ajzen (1975), focus in behavioural intention rather than the actual behaviour, arguing that intentions does not always lead to actual action by consumer. In addition, attitude – behaviour intention relationship also being a part of theory of planned behaviour (TPB) model by Ajzen and Madden (1986) state that actual behaviour is not determined solely by behavioural intentions. The connection of intention-behaviour is expected to be different from one and other due to across situations.

However, this attitude-behaviour relationship did not apply to all situations where a study conducted by Lapiere (1934) found that there is exceptional case, in some cases cognitive and affective value did not seem to be in line with behavioural, can causes some conflict in attitude-behavioural relationship. This is supported with Theory of Self-Regulation (TSR) by Bagozzi (1992), focusing on examined conative, motivational and emotional processes in performing of intentions and behaviour. The researcher found that attitudes do not necessarily lead to behavioural intentions due to lack of motivational to perform a certain task. The study shows desire must be exists for proximal cause of intentions, whereas attitudes were reflected as a distal cause, although it stimulates desires.

2.2 Review of theoretical model

In order to have a better understand on how consumer come across to accept and adopt SST, relevant literature review on models and studies that applied theoretical and empirical bases on consumer acceptance and adaptation are summarise as following:

The innovation adoption process:

Meuter (1999) used innovation adoption process to study on consumer readiness to use SST. In innovation adoption process there are 6 stages: awareness, investigation, evaluation, trial, repeat purchase and commitment.

However, the numbers of stages and sequence may be different depends on whether the product is high or low involvement. For high involvement products consumer may fully follow the sequence and steps: awareness, investigation, investigation, attitude formation, trial and adoption; whereby for low involvement product, consumer may found it waste of time or simply just "trying" rather than to go through the full innovation adoption process: awareness, trial, attitude formation and adoption (Gatignon and Robertson, 1985).

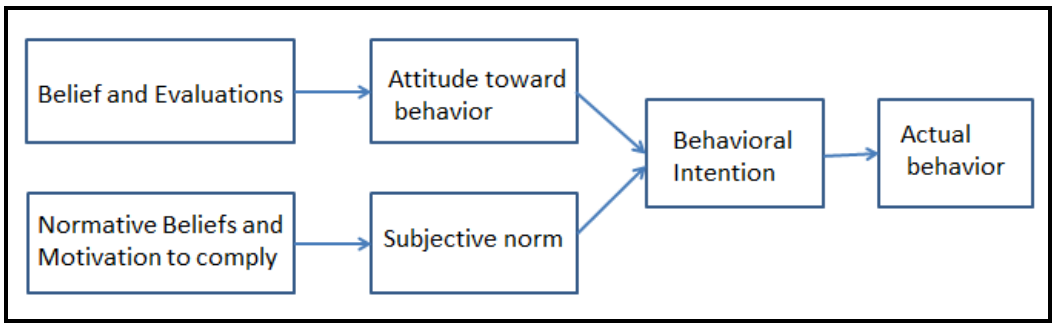
In Meuter (1999) study, researcher believes that consumer readiness on using SST's key determinant is trial in the process. Once consumer trial on SST, it is higher chance that the consumer will repeat using SST.

The Theory of Reasoned Action

This model was first developed in the late 1960s by Martin Fishbein and revised and expanded by Fishbein and Icek Azjen. The Theory of Reasoned Action is an intention model that used to predict and explain human's behavior based on beliefs and attitudes (Peter & Olson, 2005).

An intention is a plan or likelihood that someone will behave in a particular way in a specific situation regardless the actual outcome. For instant, a smoker who is thinking about to quit smoking intends or plans to quit, but in actual he or she may or may not actually follow through on that intention. TRA study at humans' attitudes and norms in conjunction with subjective norms towards a particular behaviour as these was found to be the main influences on intention that motivate behaviour (Hale, Householder & Greene, 2002).

Figure 2.1: The Theory of Reasoned Action Model



Note. From: Davis, F., Bagozzi,R. & Washaw, P.(1989). *User acceptance of computer technology: a comparison of two theoretical models*. Management Science, 35(8), 982-1003.

Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) is used to study individual's perceptions that affect his or her intentions to use a certain type of technology as well as the actual usage. The model was established on the basis of extension in theory of Reasoned Action (TRA) (Chuttur, 2009). Various researchers used TAM to measure the acceptance level in new technology from two core perspective, which are (i) perceived usefulness and (ii) perceived ease of used. From these two core construct to check on the attitude towards the system, which will reveal user's behavioural intention and behavioural usage of the technology.

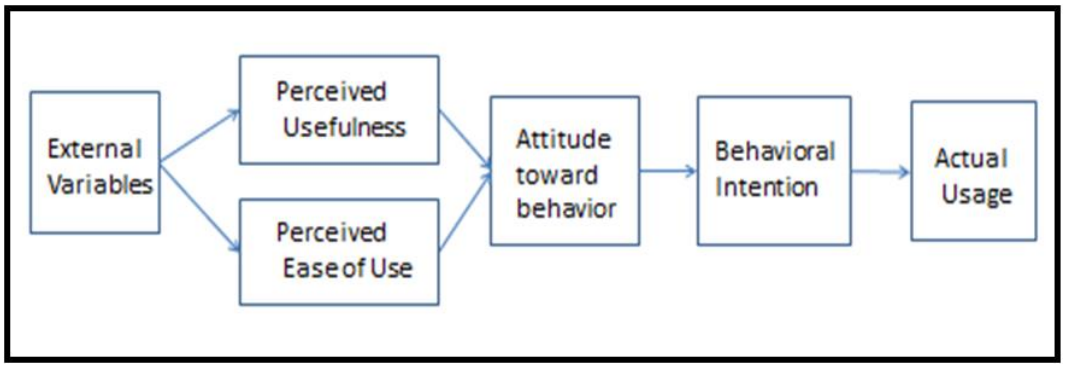
Davis (1989) define perceived usefulness as the degree of one's believe using a particular technology could enhance job performance, which found to be a strongly influential factor from how user come to accept and adopt a certain technology via intention and behaviour; while perceived ease of use is the degree of one's believe using a particular technology is effortless.

TAM is known to be the most widely recognised empirical study through validations, applications and replications (Legris, Ingham and Collerette 2003). However, Chuttur (2009) who did the overview study on TAM has found that this model could be better established if the gap on lacks of rigidness and relevance was fulfilled (Chuttur, 2009).

Many researcher has then modify TAM from the original construct to include more factors that believe would somehow to be more relevance in order to measure the impact on attitude towards technology reflecting significant influence on intention & behaviour over the technology. For instance, Bobbitt and Dabholkar (2001) modify TAM by incorporate previous experience of self-service over individual's attitude towards using the technology. In this study, a slight modify TAM model will be carry out to fill up relevance gap in order to figure out perceived factors influencing the acceptance and adoption of SST.

Besides that, the study would also be interesting to see integrated results on perceived factors from literate review discussed. The proposed research framework will be discussed detail on the next section.

Figure 2.2: The Technology Acceptance Model



Note. From Davis, F.(1989) "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology," *M IS Quarterly*, pp 319-340

2.3 Research Gap

There are several studies on SST has been conducted in Malaysia, for instant Chai (2008) used model of consumer trial SST to identify the real key mediators and the likelihood of trial in Internet-based banking SST service among Malaysians. While Esman,Embi and Jusoh (2010) research focusing on postgraduate students intention to use SST offered by the Bursary and to figure out the affecting factors. In their studies, there used perceived usefulness, perceived ease of use, perceived enjoyment need for interaction, security and privacy against behavioural intention to use SST. In addition, Suki & Ramayah (2010) used Structural Equation Modeling (SEM) techniques to measure and identify determinants of user acceptance and its causal relationships using a theoretical model based on the Technology Acceptance Model focusing on e-Government services in Malaysia.

In this study, it is interesting to see the integrated perceived factors adopt from several previous studies and using Technology Acceptance Model and multiple linear regression analysis to identify Malaysian's attitude and behaviour intention towards SST. In this study there will be six independent variables, namely perceived usefulness, individual perceived control, expected outcome quality, technology Anxiety, need for interaction and hedonic value to measure the relationship towards attitude on SST. The study will also further examine the relationship on attitude and behavioural intention towards the actual used of SST.

CHAPTER 3

METHODOLOGY

3.0 Introduction

This chapter discussing on the processes and methodology used to conduct this research study. In this chapter also talk about research design that shows the overall strategy used in a coherent and logical way to effectively address the research objective. Follow by explaining the research framework which makes up the hypotheses statements that used to address research objectives.

Primary and secondary data collection methods will also be discuss together with sampling design, research instruments, construction measurement, data processing and data analysing. The process of the research study starts with the development of the research framework and hypothesis which states the expected outcome of the study which to be validate through data analysis.

3.1 Research Design

This study utilizes inferential statistic research design, which used samples to generalize the populations' attitude, behavioral towards SST by performing hypothesis testing to validate the relationship among variables (Hair, Money, Samouel and Page, 2007). A cross-sectional structured survey is conducted via self-administration questionnaires. The collection of data is to make inferences of population of attitude and behavioral over SST at a point in time, thus this survey captured the attitude and behavior of respondent inferences population's attitude and behavior at this particular point of time (Lavrakas, 2008).

In this research, quantitative research will be conduct for the purpose of measuring the independent variables that would affect the consumers' attitude, behavior and actual used towards the used of SST in Malaysia context via questionnaire survey. The purpose of quantitative research is to validate the relationship between independent variables and dependent variables that have been tested on prior empirical study within or out outside Malaysia in the past as well as to check if the same results are apply to Malaysia consumers.

A summary of table independent variables and dependent variables as well as the sources are presented in the table below to showcase the relevant variables that have been study in previous study.

Table 3.1: Summary of past studies on independent variables and dependent variables

	Variables	Sources
IV1	Perceived usefulness	Godoe & Johansen (2012) Suki & Ramayah (2010) Curran & Meuter (2005) Lin & Chang (2011) Huang & Martin-Taylor (2013) Oghazi, Mostaghel, Hultman & Parida (2012) Kaur & Gupta (2012) Esman, Embi & Jusoh (2010) Weijters, Rangarajan, Falk & Schillewaert (2007) Faqih & Jaradat (2014) Kokkinou (2010) Cho (2011) Liu,Huang & Chiou (2012)
IV2	Individual perceived control	Caramba-Coker (2009) Kokkinou (2010) Faqih & Jaradat (2014)
IV3	Expected outcome quality	Kokkinou (2010) Faqih & Jaradat (2014) Kallweit, Spreer & Toporowski (2014) Phongkusolchit (2008)
IV4	Technology anxiety	Phongkusolchit (2008) Meuter, Bitner, Ostrom & Brown (2005) Meuter (1999) Cho (2011) Kokkinou (2010) Chai (2008) Jia, Wang, Ge, Shi, & Yao (2012)

Table 3.1: Summary of past studies on independent variables and dependent variables (Continue)

	Variables	Sources
IV6	Hedonic value	Kokkinou (2010) Oghazi, Mostaghel, Hultman & Parida (2012) Esman, Embi & Jusoh (2010) Chea (2006) Weijters, Rangarajan, Falk & Schillewaert (2007) Collier (2006) Curran & Meuter (2007)
DV1	Attitude towards using SST	Cho (2011) Suki & Ramayah (2010) Curran & Meuter (2005) Curran & Meuter (2007) Kaur & Gupta (2012) Weijters, Rangarajan, Falk & Schillewaert (2007) Kallweit, Spreer & Toporowski (2014) Collier (2006) Oghazi, Mostaghel, Hultman& Parida (2012)
DV2	Behaviour intention to use SST	Cho (2011) Kaur & Gupta (2012) Esman, Embi & Jusoh (2010) Phongkusolchit (2008) Collier (2006) Chea (2006)
DV3	Actual used of SST	Phongkusolchit (2008) Caramba-Coker (2009) Faqih & Jaradat (2014) Chea (2006)

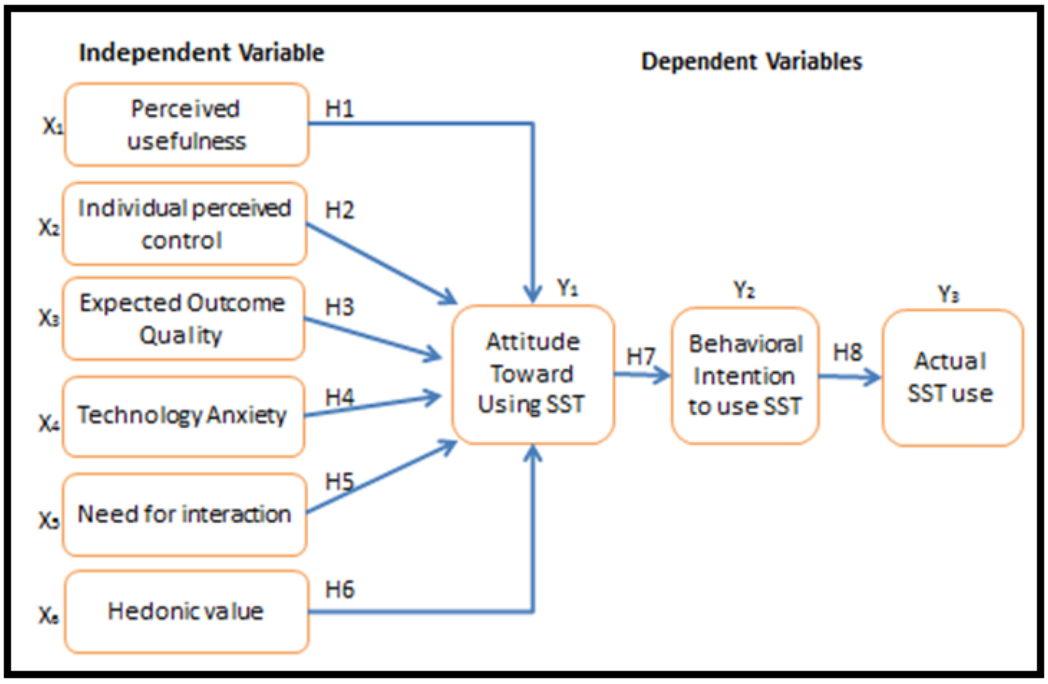
3.2 Development of Research Framework

Research framework consists of concepts that are used in a logical and sequential design to clearly outline preferred approach for purpose of explaining the predicted outcome.

The research framework is based on the literature review in chapter 2. Several factors are driven from different past studies and adapted to the study of perceived factors influencing the acceptance and adoption of self-service technology. By incorporated those selected independent variables that believe to be able to illustrate a better model that capable to reflect the true value of consumers' attitude and behaviour towards SST.

These independent variables are then integrated into modified Technology Acceptance Model (TAM) to see if this research framework can better explain the research objectives. The research framework is shown as below:

Figure 3.1: Research framework on perceived factors influencing acceptance and adoption of self-service technology



As mention, the above research framework are modify from Technology acceptance model. The modification are reflected in the independent variables where more perceived factors have been discussed in literature review are adopted and integrate into this research model, while the original factor on ease to use was removed. This is because in the study of Islam, Azad, Mantymaki & Islam (2014) pointed out that ease of use has not linked to attitude and behavioural intention consistently. Ease of use become significant in TAM depends on the task measured. The researchers also mention that 24% of the previous studies was shown to be insufficient evidence to conclude that perceive ease to use factor have significant relationship with attitude and behaviour intention (Islam, Azad, Mantymaki & Islam, 2014).

3.3 Hypotheses Statements

The eight hypotheses from the research framework discussed earlier are illustrated as below:

First Hypothesis:

$H1_0$: There is no relationship between perceived usefulness and attitude on self-service technology.

$H1_a$: There is a positive relationship between perceived usefulness towards attitude on self-service technology.

Second Hypothesis:

$H2_0$: There is no relationship between individual perceived controls and attitude on self-service technology.

$H2_a$: There is a positive relationship between individual perceived controls towards attitude on self-service technology.

Third Hypothesis:

$H3_0$: There is no relationship between expected outcome qualities and attitude on self-service technology.

$H3_a$: There is a positive relationship between expected outcome qualities towards attitude on self-service technology.

Fourth Hypothesis:

$H4_0$: There is no relationship between technology anxieties and attitude on self-service technology.

$H4_a$: There is a negative relationship between technology anxieties towards attitude on self-service technology.

Fifth Hypothesis:

$H5_0$: There is no relationship between need for interaction and attitude on self-service technology.

$H5_a$: There is a negative relationship between need for interaction towards attitude on self-service technology.

Sixth Hypothesis:

$H6_0$: There is no relationship between hedonic values and attitude on self-service technology.

$H6_a$: There is a positive relationship between hedonic values towards attitude on self-service technology.

Seventh Hypothesis:

$H7_0$: There no relationship between attitude and behaviour intention over self-service technology.

$H7_a$: There is a positive relationship between attitude and behaviour intention over self-service technology.

Eighth Hypothesis:

$H8_0$: There is a positive relationship between behaviour intention and actual used of self-service technology.

$H8_a$: There is a positive relationship between behaviour intention over actual used of self-service technology.

3.4 Data Collection Methods

3.4.1 Secondary Data

Secondary data are information that has been collected by previous researcher for some other purpose than the research project on hand (Burns and Bush, 2000), such as government statistic, historical share price, company annual accounting report and other. Secondary data normally serve with low cost or even free of charge, unless the particular important question cannot be adequately addressed or resolved with secondary data, then collecting of primary data is necessarily (Hair et al., 2007).

In this study, secondary data was collected for the purpose of better understanding and define the problem in order to develop the research model for this research, for instant, to identifying the key perceived factors that have the most influential in SST. The past empirical studies provide a better scope, direction and ideas to identify those independent and dependent variables that used to fulfill the research objective. However, these secondary data can be out dated, not exactly fit into the research model and might due to cultural difference in different country, thus primary data are needed to further validate the results conducted by previous researchers on the similar topic over SST.

The sources of secondary data for this study are mainly obtained from literature review of the journals, book, article and etc. In this research, most of the secondary data are collected through journal and book. Where the journals have obtained through Emerald, Sciences direct, Goggle scholar and other database in UTAR online database. A part of that, some information also collected through government publications on statistics, analyses offered by the media and corporations and websites.

3.4.2 Primary Data

Primary data can help to fill up the gap in of secondary data problems such as outdate, different target respondent, different measurement design, unable to exactly fit into the research objectives. Primary data are information that is the firsthand data collected by the researcher specifically for the research objectives (Burns and Bush, 2000) that targeted to solve the research problem. There are three main methods to collect primary data such as survey method, interview method and observation method (Currie & CIPD, 2005)

In this study survey questionnaire is used to collect primary data. The questionnaire designed and distribute to the target respondent via self-administration structured questionnaire survey. This method are used to provide a standardize question and with a same set of options given to the respondents, which enable to have easier data analysis on a later stage.

3.5 Sampling Design

3.5.1 Target Population

The target population is the ideal population on research study that would want to make inference from sampling. Since the objective of this study is to determine influential perceived factors on using SST, through perceived factors to find out Malaysian's attitude and behaviour intention towards SST. Hence, the target population for this study is targeted on all Malaysian from age 21 above, used at least 1 time on any type of SST in the past 1 month.

3.5.2 Sampling Frame and Sampling Location

Sampling frame is a complete list of all the members of the population that wish to study. As mention above, sampling frame covered all Malaysian from age 21 above are estimated to be 18,404,892 representing 61.2% of total Malaysia population of according to the CIA world fact book on Malaysian estimation population for year 2014 (CIA, 2014)

However, to include the additional screening criteria that the respondent must be used at least 1 time on any type of SST in the past 1 month, the sampling frame will definitely lesser than 18,404,892 Malaysian.

3.5.3 Sampling Elements

Sampling element of this research is individual consumer of SST. The survey questionnaire is distributed via e-mail and social media platform such as Facebook.

3.5.4 Sampling Technique and sampling size

According to Barreiro & Albandoz (2001) there are three types of sampling techniques, which are:

1. Probability sampling or random sampling, each sample has the same probability of being selected.
2. Purposive sampling, selection of the sample according to researcher's purpose of study.
3. No – rule sampling or nonprobability sampling, each sample do not have the same probability of being selected.
4. Under nonprobability sampling, there are three methods, which are convenience, quota and snowball method.

In this study, nonprobability sampling technique convenience method is used for sample selection. The questionnaire is design using Google form, which allow building the survey questionnaire easily and the finished questionnaire is dedicated by a link or URL can easily share to reach out to the target respondent via e-mail, personal blog, social media or even share it out using smart phone's communication application such as Whatapps, line and etc.

As convenience method is adopted, this research questionnaire link is distributed on social media, blogs and e-mail. Besides distributed via e-mail are more private and specify to a single person, distribution via social media and blogs are pretty open to public. A brief note was put up to invite qualify respondent to answer the survey at their own time own preference. Some of the respondent even shares the link to their extended friends and family members which made the research data collection more efficient.

According to Roscoe (1975), sample sizes larger than 30 and less than 500 is good enough to achieve acceptable confidence level for most research. In this study is targeting to receive 300 respondents to complete online self-administered questionnaire, where respondent are required to read the instructions and answer all the questions to complete the survey on their own without the presence of interviewer.

3.6 Research Instrument

Questionnaire survey is chosen to collect primary data. The questionnaire is design using Google form, for the use of building survey questionnaire easily and is free. Google form provides different measure option for different needs and the responses are updated in excel spread sheet automatically. By doing so, it save lots of time on data collection in terms of transferring respondent input into excel; save time and money as to get the questionnaire distribute in form of link or URL rather than printed copies. The link or URL was distributed via e-mail, blogs and social media or even share it out using smart phone's communication application such as Whatapps, line and etc. Respondent can easily access to the questionnaire via computer as well as smartphone.

Since the URL are posted on the public blogs and social media, people who see and read on the post are clearly aware of this undisguised survey is from UTAR student who performing the study for academic purpose, condition of qualify respondent, research objective as well as their response and identity will remain anonymity and confidentiality. Similarly information is written on the e-mail, Whatapps and Line message send together with the questionnaire URL.

Some of the questions in questionnaire was self-created and some was adopted and modified from several researches which include Godoe, P., & Johansen, T.S. (2012), Kokkinou, A. (2010), Caramba-Coker, F. O. (2009), Faqih, K. M., & Jaradat, M. I. R. M. (2014), Chai, K. F. (2008), Phongkusolchit, K. (2008) and Cho, S. (2011). These researchers had done the study on the same area on self-service technology, but using different theoretical model or perceive value for measuring, thus relevant questionnaire are adopt and modify in this study.

The questionnaire is closed ended designed. Respondent are required to choose the options given in the questionnaire and answer all questions. The questionnaire can be segregated into 3 parts, part A, B and C. Part A is the questions measuring how often SST are used, while part B is the questions designed to gather data

regarding to the research question to identify which are the key perceived factors for consumers to adopt and accept SST. The questionnaire used 7 point Likert scale to measure the level of agreement of each questions. Part C is demographic questions on respondent personal information. The whole set of questionnaire are expected be complete within 10 to 15 minutes.

Prior to distribution of the actual survey questionnaire, a total of 10 pilot test samples have been carried out. This is to analyse initial data to identify limitations of the preliminary questionnaire (Hair et al., 2007). The questionnaire was being refined for better sentence structure and easy to understand after the feedback from pilot testing.

3.7 Constructs Measurement

In the questionnaire, few type of measurement scales can be carry out to measure the attitudes of respondents towards SST, which including interval, ordinal and nominal scales. The discussion will be breakdown according to the questionnaire part A,B and C accordingly.

Part A measure the how often are Malaysians used SST and what are the services they used SST the most. The data collection from this section is mainly for the use of dependent variables on the actual used of SST. Ordinal scales was used mainly in this session to measure how frequent consumer using each type of these SST given in the options of seven examples in the questionnaire including ATM & CDM, self-service laundry service, online transactions via mobile commerce, self-service kiosks in airport, online trading platform, online purchase and online or phone banking . Ordinal scales provide option that used to rank an object that reflects the amount or level (Schuh & Upcraft, 2001). While Nominal scales was used to measure what type of SST are most popular among the respondent within the seven SST examples mention above.

In part B, the questions were designed to measure the respondent perceived factors towards SST and all questions are measure via 7 point likert interval scales, which respondent choose the options base on the vary degrees of agreement of the statement (Schuh & Upcraft, 2001). The options are equal intervals where 1 represent strongly disagree and 7 represent strongly agree. These perceived factors including perceived usefulness, individual perceived control, expected outcome quality, technology anxiety, need for interaction, hedonic value. Similarly, 7 point Likert scales also used to measure respondents' attitude and behavioural intention towards SST.

Lastly, part C measures the demographic respondents profile regards to personal information. Nominal scales apply mostly in this section which helps to categorise the respondent. Unlike ordinal scales, nominal scales do not imply ranking or

order in the dimension given therefore no measure information available for such as “more than”, as it only define labels and the characteristic of description (Schuh and Upcraft, 2001; Burns & Bush, 2000). Gender, ethnic group, religion, employment status and information sources are using nominal scales to measure, while age, education background, household income and expenses are using ordinal scales to measure with multiple choice option given.

3.8 Data Processing

Data processing involves few steps of action with purpose of improving result's quality and minimise errors. These steps including data checking, editing, coding, transcribing, data cleaning, statistical adjustment and analysis strategy selection (Pink, 2010).

With the aid of Google form, respondents perform self-administration survey questionnaire online, and the system can help to ensure empty questions are filled, before proceed to next session. This has avoid the common questionnaire mistake and reduce researcher burden on sorting out errors such as incompleteness questionnaire, did not follow instructions, missing pages or even mistake incur by researcher on inputting data into system.

Some of the questions need to do reverse coding, while some question using nominal and ordinal scales' data need to assign numeric codes so that when running the data analysis, the results are accurate. The data need to be consistencies and avoid using extreme values data that might influence the final outcome.

3.9 Data Analysis

As Google form is used in the questionnaire survey, the responses from respondent will be save in Google excel instantly upon completion of each and every survey. The data will then transfer to SPSS (The Statistical Packages for Social Science) to run analyse on the responses according to the research objectives in this study.

By taking into consideration of the sample size and type of variables, multiple liner regression analysis is the most suitable way to perform analysis in this study to test the relationship between two or more independent variable and one dependent variable at a same time.

Besides that, descriptive analyses will be carry out to present data related to attitude towards SSTs and demographic information. Never the less, reliability test on Cronbach's α will be carry out.

CHAPTER 4

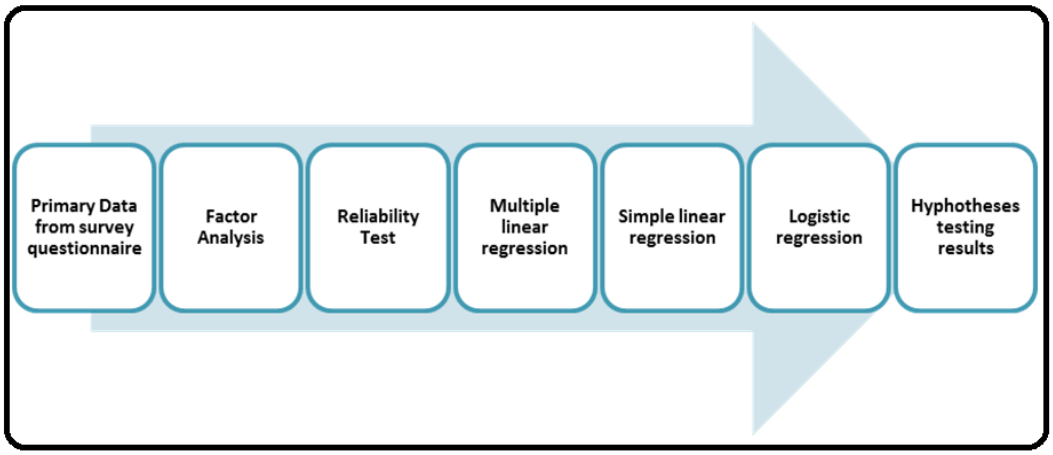
DATA ANALYSIS

4.0 Introduction

This chapter will be presenting the test and analysis base on the data collected using questionnaire discussed in previous chapter. A total of 210 samples of self-administered questionnaire were collected at the end of closing date. Respondents conducted the survey from any part of the Malaysia through internet via computer, smartphone or tablet at their own convenient time. No missing value or outlier was found in the data collected. This online questionnaire was posted and distributed on social media, e-mail, and smartphone communication application such as Whatapps and Line for a period of 2 months.

All test and analysis on primary data collected will be conduct using Statistical Package for the Social Sciences (SPSS) version 21. Descriptive analyses will review the respondents profile as well as studying type of SSTs that are welled adopted in Malaysia and follow by inferential analysis. In order to satisfy the purpose of this study, several test and analysis will be carry out to according to the hypotheses statements mention in chapter 3 earlier. Tables, charts and graphs generated from SPSS will present in this chapter as well. The flow of influence analysis shows as in figure 4.1below.

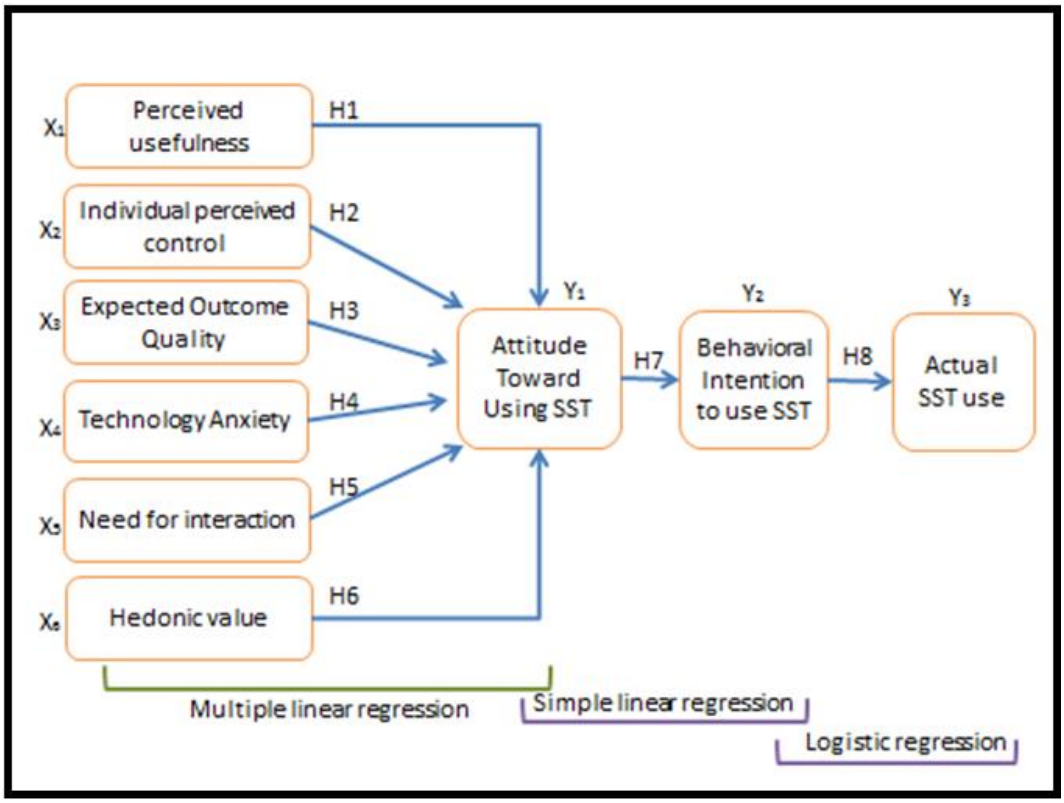
Figure 4.1: Flow of influence analysis



Never the less, prior to run analysis listed above, some tests needed to carryout to examinie on the data if suitable to proceed with the mention analysis. These tests will also present in this chapter to strengthen the support of the analysis outcome .

Based on the structure model proposed in chapter 3, to examinine the relationship 3 different analysis will be carry out in this study which including multiple linear regression, simple linear regression and logistic regression as shown in figure 4.2.

Figure 4.2: Theoretical model and statistical analysis methods used



4.1 Descriptive Analyses

Descriptive analyses uses snap shot data to interpreted and summarize the sample data in a meaningful way which shows the pattern of the data collected. Descriptive data is often used to express measurement of central tendency and measures of spread, which include frequency, mean, mode, median, standard deviation and etc. In this study, descriptive analyses will separate into two categories (1) summarize demographics' profile and (2) summarize independent variables and dependent variables.

4.1.1 Demographics' Profile

Previous research has suggested at least 200 respondents will be good for sample size as it is sufficient to give adequate results (Collier, 2006). In this study, 210 samples has been collected, 136 respondents were female (65%) and 74 respondents were male (35%). The respondents' average age group of respondents was 31-40, with ages ranging from 21- 60 years old and above, but the mode of the age group was 21-30 which made up of 50% of the total respondents. In terms of ethic group, Chinese is the highest participant in this survey, which is 72%, follows by Malay 21% and Indian 7%. 77% of the respondents are currently employed; while 23% are made up from students, retiree, house-wife and unemployed. In terms of education level, Degree holder and Diploma and equivalent level holder contributed 80% among the respondents, which are 54% and 26% respectively. In term of income and expenditure level, more than half of the respondents earning household income more than RM5000 per month; where 47% of the respondents monthly household expenses are more than RM5000 per month.

Figure 4.3: Respondent demographic – Gender

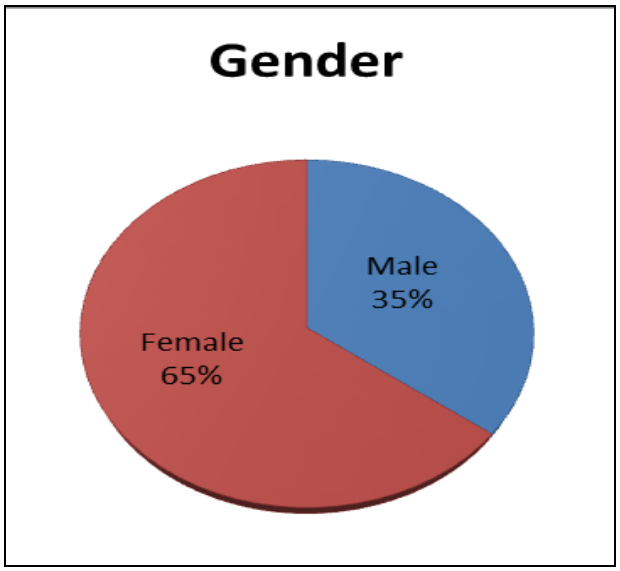


Figure 4.4: Respondent demographic - Age

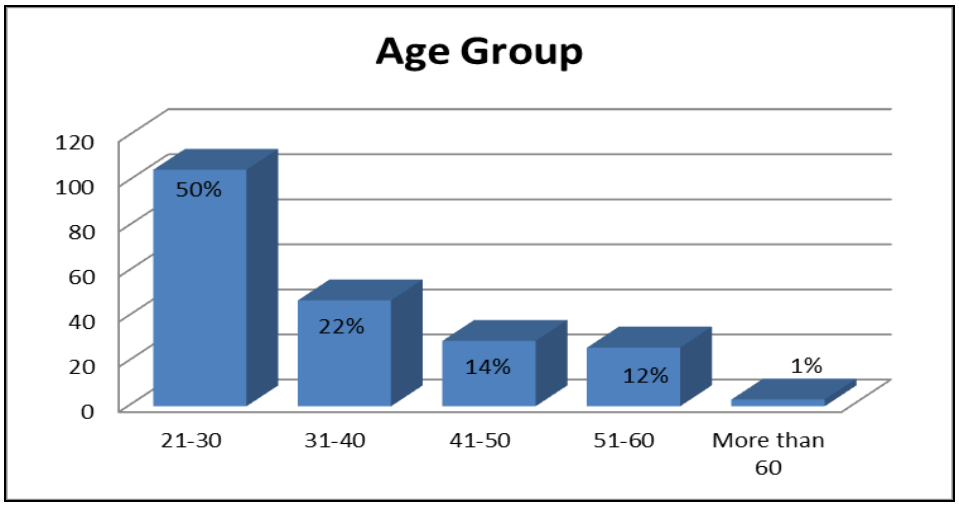


Figure 4.5: Respondent demographic - Education level

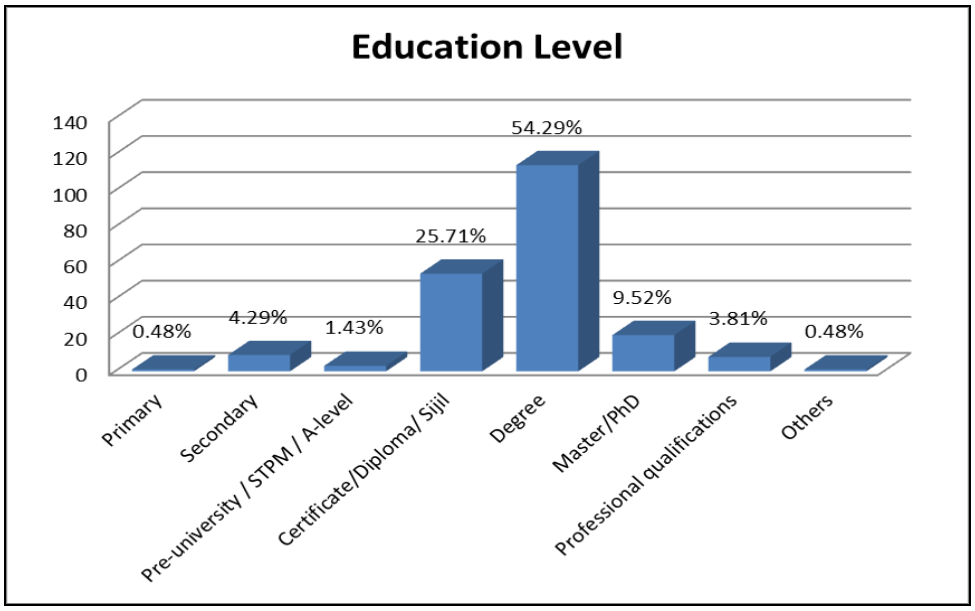


Figure 4.6: Respondent demographic – Monthlu household expenses (RM)

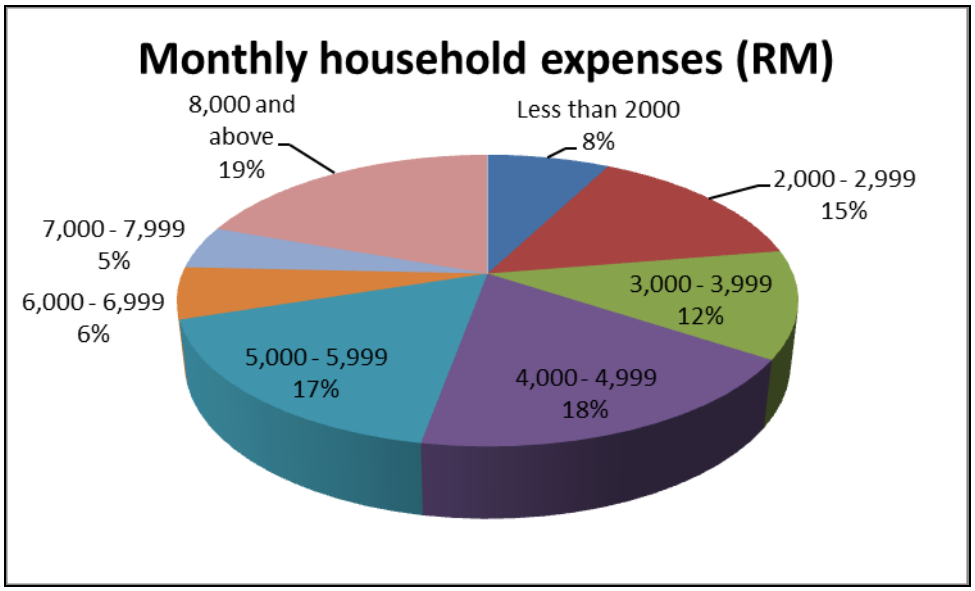
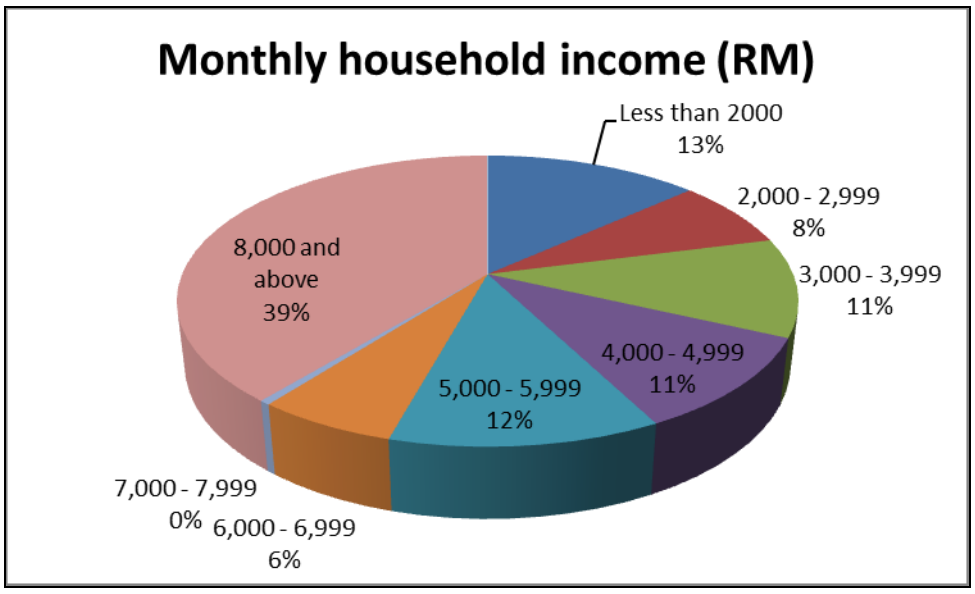


Figure 4.7: Respondent demographic – Monthlu household income (RM)



4.1.2 Consumer behavior over SST

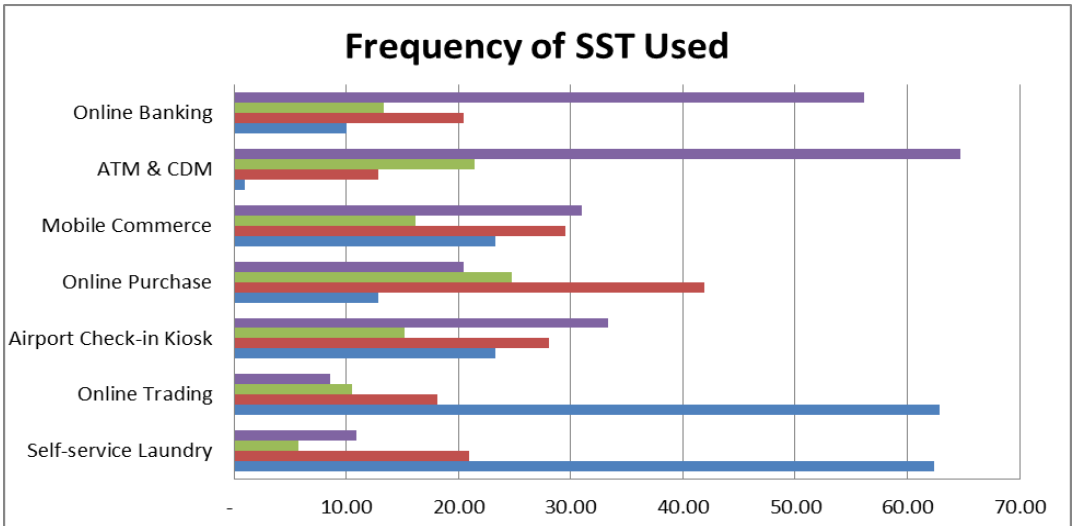
Seven types of SST examples were ask in questionnaire over the respective usage frequency and if the respondent tried on those SST before, which including ATM and CDM, Laundry Service, Mobile commerce, Airport check-in kiosk, online trading, online purchase and online banking. The result shows that ATM and CDM as well as online banking service are the most widely accepted SST. Among all of the respondents, 99% and 90% of them tried the respective services before. Furthermore, 86% and 70% of them utilized respective services frequently.

Online purchase appear to be slightly lesser than above mention SST, 87% respondents tried online purchase at least 1 time, but only 42% of time perform this service occasionally. Mobile commerce and airport check-in kiosk have the same exposure rate to the respondents, which are 77% of total respondents. Lastly, the least accepted and adopted SST services under the seven examples given are self-service laundry and online trading platform service for financial instruments, which shows 38% and 37% of the respondents' exposure to these SST. Although the percentage of exposure to respondents are low; but if further look into detail, 80% of users are actually frequent users. While for online trading platform service for financial instruments show only 51% of users are frequent users.

Further to above mention, bar chart below analyses how often consumer used these SST in their daily life. Corresponding to above results, online banking and ATM & CDM services have the highest frequency used by consumer, similarly SST type that are not being tried or used by consumer are online trading and self-service laundry services, which in line with above analysis shows only 37% of the respondents exposure to these two type of SST.

Yet, 87% of respondent responded that they do online purchasing, however there analyses results shows that consumer did not actually performed online purchase frequently. The percentage of usage is high but did not corresponding to the frequency of using this SST simply mean that consumer tried on online purchase but simply do not continue due to various reasons such as security, individual preference and etc. (Paynter & Lim, 2001).

Figure 4.8: Frequency of each type of SST used



	Self-service Laundry	Online Trading	Airport Check-in Kiosk	Online Purchase	Mobile Commerce	ATM & CDM	Online Banking
Frequently	10.95	8.57	33.33	20.48	30.95	64.76	56.19
Fairly often	5.71	10.48	15.24	24.76	16.19	21.43	13.33
Sometimes	20.95	18.10	28.10	41.90	29.52	12.86	20.48
Not Using	62.38	62.86	23.33	12.86	23.33	0.95	10.00

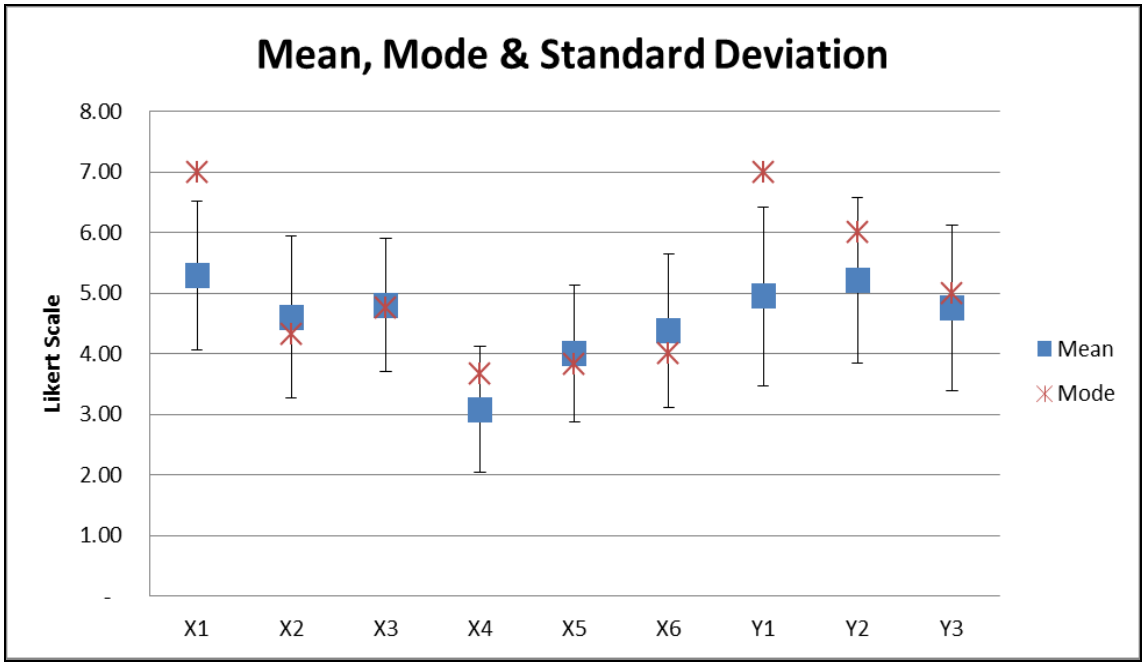
4.1.3 Independent and Dependent variables

This section turned the focus in to six independent variables including Perceived usefulness (X1), Individual perceived control (X2), Expected outcome quality (X3), Technology anxiety (X4), Need for interaction (X5), Hedonic value (X6) and 3 dependent variables which are Attitude towards SST (Y1), Behavioral intention on SST (Y2), Actual used of SST (Y3). Unlike demographic profile the nature of the data are ordinary and nominal, frequency was used. Whereas seven point likert scale was used to quantify independent and dependent variables into two types of measurement: (1) Central position by using mean, mode and median as well as (2) Measurement of spread by using standard deviation, variance and range.

A summary table in appendix A shows the summary of these two measurements. As 7 point likert scale was used in the questionnaire, within the latent variable the respective questions are further compute into 6 dependents variables and 3 independents variables, as so the data range are limit within 1 to 7. Due to this reason no possible of outlier, the standard deviation for these variables become quite similar, from the summary table below, the highest standard deviation of 1.47 is attitude (Y_1), while the lowest standard deviation variable is technology anxiety (X_4) which give value of 1.04.

To visualise the measurement of centralise and spread, a graphical chart below give an indication on mean, mode as well as the standard deviation illustrate the spread for each variables. Mean is an average of the responses while mode tells the values that appear most often in the data collected. Vertical line that cross over mean values are the standard deviation, which give idea on variation among respondents. The details of the descretive analysis for independent and dependent variable can refer to appendix A.

Figure 4.9: Mean, mode and standard deviation for all variables



X1: Perceived usefulness.
X2: Individual perceived control
X3: Expected outcome quality
X4: Technology anxiety
X5: Need for interaction
X6: Hedonic value
Y1: Attitude towards SST
Y2: Behavioural intention on SST
Y3: Actual used of SST

4.2 Inferential Analyses

Inferential analysis uses statistical tests to see if the pattern is due to chances or due to the sequencer or mediation effects. Inferential analysis is widely used by researcher to locate the relationship between a variables as well as the strength of that relationship. In this study, four separate analyses were conducted: (1) Factor analysis, (2) Multiple linear regression analysis, (3) Simple linear regression analysis and (4) Logistic regression analysis.

4.2.1 Factor Analysis

Factor Analysis (FA) is commonly used to confirm the latent factor structure. It takes into consideration between variables, latent factors and error. As mention is last chapter, the questionnaire is built base on adopting questions from different prior research papers and some of them are self-create. As so, confirmatory factor analyses on independent variables will carry out to distinguish factors from one and another base on communality. Never the less, the ultimate purpose to run this analysis is to make the loading pattern clearer.

Before perform FA, suitability of data for factor analysis has to be performed and the results are following:

1. The Kaiser-Meyer-Oklin measure sampling adequacy, value of 0.9, exceeding the recommended value of 0.6 by Hair et al (1998), shows the meritorious degree of inter-correlations among variables.
2. Bartlett's Test of Sphericity examines the strength of the entire correlation matrix. Results show sig=0, hence, statistical significance ($p<0.05$) indicate sufficient correlations exist among the variables to proceed.

The determinant is less than 0.00001, but both tests mention above support factorability of the correlation matrix. Thus, factor analysis should continue. The details for SPSS output is located at appendix B.

There are two methods to do factor analysis and it depend on whether the factors are correlated; these rotation methods are Orthogonal and Oblique rotation method. Orthogonal rotation method is suitable for uncorrelated factors vice versa Oblique rotation method is suitable for correlated factor. Tabachnick and Fiddell (2007) suggest that in order to decide which rotation method to used, running Oblique rotation in SPSS (Direct oblimin) its output results on component correlation matrix indicate the correlation among factors. If correlations of any factors exceed 0.32, the analysis should continue using oblique rotation. Vice versa, no correlation more than 0.32, orthogonal rotation (Varimax) should be used. In this case, oblique rotation method is chosen to performed factor analysis as component correlation matrix shows several factors are correlated with value are more than 0.32.

According to Kaiser's Criterion, factors with eigenvalue lesser than 1 are considered insignificant and can be disregard. Base on this rule, six components with eigenvalues exceed 1 has been identify, which explaining 32.1%, 15.3%, 8.5%, 6.3%, 4.0% and 3.4% of the variance respectively. These 6 components solution explained a total of 69.6% of the variance. The latent factor structure is in line with the number of independent variables.

Pattern Matrix in table 4.1 below shows the results of performing oblique rotation in SPSS using direct oblimin. According to Hair et al (1998), sample size of 200 must have factor loadings of 0.4. Rotated results show as below. Unfortunately, not all variables are adequate accounted by factor solution. A total of three variables found to be not communalities within the construct and these variables will be removed from the remaining test and analysis in this study, where 2 variables are from individual perceived control factor and 1 variable from technology anxiety factor.

Table 4.1: Summary of confirmation factor analysis results for SST questionnaire (N=210)

Pattern Matrix						
	Component					
	Perceived usefulness	Need for interaction	Hedonic Value	Tech. Anxiety	Expected outcome quality	Individual perceived control
Exp. outcome quality - Q1					-.796	
Exp. outcome quality - Q2					-.690	
Exp. outcome quality - Q3					-.749	
Exp. outcome quality - Q4					-.627	
Hedonic Value - Q1			.700			
Hedonic Value - Q2			.875			
Hedonic Value - Q3			.898			
Hedonic Value - Q4			.909			
Ind. perceived control - Q1						-.637
Ind. perceived control - Q2	.413					-.568
Ind. perceived control - Q3						-.721
Need for interaction - Q1		.885				
Need for interaction - Q2		.889				
Need for interaction - Q3		.769				
Need for interaction - Q4		.587				
Need for interaction - Q5		.888				
Need for interaction - Q6		.461				
Perceived usefulness - Q1	.765					
Perceived usefulness - Q2	.824					
Perceived usefulness - Q3	.830					
Perceived usefulness - Q4	.856					
Perceived usefulness - Q5	.907					
Perceived usefulness - Q6	.827					
Perceived usefulness - Q7	.842					
Technology Anxiety - Q1				.701		
Technology Anxiety - Q2				.650		
Technology Anxiety - Q3				.720		
Technology Anxiety - Q5				.818		
Technology Anxiety - Q6		.416		.486		
Technology Anxiety - Q7				.422		
Eigenvalues	10.59	5.05	2.07	2.07	1.33	1.12
% of Variance	32.08	15.30	8.55	6.27	4.04	3.41
Note: Cumulative % of 6 components are 69.63%						

4.2.2 Reliability Analysis

Cronbach's Alpha is use to perform reliability test for each variable. In questionnaire, several questions were asked in order to capture the responses under same construct for each variable respectively. Therefore reliability test is carryout to measure the consistency of this measurement. In this research, there are eight constructs built, 6 independent variables and 2 dependent variables. The summary of Cronbach's Alpha for each construct is exhibited in table 4.2 .

Table 4.2: Summary table of Cronbach's Alpha for each construct

Variables		Cronbach's Alpha	No. of questions
IV1	Perceived Usefulness	0.950	7
IV2	Individual perceive control	0.838	3
IV3	Expected outcome quality	0.869	4
IV4	Technology Anxiety	0.798	6
IV5	Need for interaction	0.869	6
IV6	Hedonic Value	0.934	4
DV1	Attitude towards SST	0.955	4
DV2	Behavioural Intention towards SST	0.958	4

The value for Cronbach's Alpha is range from 0 to 1. For a construct to be sufficient to describe the variable internal consistency, Cronbach's Alpha for each construct should more than 0.60 (Malhotra, 2009). The Cronbach's Alpha value can be improved by remove questions that have low correlation. Refer to the breakdown of reliability test for each construct in appendix C, the last column showing the Cronbach's alpha value if the particular question were removed from the construct. However, no question was removed from construct as the Cronbach's Alpha for each constructs are more than 0.7, which reflecting good correlation among constructs.

4.2.3 Multiple linear regression

Multiple linear regression analysis is an extention to simple linear regression which give prediction of one outcome from several predictors. This analysis also able to discover the predictive power of each independent variable. The prediction outcome can be summarise in an equation, which describe the relationship using a variation of equation of a straight line (Daher, Hair, Black, Babin, & Studenmund, 2012).

There are several assumptions for multiple linear regression have to be tested before the results can be generalise to the population, which including:

1. No Multicollinearity

   The rule for collinearity diagnostics are tolerenca should be more than 0.2 and VIF should be lesser than 10. This two criteria has met and is shown in coefficient table below, thus no multicollinearity was found in between the variables.
2. Homoscedasticity

   The predictors' variance of error term should be constant. This can be check via scatterplot, no trend was found in figure 4.10.
3. Independent Errors

   The error terms should be uncorrelated. Durbin-Watson statistic results show 1.878 has reflected superior results as independent of residual and is free from autocorrelation.
4. Normally-distributed Errors

   This assumption is fulfilled as histogram is show in figure 4.11 showing a normal distribution and normal probability plot reflect linear in figure 4.12. The details on SPSS output for multiple linear regression can be found in appendix D.

Figure 4.10: SPSS output – Scatterplot for homoscedasticity test

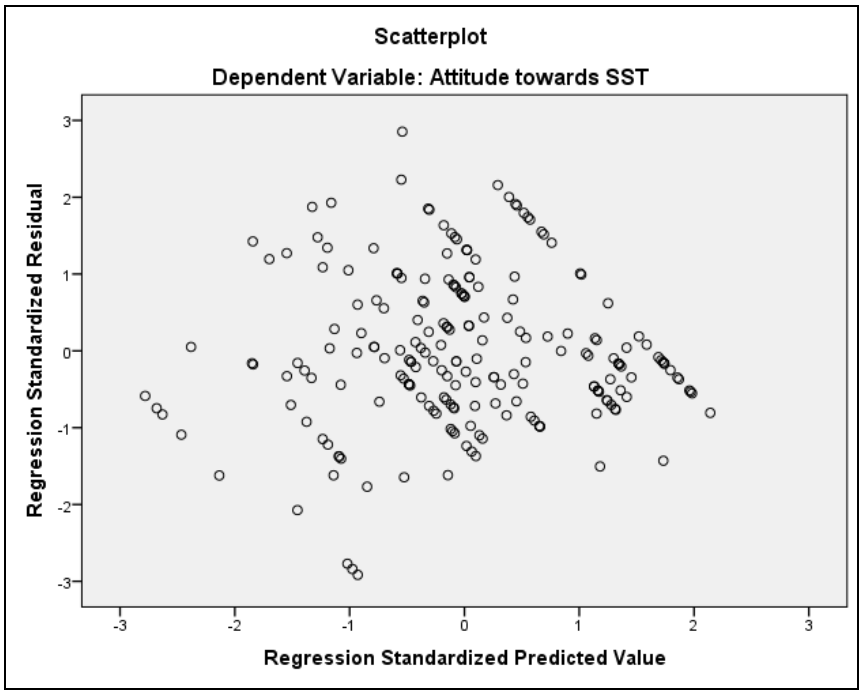


Figure 4.11: SPSS output – Histogram for normality test

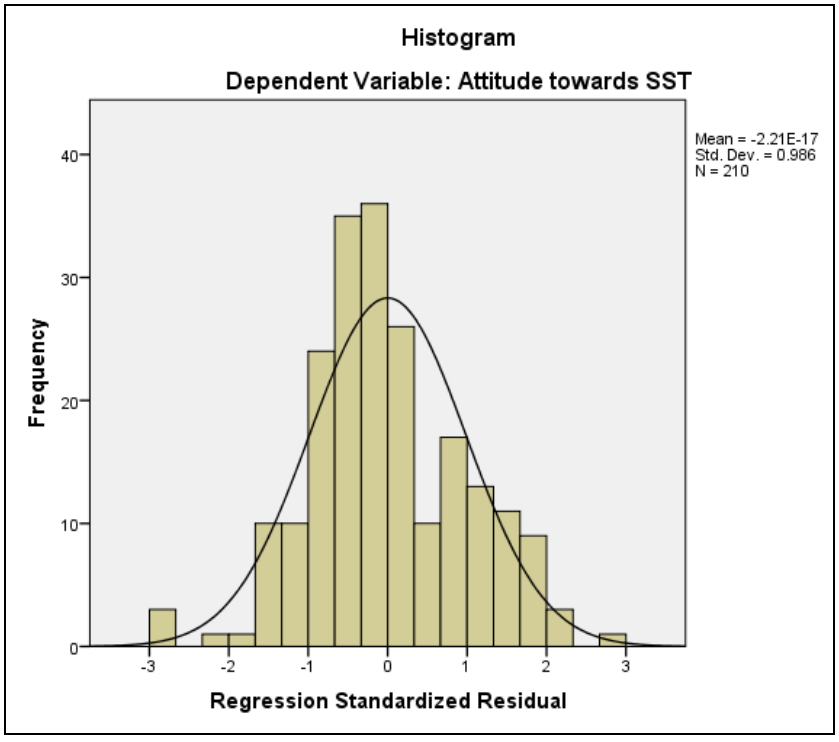
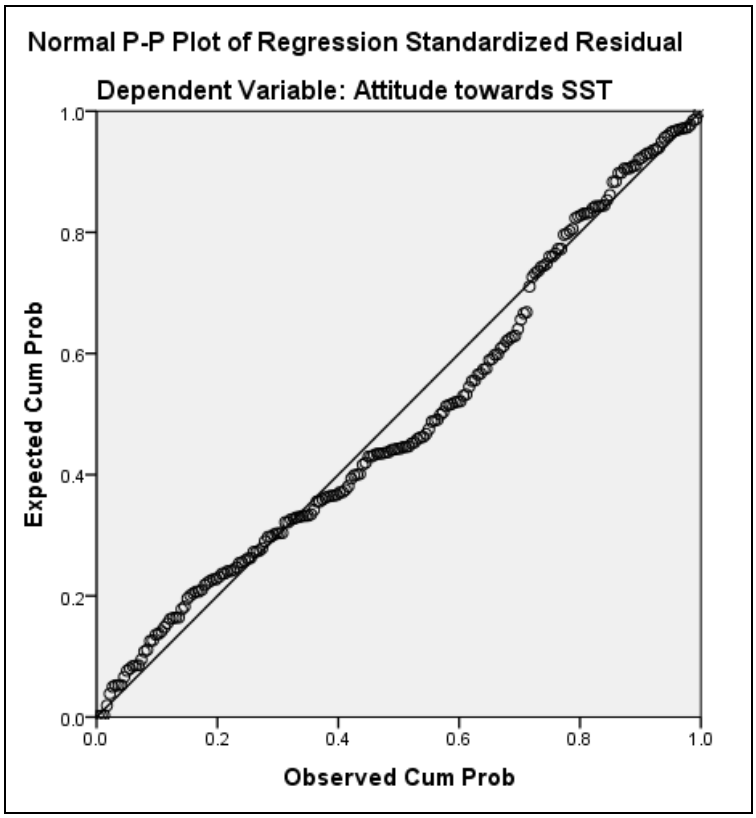


Figure 4.12: SPSS output – Normal P-P plot of regression standardized residual



Coefficient of determination (R^2), shows the proportion of variance in the dependent variable that can be explained by the independent variables. R^2=0.726, means all independent variables (Perceived Usefulness, Individual perceive control, Expected outcome quality, Technology Anxiety, Need for interaction, Hedonic Value) explain 72.6% of the variability on dependent variable (Attitude towards SST).

Adjusted R square, explain by only combining significant variables in the mode, adjusted R^2=0.717 shows significant independent variables explained 71.7% of the variability of dependent variable in the model.

Where, ANOVA shows the overall regression model is a good fit for the data as F=89.319, Sig=0, which less than 0.05. In order to understand which are the significant influential variables would need to refer to coefficients matrix show below.

Table 4.3: Summary of multiple linear regressions

	B	SE B	β
(Constant)	-0.123	0.337	
Perceived Usefulness	0.213	0.064	0.176*
Individual Perceived Value	-0.094	0.058	-0.086
Expected Outcome Quality	0.163	0.07	0.122*
Technology Anxiety	-0.023	0.04	-0.022
Need for Interaction	-0.014	0.05	-0.011
Hedonic Value	0.849	0.052	0.73*

Note: R^2=0.726. *p < 0.05

Multiple regression model predict values of an outcome from several predictors, in this case, to predict the attitude towards SST, 3 independent variables are significant to the model shows sig. value less than 0.05 including Perceived Usefulness (p=0.001; t=3.349), Expected Outcome Quality (p=0.022; t=2.313) and Hedonic Value (p=0.000; t=16.291); whereas another 3 variables did not show significant to the model as sig. value more than 0.05, which including Individual Perceived Control (p=0.105; t=-1.627), Technology Anxiety (p=0.563; t=-0.579) and Need for Interaction (p=0.779; t=-0.281).

Unstandardized coefficients indicate relationship between predictor and the outcome. The sign tells the direction of the effects is having on dependent variable, while the value gives the size of the effect range from 0 to 1.

The equation for attitude towards SST shows below:

$$\hat{Y}_1 = -0.123 + 0.213(X_1) - 0.094\,(X_2) + 0.163\,(X_3) - 0.023\,(X_4) - 0.014(X_5) + 0.849(X_6)$$

This equation simply means that, ceteris paribus, 1 unit increase in perceived usefulness (X_1), attitude towards SST (Y_1) will increase by 0.213. Similarly, 1 unit increase in expectation outcome quality (X_3), Y_1 will increase by 0.163. While

hedonic value (X_6) seems to be the most influential factors to attitude towards SST, as 1 unit increase in hedonic value, Y_1 will increase by 0.849.

However, individual perceived control (X_2), technology anxiety (X_4) and need for interaction (X_5) are giving negative impact to attitude. Ceteris paribus, 1 unit decrease in individual perceived control, attitude towards SST will increase by 0.094. Similarly, no change on other variables, 1 unit decrease in technology anxiety, attitude towards SST will decrease by 0.023. Same explanation goes to need for interaction, where 1 unit decrease in technology anxiety, attitude towards SST will decrease by 0.014. The small and insignificant impact to attitude towards SST are reflected in the SPSS output in appendix D. The coefficient tables shows that these three variables are not significant to the model.

4.2.4 Simple linear regression

Simple liner regression is used to measure relationship between attitude towrds SST (Y_1) and behaviour intention on SST (Y_2).

Simple liner regression have the same assumption with multiple linear regression except for multicolinearity does not apply as simple linear regression only have 1 dependent variable and 1 independent variable.

1. Normally-distributed Errors

   This assumption is fulfilled as histogram below showing a normal distribution.

2. Homoscedasticity

   The predictors' variance of error term should be constant. This can be check via scatterplot, no trend was found.

3. Independent Errors

   The error terms should be uncorrelated. Durbin-Watson statistic results show 1.596 has reflected superior results as independent of residual and is free from autocorrelation. The details on SPSS output for multiple linear regression can be found in appendix E.

Figure 4.13: SPSS output – Histogram for normality test

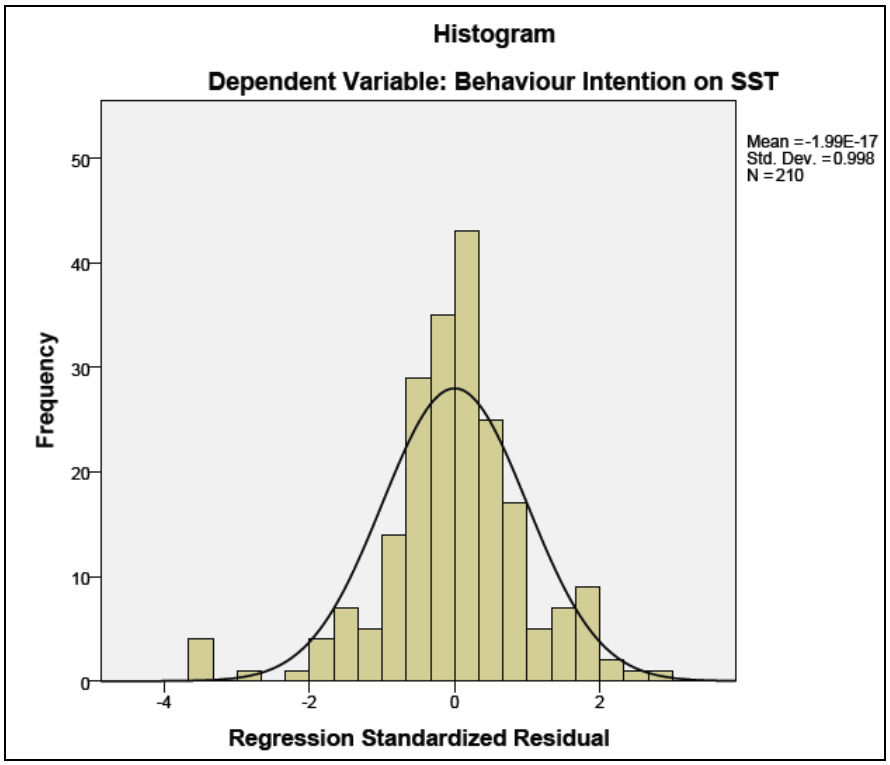
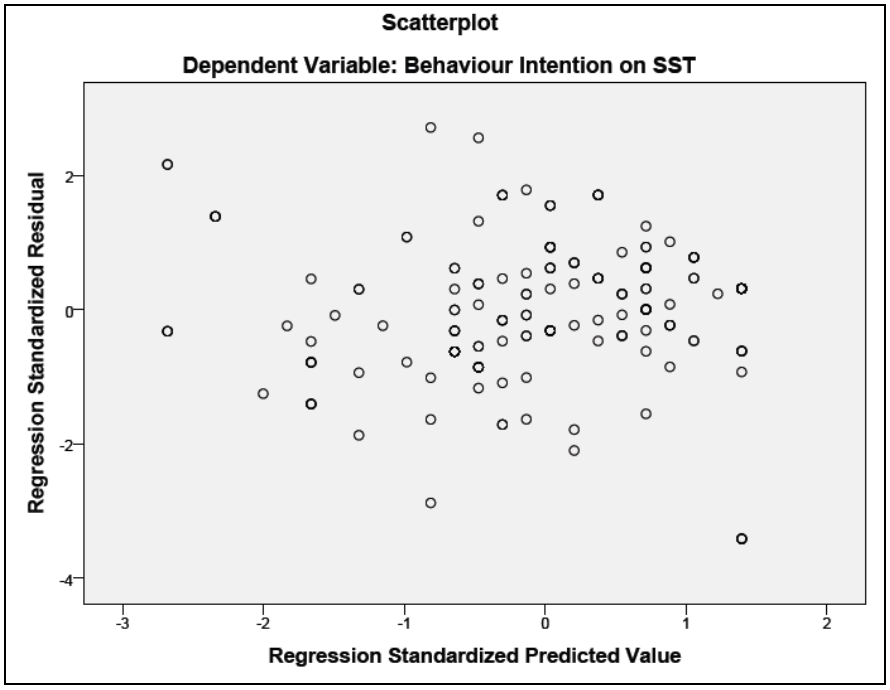


Figure 4.14: Normal P-P plot of regression standardized residual



Coefficient of determination shows R^2=0.653, where attitude towards SST explain 65.3% of behavioural intention on SST. This regression model is good fit as from ANOVA table shows F=390.841, Sig=0, which in line with results in coefficients matrix showing attitude towards SST (Y_1) give significantly effect to behaviour intention on SST (Y_2), with p=0.000; t=19.770. The unstandardized coefficient of 0.748 shows a positive relation between independent variable and dependent variable. The equation explains that change of 1 unit in attitude towards SST (Y_1), behaviour intention on SST (Y_2) will change by 0.748 in the same direction.

The equation for behavioural intention on SST shows below:

$$\hat{Y}_2 = 1.511 + 0.748\ (Y_1)$$

Table 4.4: Summary of simple linear regressions

	B	SE B	β
(Constant)	1.511	0.195	
Attitude towards SST	0.748	0.038	0.808*

Note: R^2=0.653. *p < 0.05

4.2.5 Logistic regression

Logistic regression is used to measure relationship between behaviour intentions on SST (Y_2) and actual used of SST (Y_3). This method is used because these two variables have violated the assumption of linearity in normal regression. Logistic Regression predicts the probability that an observation falls into one of two categories of a dichotomous dependent variable based on one or more independent variables that can be either continuous or categorical (Daher et al., 2012).

To have a valid logistic regression model, there are 2 assumptions have to be met, which include no multicolinearity and no outlier. Test on multicolinearity can be ignore as there is only 1 independent variable. In addition, no outlier was found in the data collected. Since all assumption has been fulfilled, the data used for logistic regression should produce a valid outcome.

Table 4.5 show a summary of logistic regression. The overall model is significance (sig<0.05).Where $X^2 = 38$, df = 1, N=210, $p<0.05$. In model summary, the results are similar to R^2 and give a rough estimate of the variance that can be predicted from independent variable. Behaviour intention on SST (Y_2) explains 16.6% to 22.6% of the model.

Classification table indicate how well the model is able to predict the correct category. The results shows that 48.1% (38/79) of those who have negative behavioural intention towards SST were predicted correctly with this model, while 77.9% (29/131) of those who have positive behavioural intention towards SST were predict correctly. Overall, there are 66.7% ((38+102)/210) of chances that this model will predict the category correctly.

Variables in the Equation table exhibits behavioural intention towards SST is significant (sig<0.05), where Exp(B) = 2.018 showing positively related to the actual used of SST. Exp(B) is the odd ratio, simply mean that every one-unit increase on behavioural intention towards SST will increase the odds of actual used of SST by 2.018.

Table 4.5: Summary of logistic regression

		95% CI for exp *b*		
	B (SE)	**Lower**	**exp *b***	**Upper**
Included				
(Constant)	-3.073*	1.578	2.018	2.580
	(0.650)			
Behaviour Intention	0.702**			
	(0.126)			

Note: R^2=0.166 (Cox & Snell), 0.226 (Nagelkerke). Model $\chi^2(1) = 38$, $p < 0.05$.

*p < 0.05. **p < 0.05.

4.3 Discussion of Results and Hypotheses testing conclusion

In this research, 210 samples have been collected, 65% of the respondents were female and 35% of the respondents were male. The respondents' age group were ranging from 21 to 60 years old and above, most of the respondents were fall under age group of 21 to 30, and Chinese were the highest participation rate among each of the age group. 77% of the respondents are currently employed; while the remaining 23% were made up from students, retiree, house-wife and unemployed. In terms of respondents' educational background, as high as 80% of them are diploma and degree holders. The earning and spending power of the respondents were high too, more than half of the respondents earning household income more than RM5000 per month; where 47% of the respondents' monthly household expenses are more than RM5000 per month.

Table 4.5 below shows the summary results for eight hypotheses tested in this chapter. Among all hypotheses, three hypotheses were not supported.

Table 4.6: Summary of hypothesis testing results

	Hypothesis	Remarks
H1	Positive relationship on perceived usefulness towards attitude on SST.	Supported
H2	Positive relationship on individual perceived controls towards attitude on SST.	Not supported
H3	Positive relationship on expected outcome qualities towards attitude on SST.	Supported
H4	Negative relationship on technology anxieties towards attitude on SST.	Not supported
H5	Negative relationship on need for interaction towards attitude on SST.	Not supported
H6	Positive relationship on hedonic values towards attitude on SST.	Supported
H7	Positive relationship on attitude and behaviour intention on SST	Supported
H8	Positive relationship on behaviour intention over actual used of SST	Supported

Hypothesis 1 proposed a positive significant relationship between perceived usefulness and attitude on SST and this is supported with statistical analysis. The coefficient was 0.21 and significant at p=0, t=3.35. The respondents indicated that they are able to complete the task via SST more quickly and easily, which can save them lots of time compare to employee service. This finding indicates there is a direct positive relationship between perceived usefulness and attitude on SST. The simple and straight forward design as well as the speed of SST kiosk is important to generate positive attitude towards SST. The study on situational influences by Wang, Harris & Patterson (2009) indicated that consumer choose SST because it is faster, as in personal service normally took longer time. Academy of Marketing Science & Robinson (2014) study also concluded that perceived usefulness was an important motivation factors that impacting attitude towards SST.

Hypothesis 2 was not supported by statistical analysis. A negative relationship was identified on coefficient of -0.94. This variable was not significant to attitude as p=0.11, t=-1.63. Only half on the respondents agree that they have some degree of control when using SST. Collier & Sherrell (2010) explained perceived control over the options to choose whether or not to use SST, thus mediator was suggested to determine ones' respond with situational factor such as speed of transaction, exploration and trust. No mediator was used between individual perceived control and attitude towards SST in this study, thus the results maybe vary as different individual will interpret the meaning of control differently. Lee and Allaway (2002) mention that individual perceived control can be explain from three dimension which including of predictability, controllability and outcome desirability. Further to this, a study conducted by Kuan, Ho & Chang (2011) found that perceived control was negatively related to perceived risk. While Xu's study found that individual perceived control provides higher degree of explanation for personal privacy concern (Xu, 2007).

Hypothesis 3 was supported; positive relationship between expected outcome qualities towards attitude on SST is supported with coefficient of 0.16 but the strength of the relationship is relatively low. In terms of significant of this variable, p=0.02, t=2.31 showing this is a significant variables that explaining attitude towards SST. The low correlation coefficient can be explained by the expectation on the SST was form prior to the usage, thus as long as the expectation are met, there should not be any influence on the attitude towards SST, this has been supported by Zeithaml et al (2009) that consumer placed adequate service expectation on SST, as long as the expected outcome quality fall within the tolerance level, consumer will still perceive positively over the SST. The forming of this expectation can be from word of mouth, internet which including sharing information in social media, leaving comments on the blog and etc. From the data analysed, 88% of the respondent source their information from internet including social media, blogs and online news.

Hypothesis 4 was not supported by statistical analysis. This variable gives no relationship to attitude towards SST as coefficient of -0.02 was almost zero. Besides, statistical analysis also showing that this variable did not show significant in the model, p=0.56, t=-0.58. This may be explaining by the respondents' demographic background. As most of them are young and well educated, up to 94.7% of the respondents have received at least tertiary education, thus they will definitely find no problem to perform SST using computer or kiosk. The similar results were concluded in Phongkusolchit's study. Although many studies were supported on the negative relationship between technology anxieties towards attitude over SST, yet this has trigger out researchable question if technology anxiety still exists in the general population after the generalise usage of computers, smartphones and technological devices in Malaysia. Besides that Phongkusolchit also mention that measuring technology anxiety will be meaningful in technical field rather than daily routine task such as withdrawing money from ATM (Phongkusolchit, 2008)

Hypothesis 5 was not supported by statistical analysis. Need for interaction give no relationship to attitude towards SST as coefficient of -0.02 was almost zero. In additional, this variable show do not show significant to attitude on SST, as p=0.80 and t=-0.28. The study conducted by Esman, Embi and Jusoh (2010) found that need for interaction did not show a significant results as the respondents who was bank employees did not perceived need for interaction as an important factors as this would cause long time spent for bank counter employees to attend to their needs. This finding also consistent with the result of Curran and Meuter (2005), where they found that need for interaction has no significant effect on ATMs and online banking.

Hypothesis 6 was supported by statistical analysis. A strong positive relationship between hedonic values and attitude on SST was form and show in coefficient of 0.85. This variable is significant in the model, showing p=0 and t =16.29, being the most influential variables towards attitude on SST. This results has been supported with the study conducted from Cho (2011) review that consumer used SST in retail environment because of the fun. Similar result was found is study by Academy of Marketing Science & Robinson (2014), among the other variables, hedonic value was the most important variables that influencing consumers' attitude towards SST.

Hypothesis 7 was supported in statistical analysis. A strong positive relationship between attitude and behavioural intention on SST was form and show in coefficient of 0.75. This variable is significant in the model, showing p=0 and t =19.77. This variable solely explained 65.3% of the behavioural intention towards SST. The result is in line with the literature review discussed on the attitude – behaviour relationship. As being part of the TAM, the positive attitude towards SST has reflect positive behaviour intention on SST, which verified partial of the model.

Hypothesis 8 was supported in statistical analysis. Behaviour intention on SST is positively related to actual used of SST, as Exp(B)=2.018 and also tested significant to the model on actual SST used, as p=0. 16.6% to 22.6% of actual SST used is measure based on behaviour intentions towards SST. The results was in line with the theory of reasoned action, where consumer reflecting positive intention to use SST in near future, and most likely the consumer will put it into actual behavior, act according to he or her intention.

CHAPTER 5

DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

This chapter give summary on the overall study, discuss on the findings base on the statistical analysis's results. Implications of the study as well as managerial implication will also discuss in this chapter.

Never the less, this study will be wrapped up with limitations of the study as well as recommendation and improvement to the future study on SST.

5.1 Discussions of Major Findings

The overall purpose of this study was to explore and determine the importance influential perceived factors and their relationship with consumers' acceptance and adoption of SST in Malaysia context, through these perceived factors to find out consumers attitude and behaviour intention towards SST. The purpose serves as a ground for hypotheses and objectives to build and examination throughout the study.

Questionnaire survey was conducted to collect primary data for statistical analysis for testing the hypotheses statements. 210 respondents responded to this online survey. Measures were based on literature review and 7 point likert scale was used in the questionnaire. The demographic information collected showing 65% of the

respondents were female and 35% of the respondents were male. The respondents' age group were ranging from 21 to 60 years old and above, most of the respondents were fall under age group of 21 to 30, while the average age 40group was 31 to 40.

Chinese were the highest participation rate, contributed 72%, follows by 21% was Malay and Indian 7%. 77% of the respondents are currently employed; while the remaining 23% were made up from students, retiree, house-wife and unemployed. 95% of the respondents receive tertiary education including STPM, diploma, degree, postgraduate and respective equivalent standards. The earning and spending power of the respondents were high, more than half of the respondents earning household income more than RM5000 per month; where 47% of the respondents' monthly household expenses are more than RM5000 per month.

The objectives of the study can categorised into 4 sections as a guide on this discussion:

1. To identify significant relationship between perceived usefulness, individual perceived control, expected outcome quality, technology anxiety, need for interaction, hedonic value and attitude on SST.
2. To examine the effect of these factors on attitude towards SST.
3. To investigate the relationship between attitude and behaviour intention over SST.
4. To investigate the relationship between behaviour intention over actual used of SST.

Form objective 1 and 2; it gives rise to six hypotheses statements.

Hypothesis 1: There is a positive relationship between perceived usefulness towards attitude on self-service technology.

Hypothesis 1 is supported with statistical analysis. Most of the respondents appreciate perceived usefulness on SST specifically on the time saving as well as allowing consumer to do things effectively. Online banking saves consumers from wasting time on a queue as well as avoiding the traffic jam travel from one destination to another. While self-service laundry service allow consumer to do their laundry on a 24/7 basis without the hesitation on the weather.

Hypothesis 2: There is a positive relationship between individual perceived controls towards attitude on self-service technology.

This study found insufficient evidence to reject $H2_0$, as it was not supported by statistical analysis. Previous study found that individual perceived control is related to perceived risk and personal privacy. This result was not support with the previous study. This can be explained by cultural differentiation that causing a different results from the past study. Malaysian are so used to the previous way of doing things and reluctant to change without given punishment or benefit to do so, as controllability over a certain task did not seems be significant to Malaysian as there are still risk of possible making mistake that hardly to be rectify or it would be costly or time consuming to get it rectify.

Hypothesis 3: There is a positive relationship between expected outcome qualities towards attitude on self-service technology.

Hypothesis 3 was supported by statistical analysis. The finding shows positive relationship between expected outcome qualities towards attitude over SST. The forming of this expectation is based on one's believe and it can also from word of mouth, internet which including sharing information in social media, leaving comments on the blog and etc. From the data analysed, 88% of the respondent source their information from internet including social media, blogs and online news, follow by newspaper.

Hypothesis 4: There is a negative relationship between technology anxieties towards attitude on self-service technology.

This study found insufficient evidence to reject $H4_0$, as it was not supported by statistical analysis. The young and educated respondents were benefited with the generalised education system that given chances to train on technology knowledge together with the good telecommunications infrastructure throughout the country, which allow the citizens to performed various task online.

Hypothesis 5: There is a negative relationship between need for interaction towards attitude on self-service technology.

This study found insufficient evidence to reject $H5_0$, as it was not supported by statistical analysis. Malaysians are able to perform simple and straight forward task using SST without the need for interaction with service employees. Perhaps, one of the reasons might be consumers avoiding long queue and preference on remain privacy of own personal information, these reason has been discussed in previous study, which caused this hypothesis not able to be supported statistically.

Hypothesis 6: There is a positive relationship between hedonic values towards attitude on self-service technology.

Hypothesis 6 was supported by statistical analysis. The finding shows a strong positive relationship between hedonic values including perceived enjoyment and playfulness with attitude on SST. This has given a big encouragement for business sector to come out with innovative way that allow consumer to perform self-service using technology as well as explaining the reason why Sakae Sushi can expend the business tremendously in such a short period of time despite of the quality and taste of the food. It has successfully using SST as the selling point in the business.

Objective 3 give rise to hypothesis below.

Hypothesis 7: There is a positive relationship between attitude and behaviour intention over self-service technology.

Hypothesis 7 was supported in statistical analysis. A strong positive relationship between attitude and behavioural intention on SST was form. Hypothesis 7 and 8 are part of the TAM model. The data explain the attitude – behaviour relationship. This can be explain by affective attitude have the power to predict future behavioural intentions; this is supported by the research conducted by Baumann, Burton, Elliott & Kehr, (2007) specifically looking into retain banking industry.

Objective 4 give rise to hypothesis below.

Hypothesis 8: There is a positive relationship between behaviour intention over actual used of self-service technology.

Hypothesis 8 was supported in statistical analysis. Behaviour intention on SST is positively related to actual used of SST. The result shows that ATM and CDM as well as online banking service are the most widely accepted SST. This is probably related to the long history of ATM exist in Malaysia as well as the wide spread of ATM and CDM thought out the whole Malaysia to serve the public. Follow by online banking service through internet. 77% of total respondents used mobile commerce and airport check-in kiosk and the least accepted and adopted SST services are self-service laundry and online trading platform service for financial instruments, which shows only 38% and 37% of the respondents' exposure to these SST. An interesting finding was found, self-service laundry consumers although are less, the repeat usage was high; up to 80% of users are frequent users.

Besides that, this study has reflected a low rate of using mobile commerce, online trading platform, and online purchase. Although the usage of smartphone in Malaysia is high but from consumer barometer survey (2014) has found that the top 3 activities using smartphone were visiting social network, using search engines and checking email.

5.2 Implications of the study

This study has integrated several perceived factors from literature review done by various previous researchers. Not all variables were significant in this study, but perceived usefulness, expected outcome quality and hedonic value are the significant variables.

This study has successfully shows the integrated model of TAM by combining additional factors. The relationship was supported and this has been served as a theoretical implication that the modification of TAM model was accepted. Although only three perceived factors was significant to the model instead of six proposed, this establishment of relationships also contributed to the original model for TAM.

The not supporting results on the relationship against technology anxiety and attitude over SST has trigger a researchable question if technology anxiety still exist in this new era, where people are well educated and exposure to computers and smartphone since young and also has been generalised on the usage.

5.3 Managerial implications

The rapid growth in information technology fosters the growth of SST that allows consumers to undertake new roles in the services facility. To facilitate the continued growth of SST, this study was carry out to with the purpose of explore and determine the importance influential perceived factors and their relationship with consumers' acceptance and adoption of SST in Malaysia. The findings in the study provide valuable insight for business management and government to identify the Malaysian acceptance and adoption of SST.

This study has found that Malaysian are able to accept and adopt SST, the most successful example of SST are ATM and CDM, due to the market need and long existing history in Malaysia. This study has further found that among six perceived factors (perceived usefulness, need for interaction, expected outcome quality, technology anxiety, individual perceived control and hedonic value), hedonic value are the most influential factors on attitude towards SST. Consumers perceived hedonic value as important factor, given the feeling of fun, pleasure, enjoyable, relax and interesting were significant attributes on one's attitude towards SST. This has produced a significant implication for marketers, SST interface designer as well as business owner.

Marketers can make use of this information and come out with ideas that can maximise consumers' hedonic value. A study found that consumer with high hedonic shopping values tend to avoid online purchasing as they perceived more joy was stimulate when they can touch and try the product as well as interact with the staff (Sarkar, 2011). Marketers and SST interface designer can work together to overcome this issue by creating a more interactive interface with customer, such as creating an adorable character that assigned to each consumer, act as shopping partners holding the shopping bag and able to interact with the shoppers. Eventually this will beat the old methods, which try to squeeze in as much as possible of product information that try to impress and convince shopper to buy from their website. Another successful examples using SST as a tool to attract

consumer as well as improve operation process are Sakae Sushi that practicing IPad menu and conveyer belt that transferring the food from one place to another.

Understanding that consumer related hedonic value closely to attitude of consumer, the overall design should be using attention colour to capture consumer attention, this should not be limited to SST interface its self only but the overall settings and locations should be line. Marketers should grasp this psychology behaviour by making consumers feel present, stimulate and arousal the courage to try out the SST for new user.

In order to enjoy the benefits bought to you by SST, various preparation have to be in place. Training on existing employees are the first steps to transmit adequate knowledge on the particular SST, create awareness on their new SST service to customer as well as encouraging customer to used SST. This not only can achieve maximum customer satisfaction, also to reduce customer waiting time and more effective resources planning to the business in terms of employees, working schedule as well as costing specially in salary and wages which employees expect to have increments every year regardless on the business profitability.

Further to that, the design of a SST kiosk have to be fun and interesting that can capture consumers' interest and yet enlighten consumer to performed the task as consumer perceive usefulness and expected outcome quality are also significant factors influencing attitude as well. Regardless any form of SST, it should be well maintained and upgrade as and when to ensure its function generate the anticipated outcomes according to its designated purpose. As per discussed in literature review, consumers tend to have their expectation depending on the type of SST used, the significant of expected outcome quality has prompted the importance for business owner and marketer to figure out the level of desire service expectation an well as their tolerance level.

This study also gives an idea to organisation that considering adopting SST service. From the descriptive analysis over consumer behaviour, it tells what kind

of SST service has the highest and lowest rate of adoption currently, how consumer behave towards the usage of SST; whether they are only interesting on first trial or consumer really adopted the SST into their daily life over different type of SST. Although only seven examples of SST were measure in the study, covering banking and finance industry (online banking, online trading, ATM & CDM), travel industry (airport check-in kiosk), retail industry (mobile commerce and online purchase) as well as laundry industry (self-service laundry), this could probably serve as an indication or benchmark to other industry over the variance on consumer behaviour. This can be improved over the time and marketing activities carried out by the business itself.

The study also found that 88.3% of the respondents received information from internet via social media and online news, which has exceed traditional source of information from newspaper. While less than half of the respondents received information from radio and television. Regardless of business sector or government sector, this information is useful for spreading information such as marketing events, announcement to the public. Never the less, target audience behaviour and reachability should be the priority concern when come to choose the form of communication.

Undeniable this results of this study shows consumers' acceptance and adoption of SST in Malaysia also give implication on the potential of layoff excessive workers once SST were readily to serve the public. With the increasing usage of SST and actively developed smartphone application, the demand on customer services opportunity may reduce. In view of the liquidity of labour market in Malaysia, this might threaten the working opportunities for foreigner. The brighten way of this is to accelerate the reduction on the relying on foreign labour force, at the same time pushing the nation to become a technology advancement country.

The power of information technology are unquestionable, it help to accelerate the country's development. Malaysia government has invested heavily on e-services

under MSC initiative; however Malaysia government should proactively promoting this e-service to the public. Further on this, more self-service technology should be exploit in order to fit into different government department for process improvement. For example of issuing national identification registration card, the current process is applicant fill up hardcopy form and wait their turn to be served. In fact, for better resources planning can put in place by implementing SST, which can assist to shorten the waiting time where applicants submitting their information and instantly photo taking with the specially design kiosk. A queue number and bar code for counter employees to trace individual record is then printed. Counter employees only need to scan the bar code to extract applicants information, perform verify and do the finger prints. The suggested process would actually cut down individual waiting time, eliminate duplicate work on personal data input, eliminate transferring individual to photo taking session in another counter where applicant need to queue again.

Never the less, intellectual property policy needed to put into practice for the purpose of protecting and encouraging business to continuous seeking opportunity to growth and creation of innovation ways in doing business.

5.4 Limitations of the Study

There are some limitations that point to interesting opportunities for further research. First, cross-sectional design method was used in this study which produces static and time bound results that do not able to indication and identify the sequence of events nor reveal or explain any historical contexts. Besides that, the results cannot see the changing behavior and attitude of consumer over the time. Thus, no conclusion was made this study that what will be the SST trend in few years times based on current statistic.

Second, the research areas are too board. Although the SST types has been focusing on only two types of interfaces, which are using online or internet and interactive kiosk throughout the study and yet SST can be used in wide range of industries and situational factors was not taken into considerations. A scenario should be given in questionnaire for responses, which limiting the industry, SST interface as well as situation factors for all respondents. The results would be more precise unlike general question were ask in this SST questionnaire where respondents could recall different experience over different type of SST in different industry that cause the results inaccurate.

Third, the data collection were collected online constrained respondents should be Malaysian and used at least one time on any type of SST in the past one month. Due to the nature of the questionnaire were self-administrated, basically all respondents would automatically qualify for second condition mention above. However, this option has also eliminated respondents that using other type of SST but not online. In addition, majority of the respondents were young adults with tertiary education background. Thus, sample bias may occur in this study which did not represent the true Malaysia populations.

Lastly, this research might be influence by cultural that shape into current consumer behaviour, which results to different outcome on the relationship between the model. As so, the results from this study might not applicable to other country.

5.5 Conclusion and recommendations for future research

Besides the limitations mention above, some suggestion and recommendation for future research on this similar area over SST are discussed in the following. First of all, more independent factors should be integrated into the model together with situational factors such as waiting time. The questionnaire should adopt scenario for each measurement for more precise results.

Secondly, quota sample selection should be implemented especially in locations and age group in order to perform multiple group analysis that could help to explain consumer behavioural based on different demographics. This would further help the business and government to understand their target market behaviour and acceptance over SST base on certain criteria of their target market.

Thirdly, since only 71.7% of attitude towards SST can be explain by the three significant variables including hedonic value, perceived usefulness and expected outcome quality, there are still room to improve the overall model by included better predictor such as trust, previous experience and others.

The overall of this study showing that Malaysians are keen to accept and adopt SST; an obvious successful examples would be ATM and CDM machine. In another hand, the low rates of usage on other type of SST might due to the lack of awareness, exposure, encouragement, enforcement and trial over other type of SST. Never the less, the benefits of SST are undeniable, more time and efforts should be allocate to those technology laggards, helping them to adopt SST by guiding them steps by steps.

Government should encourage the public actively using SST available to enjoy the benefits of convenient, giving adequate support to the design and development team on SST, review and perform process improvement where SST can better fit into the role to serve the public. Besides that, government also need to encourage the private sector to establish a solid ground on providing SSTs services to the

public, by reducing the chances of SST interface failure, mistake, performing poor quality service that could cause the public to be disappointment and frustration. The new way of business operating model would be contributing to Malaysia economy.

REFERENCES

Academy of Marketing Science, & Robinson, L. (2014). Marketing dynamism & sustainability: Things change, things stay the same... : proceedings of the 2012 Academy of Marketing Science (AMS) Annual Conference.

Air Asia. (n.d.). *AskAirAsia - What is Self Check-In?* Retrieved August 17, 2014, from http://www.airasia.com/ask/template.do?id=52

Anselmsson, J. (2001). *Customer-Perceived Service Quality and Technology-Based Self-Service Systems* (Doctoral dissertation, Doctoral Dissertation. Lund University).

Babin, B. J., Darden, W. R., & Griffin, M. (1994). Work and/or fun: measuring hedonic and utilitarian shopping value. *Journal of consumer research*, 644-656.

Bagozzi, R. P. (1992). The self-regulation of attitudes, intentions, and behavior.*Social psychology quarterly*, 178-204.

Bansal, H. S., & Voyer, P. A. (2000). Word-of-mouth processes within a services purchase decision context. *Journal of service research*, *3*(2), 166-177.

Barreiro, P. L., & Albandoz, J. P. (2001). Population and sample. Sampling techniques. *Management mathematics for European schools*.

Bashir, M. S., & Albarbarawi, S. A. (2011). Factors Influencing the Adoption of Self Service Technologies (SSTs).

Baumann, C., Burton, S., Elliott, G., & Kehr, H. M. (2007). Prediction of attitude and behavioural intentions in retail banking. *International Journal of Bank Marketing*, 25(2), 102-116.

Bitner, M. J. (1995). Building service relationships: it's all about promises.*Journal of the Academy of Marketing Science*, *23*(4), 246-251.

Bobbitt, M.L., & Dabholkar, P.A. (2001). Integrating attitudinal theories to understand and predict use of technology-based self-service. *International Journal of Service Industry Management*, *12*(5), 423-450.

Bowen, J. W., & Hedges, R. B. (1993). Increasing service quality in retail banking. *Journal of Retail Banking*, *15*, 21-21.

Burns, A. C., & Bush, R. F. (2000). *Marketing research*. Upper Saddle River, NJ: Prentice Hall.

Cadotte, E. R., Woodruff, R. B., & Jenkins, R. L. (1987). Expectations and norms in models of consumer satisfaction. *Journal of marketing Research*, 305-314.

Caramba-Coker, F. O. (2009). *Consumer attitudes and behavioral intention towards self-service kiosks in hotels: A cultural perspective*. University of Delaware.

Chai, K. F. (2008). *Self-Service Technology and Internet Banking: An Investigation of Consumers? Trial Decision* (Master's thesis, University of Malaya, Malaysia). Retrieved from http://dspace.fsktm.um.edu.my/

Chea, S. (2006). Understanding the roles of emotion in technology acceptance (Order No. 3216051). Available from ProQuest Dissertations & Theses Global. (305319501). Retrieved from http://search.proquest.com/docview/305319501?accountid=50207

Cho, S. (2011). *Self-service technology: an investigation of the potential for adoption in apparel retail settings*. The University of North Carolina at Greensboro.

Chuttur M.Y. (2009). "Overview of the Technology Acceptance Model: Origins, developments and future directions.

CIA. (2014). Malaysia Demographics Profile 2014. Retrieved from http://www.indexmundi.com/malaysia/demographics_profile.html

Cinema Online. (2014). *cinema.com.my: Events - We visited Premium-X Cinemas!*Retrieved August 17, 2014, from http://www.cinema.com.my/news/events.aspx?search=2014.e_wevisitedpremium_19795

Collier, J. E. (2006). *Examining customers' intentions to use self-service technology through utilitarian and hedonic value judgments. ProQuest Dissertations and Theses,* , 235-235 p. Retrieved from http://search.proquest.com/docview/304910318?accountid=50207. (304910318).

Collier, J. E., & Sherrell, D. L. (2010). Examining the influence of control and convenience in a self-service setting. Journal of The Academy of Marketing Science. doi:10.1007/s11747-009-0179-4

Cunningham, L. F., Young, C. E., & Gerlach, J. H. (2008). Consumer views of self-service technologies. Service Industries Journal, 28(6), 719-732. doi:10.1080/02642060801988852

Curran, J. M., & Meuter, M. L. (2005). Self-service technology adoption: comparing three technologies. Journal of Services Marketing, 19(2), 103-113.

Curran, J. M., & Meuter, M. L. 2007). ENCOURAGING EXISTING CUSTOMERS TO SWITCH TO SELF-SERVICE TECHNOLOGIES: PUT A LITTLE FUN IN THEIR LIVES. Journal Of Marketing Theory & Practice, 15(4), 283-298. doi:10.2753/MTP1069-6679150401

Curran, J. M., Meuter, M. L., & Surprenant, C. F. (2003). Intentions to use self-service technologies: A confluence of multiple attitudes. *Journal of Service Research*, *5*(3), 209-224.

Currie, D., & Chartered Institute of Personnel and Development. (2005). *Developing and applying study skills: Writing assignments, dissertations and management reports*. London: Chartered Institute of Personnel and Development.

Dabholkar, P. A. (1994). Incorporating choice into an attitudinal framework: analyzing models of mental comparison processes. *Journal of Consumer Research*, 100-118.

Dabholkar, P. A. (1996). Consumer evaluations of new technology-based self-service options: an investigation of alternative models of service quality.*International Journal of research in Marketing*, *13*(1), 29-51.

Dabholkar, P.A., & Bagozzi, R.P. (2002). An attitudinal model of technology-based self service: Moderating effects of consumer traits and situational factors. *Journal of the Academy of Marketing Science*, *30*(3), 184-201.

Dabholkar, P.A., & Bobbitt, L.M., & Lee, E.J. (2003). Understanding consumer motivation and behavior related to self-scanning in retailing. International Journal of Service, 30(3), 184-201.

Daher, H., Hair, J. F., Black, W. C., Babin, B. J., & Studenmund, A. H. (2012). Data analysis : econometrics and multivariate statistical data analysis. Harlow, Essex: Pearson Education limited.

Davis, F.(1989) "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology," *M IS Quarterly*, pp 319-340

Davis, F., Bagozzi,R. & Washaw, P.(1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35(8), 982-100

Doronina, O. V. (1995). Fear of computers. *Russian Education & Society,37*(2), 10-28.

Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Harcourt Brace Jovanovich College Publishers.

Esman, F., Embi. R., and Jusoh, R. (2010) *Usage of Self-Service Technologies (SSTs): A Case Study of e-Debit System at Bursary UiTM Shah Alam*. International Journal of Instructional Technology and Distance Learning.

Faqih, K. M., & Jaradat, M. I. R. M. (2014). Assessing the moderating effect of gender differences and individualism-collectivism at individual-level on the adoption of mobile commerce technology: TAM3 perspective. *Journal of Retailing and Consumer Services, 22*, 37-52.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*.

Fu, J. R., Farn, C. K., & Chao, W. P. (2006). Acceptance of electronic tax filing: A study of taxpayer intentions. *Information & Management, 43*(1), 109-126.

Gatignon, Hubert and Thomas S. Robertson (1985), "A Prepositional Inventory for New Diffusion Research," Journal o f Consumer Research, 11 (March), 849-867.

Godoe, P., & Johansen, T.,S.. (2012). Understanding adoption of new technologies: Technology readiness and technology acceptance as an integrated concept. *Journal of European Psychology Students, 3*, 38-52

Google. (2014). Consumer Barometer Survey. Retrieved from https://www.consumerbarometer.com/en/graphbuilder/?question=W4&filter=country:malaysia

Hair, J.F., Money, A.H., Samouel, P., & Page, M. (2007). *Research methods for business*. Chichester: John Wiley & Sons.

Hale, J. L., Householder, B. J., & Greene, K. L. (2002). The theory of reasoned action. *The persuasion handbook: Developments in theory and practice*, 259-286.

Holbrook, M. B., & Hirschman, E. C. (1982). The experiential aspects of consumption: Consumer fantasies, feelings, and fun. *Journal of consumer research*, 132-140.

Huang, J., & Martin-Taylor, M. (2013). Turnaround user acceptance in the context of HR self-service technology adoption: an action research approach.International Journal Of Human Resource Management, 24(3), 621-642. doi:10.1080/09585192.2012.677460

Hui, M. K., & Bateson, J. E. (1991). Perceived control and the effects of crowding and consumer choice on the service experience. *Journal of Consumer Research*, 174-184.

Igbaria, M., Parasuraman, S., & Baroudi, J. J. (1996). A motivational model of microcomputer usage. *Journal of management information systems*, 127-143.

Islam, A. N., Azad, N., Mäntymäki, M., & Islam, S. S. (2014). TAM and E-learning Adoption: A Philosophical Scrutiny of TAM, Its Limitations, and Prescriptions for E-learning Adoption Research. In *Digital Services and Information Intelligence* (pp. 164-175). Springer Berlin Heidelberg.

Jia, H., Wang, Y., Ge, L., Shi, G., & Yao, S. (2012). Asymmetric Effects of Regulatory Focus on Expected Desirability and Feasibility of Embracing Self-Service Technologies. Psychology & Marketing, 29(4), 209-225. doi:10.1002/mar.20516

Kallweit, K., Spreer, P., & Toporowski, W. (2014). Why do customers use self-service information technologies in retail? The mediating effect of perceived service quality. *Journal of Retailing and Consumer Services*, *21*(3), 268-276.

Kaur, G., & Gupta, S. (2012). Consumers' Behavioral Intentions Toward Self-Service Technology in the Emerging Markets. Journal Of Global Marketing, 25(5), 241-261. doi:10.1080/08911762.2012.757406

Kazakeviciute, A., & Banyte, J. (2012). The Relationship of Consumers 'Perceived Hedonic Value and Behavior. *Engineering Economics*, *23*(5), 532-540.

Kiosk Solution- Information on kiosk solution (n.d.). Retrieved February 15, 2015, from http://kiosk-solutions.com/en/self-service-solutions/#services

Kjerulff, K. H., Pillar, B., Mills, M. E., & Lanigan, J. (1992). Technology anxiety as a potential mediating factor in response to medical technology. *Journal of medical systems*, *16*(1), 7-13.

Koch, W. H., & Pratarelli, M. E. (2004). Effects of Intro/Extraversion and Sex on Social Internet Use. *North American Journal of Psychology*, *6*(3).

Kokkinou, A. (2010). Using simulation to estimate the impact of self-service technology implementation on customer waiting times and system operating costs (Doctoral dissertation, The Pennsylvania State University).

Koufaris, M. (2002). Applying the technology acceptance model and flow theory to online consumer behavior. *Information systems research*, *13*(2), 205-223.

Kuan, F., Ho, Y., & Chang, T. (2011). A study on the influence of consumers' perceived control and perceived risk to new E-Commerce technology innovation resistance. doi:10.1109/ICEBEG.2011.5881419

LaPiere, R. T. (1934). Attitudes vs. actions. *Social forces*, *13*(2), 230-237.

Lavrakas, P. J. (2008). *Encyclopedia of Survey Research Methods: AM* (Vol. 1). Sage.

Lavrakas, P. J. (2008). *Encyclopedia of survey research methods*. Thousand Oaks, CA: SAGE Publications.

Lee, J., & Allaway, A. (2002). Effects of personal control on adoption of self-service technology innovations. *Journal of Services Marketing*, *16*(6), 553-572.

Lee, J., & Tan, T. (2014, April 16). Self-service launderettes are seeing a resurgence in Klang Valley - SME | The Star Online. Retrieved from http://www.thestar.com.my/Business/SME/2014/04/16/Cleaning-up-nicely-Selfservice-launderettes-are-seeing-a-resurgence-in-Klang-Valley/?style=biz

Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. Information & Management, 40, 191-204.

Lin, J. S. C., & Chang, H. C. (2011). The role of technology readiness in self-service technology acceptance. Managing Service Quality: An International Journal, 21(4), 424-444.

Liu, S., Huang, L., & Chiou, Y. (2012). An integrated attitude model of self-service technologies: evidence from online stock trading systems brokers. Service Industries Journal, 32(11), 1823-1835. doi:10.1080/02642069.2011.574695

Matzler, K., Bidmon, S., & Grabner-Kräuter, S. (2006). Individual determinants of brand affect: the role of the personality traits of extraversion and openness to experience. *Journal of Product & Brand Management*, *15*(7), 427-434.

McLeod, S. (2009). Attitude measurement. *Simply Psychology-Articles for Students.*

Meuter M.L, Ostrom A.L., Roundtree R.I. and Bitner M.J. (2000), "Self-service technologies: understanding consumer satisfaction with technology-based service encounters", Journal of Marketing, 64, 3 (July), pp.50

Meuter, M. L. (1999). *Consumer adoption of innovative self-service technologies: A multi-method investigation* (Order No. 9935964). Available from ProQuest Dissertations & Theses Global. (304496909). Retrieved from http://search.proquest.com/docview/304496909?accountid=50207

Meuter, M. L., Bitner, M. J., Ostrom, A. L., and Brown, S. W. (2005). *Choosing among alternative service delivery modes: An investigation of customer trial of Self-Service technologies.* Journal of Marketing, 69(2):61–83.

Meuter, M. L., Ostrom, A. L., Bitner, M. J., & Roundtree, R. (2003). The influence of technology anxiety on consumer use and experiences with self-service technologies. *Journal of Business Research*, *56*(11), 899-906.

Milligan, B. (2007), "The man who invented the cash machine", BBC News, 25 June. http://newsvote.bbc.co.uk, accessed 29 April 2008.

Mittal, B. (1999). The advertising of services meeting the challenge of intangibility. *Journal of Service Research*, *2*(1), 98-116.

Moreira, C. (2013). *The Humble ATM: Swiss Army Knife of Banks - Rototype International*. Retrieved August 17, 2014, from http://www.rototypeintl.com/newsroom/the-humble-atm-swiss-army-knife-of-banks/#.U-_Fs_mSzLk

Norazah Mohd Suki, T. Ramayah, Norbayah Mohd Suki, (2008) "Internet shopping acceptance: Examining the influence of intrinsic versus extrinsic motivations", Direct Marketing: An International Journal, Vol. 2 Iss: 2, pp.97 – 110

Oghazi, P., Mostaghel, R., Hultman, M., & Parida, V. (2012). Antecedents of Technology-Based Self-Service Acceptance: A Proposed Model. Services Marketing Quarterly, 33(3), 195-210. doi:10.1080/15332969.2012.689937

Oyedele, A., & Simpson, P. M. (2007). An empirical investigation of consumer control factors on intention to use selected self-service technologies.*International Journal of Service Industry Management*, *18*(3), 287-306.

Parasuraman, A. (2000). Technology Readiness Index (TRI) a multiple-item scale to measure readiness to embrace new technologies. *Journal of service research*, *2*(4), 307-320.

Paynter, J., & Lim, J. (2001). Drivers and Impediments to E-commerce in Malaysia. Malaysian Journal of Library & Information Science, 6(2), 1-19.

Peter, J. and Olson, J. 2005. Customer behaviour and marketing strategy, Irwin, New York

Phongkusolchit, K. (2008). *Improving self-service technologies utilization: The potential impacts of technology anxiety, need for interaction with service employees, and expected service quality* (Order No. 3310993). Available from ProQuest Dissertations & Theses Global. (304474695). Retrieved from http://search.proquest.com/docview/304474695?accountid=50207

Pink, R. (2010). 7 Steps to Prepare Data for Analysis | Cvent Survey. Retrieved from http://survey.cvent.com/blog/conducting-online-surveys/7-steps-to-prepare-data-for-analysis

Rogers, E. (1995). Diffusion of innovations (4th ed.). New York, NY: Simon & Shuster.

Roscoe, J.T. (1975). *Fundamental Research Statistics for the Behavioural Sciences*, 2nd edition. New York: Holt Rinehart & Winston

Sandnes, F. E & Hagen, S. (2010) Toward accessible self-service kiosks through intelligent user interfaces. Springer. (n.d.). Retrieved from http://link.springer.com/article/10.1007%2Fs00779-010-0286-8

Sarkar, A. (2011). Impact of utilitarian and hedonic shopping values on individual's perceived benefits and risks in online shopping. International management review, 7(1), 58-65.

Schuh, J. H., & Upcraft, M. L. (2001). Assessment practice in student affairs. San Francisco, CA: Jossey-Bass

Sinkovics, R. R., Stöttinger, B., Schlegelmilch, B. B., & Ram, S. (2002). Reluctance to use technology-related products: Development of a technophobia scale. *Thunderbird International Business Review*, *44*(4), 477-494.

Srikanth, R. P., & Padmanabhan, C. (2002). Indian banks cash in on delivery channels. Express Computer. Retrieved from http://www.expresscomputeronline.com/20021202/banks1.shtml

Suki, N. M., & Ramayah, T. (2010). User acceptance of the e-government services in Malaysia: structural equation modelling approach. Interdisciplinary Journal of Information, Knowledge, and Management, 5(1), 395-413.

Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: the development of a multiple item scale. *Journal of retailing*, *77*(2), 203-220.

Tabachnick, B. G., & Fidell, L. S. (2007). Multivariate analysis of variance and covariance. *Using multivariate statistics*, *3*, 402-407.

Teo, T. S. (2001). Demographic and motivation variables associated with Internet usage activities. *Internet Research*, *11*(2), 125-137.

Van der Heijden, H. (2004). User acceptance of hedonic information systems.*MIS quarterly*, 695-704.

Vaughan, G., & Hogg, M. A. (2005). *Introduction to social psychology*. Pearson Education Australia.

Wang, C., Harris, J., & Patterson, P. (2009). Situational influences in the choice of self-service in a multi-channel retail context. Retrieved from Diskbank: http://www. duplication. net. au/ANZMAC09/papers/ANZMAC2009-261. pdf.

Weijters, B., Rangarajan, D., Falk, T., & Schillewaert, N. (2007). Determinants and outcomes of customers' use of self-service technology in a retail setting.*Journal of Service Research*, *10*(1), 3-21.

Wind, J., & Rangaswamy, A. (2001). Customerization: the next revolution in mass customization. *Journal of interactive marketing*, *15*(1), 13-32.

Xu, H. (2007). The effects of self-construal and perceived control on privacy concerns. ICIS 2007 Proceedings, 125.

Zeithaml, V, A. & Bitner, M, J. (2003) Service Marketing: Integrating Customer Focus Across the Firm, New York: McGraw-Hill Higher Education.

Zeithaml, V, A. & Bitner, M, J. (2009) Service Marketing: Integrating Customer Focus Across the Firm, New York: McGraw-Hill Higher Education.

APPENDIX A

SUMMARY OF DESCRETIVE ANALYSIS FOR INDEPENDENT AND DEPENDENT VARIABLES

	X1	***X2***	***X3***	***X4***	***X5***	***X6***	***Y1***	***Y2***	***Y3***
Mean	5.29	4.61	4.80	3.08	4.01	4.39	4.95	5.21	4.76
Standard Error	0.08	0.09	0.08	0.07	0.08	0.09	0.10	0.09	0.09
Median	5.57	4.67	5.00	3.09	4.00	4.25	5.00	5.50	5.00
Mode	7.00	4.33	4.75	3.67	3.83	4.00	7.00	6.00	5.00
Standard Deviation	1.22	1.34	1.10	1.04	1.13	1.27	1.47	1.36	1.37
Sample Variance	1.49	1.78	1.22	1.08	1.28	1.60	2.17	1.86	1.89
Range	6.00	5.33	5.75	5.67	5.50	6.00	6.00	5.00	5.00
Minimum	1.00	1.67	1.25	1.00	1.50	1.00	1.00	2.00	2.00
Maximum	7.00	7.00	7.00	6.67	7.00	7.00	7.00	7.00	7.00
Sum	1,112	968	1,009	647	842	921	1,039	1,094	999.
Count	210	210	210	210	210	210	210	210	210

X1= Perceived Usefulness

X2= Individual Perceived Control

X3= Expected Outcome Quality

X4= Technology Anxiety

X5= Need For Interaction

X6= Hedonic Value

Y1= Attitude towards SST

Y2= Behavioral Intention on SST

Y3= Actual used of SST

APPENDIX B

SPSS OUTPUT FOR FACTOR ANALYSIS

Correlation Matrix[a]

a. Determinant = 4.179E-012

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.90
Bartlett's Test of Sphericity	Approx. Chi-Square	5144.514
	df	528
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	10.587	32.080	32.080	10.587	32.080	32.080	8.418
2	5.048	15.298	47.378	5.048	15.298	47.378	4.837
3	2.820	8.546	55.925	2.820	8.546	55.925	5.266
4	2.068	6.266	62.191	2.068	6.266	62.191	3.444
5	1.332	4.035	66.226	1.332	4.035	66.226	6.878
6	1.124	3.405	69.631	1.124	3.405	69.631	3.749
7	.920	2.788	72.420				
8	.835	2.532	74.951				
9	.767	2.325	77.276				
10	.728	2.206	79.482				
11	.664	2.011	81.493				
12	.569	1.724	83.218				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

APPENDIX B

SPSS OUTPUT FOR FACTOR ANALYSIS (Continue)

Pattern Matrix[a]

	Component					
	1	2	3	4	5	6
Expected outcome quality - Q1					-.796	
Expected outcome quality - Q2					-.690	
Expected outcome quality - Q3					-.749	
Expected outcome quality - Q4					-.627	
Hedonic Value - Q1			.700			
Hedonic Value - Q2			.875			
Hedonic Value - Q3			.898			
Hedonic Value - Q4			.909			
Individual perceived control - Q1						-.637
Individual perceived control - Q2	.413					-.568
Individual perceived control - Q3						-.721
Individual perceived control - Q4					-.570	
Individual perceived control - Q5					-.639	
Need for interaction - Q1		.885				
Need for interaction - Q2		.889				
Need for interaction - Q3		.769				
Need for interaction - Q4		.587				
Need for interaction - Q5		.888				
Need for interaction - Q6		.461				
Perceived usefulness - Q1	.765					
Perceived usefulness - Q2	.824					
Perceived usefulness - Q3	.830					
Perceived usefulness - Q4	.856					
Perceived usefulness - Q5	.907					
Perceived usefulness - Q6	.827					
Perceived usefulness - Q7	.842					
Technology Anxiety - Q1				.701		
Technology Anxiety - Q2				.650		
Technology Anxiety - Q3				.720		
Technology Anxiety - Q4			.425			
Technology Anxiety - Q5				.818		
Technology Anxiety - Q6		.416		.486		
Technology Anxiety - Q7				.422		

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
a. Rotation converged in 10 iterations.

APPENDIX B

SPSS OUTPUT FOR FACTOR ANALYSIS (Continue)

Component Correlation Matrix

Component	1	2	3	4	5	6
1	1.000	.166	.256	-.031	-.497	-.361
2	.166	1.000	.032	.263	-.125	.033
3	.256	.032	1.000	-.147	-.344	-.218
4	-.031	.263	-.147	1.000	.003	-.001
5	-.497	-.125	-.344	.003	1.000	.267
6	-.361	.033	-.218	-.001	.267	1.000

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

APPENDIX C

SPSS OUTPUT FOR CRONBACH ALPHA

Cronbach's Alpha for construct 1: Perceived Usefulness

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Perceived usefulness - Q1	31.57	54.957	.818	.943
Perceived usefulness - Q2	31.81	54.518	.797	.944
Perceived usefulness - Q3	31.70	53.142	.844	.940
Perceived usefulness - Q4	31.83	52.957	.862	.939
Perceived usefulness - Q5	31.88	53.859	.847	.940
Perceived usefulness - Q6	32.18	54.069	.809	.943
Perceived usefulness - Q7	31.71	53.811	.826	.942

Cronbach's Alpha for construct 2: Individual perceive control

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Individual perceived control - Q1	9.20	7.309	.723	.754
Individual perceived control - Q2	9.28	8.076	.678	.797
Individual perceived control - Q3	9.17	7.760	.704	.773

Cronbach's Alpha for construct 3: Expected outcome quality

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Expected outcome quality - Q1	14.59	10.981	.781	.809
Expected outcome quality - Q2	14.38	12.581	.679	.851
Expected outcome quality - Q3	14.40	10.929	.721	.835
Expected outcome quality - Q4	14.28	11.246	.717	.835

APPENDIX C

SPSS OUTPUT FOR CRONBACH ALPHA (Continue)

Cronbach's Alpha for construct 4: Technology Anxiety

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Technology Anxiety - Q1	15.36	30.575	.379	.806
Technology Anxiety - Q2	15.06	26.877	.592	.758
Technology Anxiety - Q3	15.74	26.290	.665	.740
Technology Anxiety - Q5	15.55	27.809	.578	.762
Technology Anxiety - Q6	15.04	27.386	.600	.756
Technology Anxiety - Q7	15.62	29.022	.510	.777

Cronbach's Alpha for construct 5: Need for interaction

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Need for interaction - Q1	19.96	31.917	.763	.830
Need for interaction - Q2	19.83	31.537	.740	.833
Need for interaction - Q3	19.94	33.480	.692	.843
Need for interaction - Q4	20.08	34.224	.526	.872
Need for interaction - Q5	19.92	31.032	.802	.822
Need for interaction - Q6	20.53	34.317	.513	.874

Cronbach's Alpha for construct 6: Hedonic Value

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Hedonic Value - Q1	12.91	15.843	.786	.931
Hedonic Value - Q2	13.29	14.282	.876	.902
Hedonic Value - Q3	13.13	15.054	.851	.911
Hedonic Value - Q4	13.31	13.824	.868	.906

APPENDIX C

SPSS OUTPUT FOR CRONBACH ALPHA (Continue)

Cronbach's Alpha for construct 7: Attitude towards SST

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Attitudes toward using SSTs - Q1	14.64	20.346	.885	.943
Attitudes toward using SSTs - Q2	14.90	19.985	.865	.948
Attitudes toward using SSTs - Q3	14.84	19.926	.919	.933
Attitudes toward using SSTs - Q4	14.98	18.913	.895	.940

Cronbach's Alpha for construct 8: Behavioural Intention towards SST

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Behavioural Intentions to use SSTs - Q1	15.61	16.669	.913	.939
Behavioural Intentions to use SSTs - Q2	15.47	16.767	.922	.936
Behavioural Intentions to use SSTs - Q3	15.76	17.639	.847	.958
Behavioural Intentions to use SSTs - Q4	15.69	16.722	.901	.943

APPENDIX D

SPSS OUTPUT FOR MULTIPLE LINEAR REGRESSION

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.852[a]	.726	.717	.78237	1.878

a. Predictors: (Constant), Hedonic Value, Need for Interaction, Technology Anxiety, Perceived Usefulness, Individual Perceived Value, Expected Outcome Quality
b. Dependent Variable: Attitude towards SST

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	328.578	6	54.763	89.467	.000[b]
	Residual	124.257	203	.612		
	Total	452.835	209			

a. Dependent Variable: Attitude towards SST

b. Predictors: (Constant), Hedonic Value, Need for Interaction, Technology Anxiety, Perceived Usefulness, Individual Perceived Value, Expected Outcome Quality

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-.123	.337		-.365	.715		
	Perceived Usefulness	.213	.064	.176	3.349	.001	.487	2.055
	Individual Perceived Value	-.094	.058	-.086	-1.627	.105	.488	2.048
	Expected Outcome Quality	.163	.070	.122	2.313	.022	.484	2.065
	Technology Anxiety	-.023	.040	-.022	-.579	.563	.960	1.042
	Need for Interaction	-.014	.050	-.011	-.281	.779	.935	1.069
	Hedonic Value	.849	.052	.730	16.291	.000	.673	1.485

a. Dependent Variable: Attitude towards SST

APPENDIX E

SPSS OUTPUT FOR SIMPLE LINEAR REGRESSION

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.808[a]	.653	.651	.80505	1.596

a. Predictors: (Constant), Attitude towards SST

b. Dependent Variable: Behaviour Intention on SST

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	253.307	1	253.307	390.841	.000[b]
	Residual	134.806	208	.648		
	Total	388.113	209			

a. Dependent Variable: Behaviour Intention on SST

a. Predictors: (Constant), Attitude towards SST

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.511	.195		7.742	.000		
	Attitude towards SST	.748	.038	.808	19.770	.000	1.000	1.000

a. Dependent Variable: Behaviour Intention on SST

APPENDIX E

SPSS OUTPUT FOR LOGISTIC REGRESSION

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	38.009	1	.000
	Block	38.009	1	.000
	Model	38.009	1	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	240.101[a]	.166	.226

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Classification Table[a]

Observed			Predicted		
			Actual Used of SST		Percentage Correct
			Negative Behaviour Intention	Positive Behaviour Intention	
Step 1	Actual Used of SST	Negative Behaviour Intention	38	41	48.1
		Positive Behaviour Intention	29	102	77.9
	Overall Percentage				66.7

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	BehaviourIntention	.702	.126	31.263	1	.000	2.018	1.578	2.580
	Constant	-3.073	.650	22.333	1	.000	.046		

a. Variable(s) entered on step 1: BehaviourIntention.

APPENDIX F

E-MAIL INVITATION FOR DATA COLLECTION

From: mexen@hotmail.com

To:

CC: siabk@utar.edu.my

Subject: Data collection: Perceived factors influencing the acceptance and adoption of self-service technology

Date: Thu, 15 Jan 2015 01:21:22 +0800

Dear all,

I am UTAR student currently doing my MBA course, to fulfill research project requirement, I am currently conducting a research study entitled "Perceived factors influencing the acceptance and adoption of self-service technology (SST)". The objective of this research study is to determine influential perceived factors on using SST, through perceived factors to find out Malaysian's attitude and behaviour intention towards SST.

Believe that you have a busy schedule but your input is important. I would like to ask you to lend me 10 minutes for answering questionnaire as per following link: - https://docs.google.com/forms/d/1qkx2qDKWbygSLQ8y5tz3aFlgCoRuUhk4xyxrlEbmwo/viewform

Please be assured that all information gathered from this questionnaire will be kept private and confidential. Do not hesitate to e-mail me should you have any comments or enquiries on the questionnaire.

Thank you

Mexen

APPENDIX G
QUESTIONNAIRE

Perceived factors influencing the acceptance and adoption of self-service technology (SST)

The objective of this survey is to identify the perceived factors and measure the attitude and behavior intention towards self-service technologies.

* Required

Self-service technologies (SSTs)

are technologies that enable individual to perform a task or transaction without any interaction with service personnel.
For instant, online ticketing, self-service laundry service, m-commerce, airport check-in kiosk and etc.

Your survey responses will be treated strictly confidential.

Section A - Self-service technologies used

1. **How often do you use self-service technology service?** *
   Mark only one oval.

	1	2	3	4	5	6	7	
Never	◯	◯	◯	◯	◯	◯	◯	Always

2. **What type of self-service technologies you used?** *
   You may select more than 1 options
   Check all that apply.

- [ ] ATM & CDM
- [ ] Laundry service
- [ ] Mobile commerce
- [ ] Airport self-check-in kiosk
- [ ] Online trading of FX, Equities, Bonds
- [ ] Online purchasing
- [ ] Online banking or phone banking

3. **How often do you use an Automated Teller Machine (ATM) or Cash Deposit Machine (CDM)?** *
Mark only one oval.

- ◯ I do not use this type of SST
- ◯ Sometimes
- ◯ Fairly often
- ◯ Very often
- ◯ Always

4. **How often do you use self-service laundry service?** *
Mark only one oval.

- ◯ I do not use this type of SST
- ◯ Sometimes
- ◯ Fairly often
- ◯ Very often
- ◯ Always

5. **How often do you engage in online transactions via mobile commerce?** *
Mark only one oval.

- ◯ I do not use this type of SST
- ◯ Sometimes
- ◯ Fairly often
- ◯ Very often
- ◯ Always

6. **How often do you use self-service kiosks when you check-in at an airport?** *
Mark only one oval.

- ◯ I do not use this type of SST
- ◯ Sometimes
- ◯ Fairly often
- ◯ Very often
- ◯ Always

7. **How often do you perform online trading of FX, Equities, Bonds?** *
Mark only one oval.

- ◯ I do not use this type of SST
- ◯ Sometimes
- ◯ Fairly often
- ◯ Very often
- ◯ Always

8. **How often do you perform online purchase?** *
Mark only one oval.

- I do not use this type of SST
- Sometimes
- Fairly often
- Very often
- Always

9. **How often do you perform online banking or phone banking?** *
Mark only one oval.

- I do not use this type of SST
- Sometimes
- Fairly often
- Very often
- Always

Section B - Perceived Factors

Perceived usefulness

Please rate each of the statements below from strongly disagree to strongly agree.

10. **Self-service technology enables me to accomplish tasks more quickly** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree								Strongly Agree

11. **Using self-service technology enhances my effectiveness on the job** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree								Strongly Agree

12. **Using self-service technology makes it easier to do my job** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree								Strongly Agree

13. **Using the self-service technology is more convenient** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

14. **Using the self-service technology make me perform task more efficiently** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

15. **Using the self-service technology will make me more productive.** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

16. **Using the self-service kiosk will save me time.** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

Individual perceived control

Please rate each of the statements below from strongly disagree to strongly agree.

17. **Self-service kiosks are less intrusive as opposed to interpersonal interactions with front desk staff.** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

18. **I have control over using mobile commerce** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

19. **Using the self-service technology would provide me with feelings of independence.** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

20. **Using self-service technology give me control over my task perform.** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

21. **Using self-service technology delivers the same result/ performance as approaching service employees** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

Expected outcome quality

Please select the best description for each of the statements below.

22. **Using the self-service technology means _____ get exactly what I want.** *

Mark only one oval.

	1	2	3	4	5	6	7	
I definitely not	◯	◯	◯	◯	◯	◯	◯	I definitely will

23. **Using the self-service technology will provide _____ service.** *

Mark only one oval.

	1	2	3	4	5	6	7	
Worst	◯	◯	◯	◯	◯	◯	◯	Excellent

24. **What quality of service would you receive from the self-service technology?** *

Mark only one oval.

	1	2	3	4	5	6	7	
Far below expectation	◯	◯	◯	◯	◯	◯	◯	Far above expectation

25. **Using the self-service technology will _____.** *
Mark only one oval.

	1	2	3	4	5	6	7	
not be reliable	◯	◯	◯	◯	◯	◯	◯	be very reliable

Technology Anxiety

Please rate each of the statements below from strongly disagree to strongly agree.

26. **I feel nervous about using technology.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

27. **Technical terms are confusing to me.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

28. **I have avoided technology because it is unfamiliar to me.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

29. **I am confident I can learn technology related skills.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

30. **I have difficulty understanding most technological matters.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

31. **I hesitate to use most forms of technology for fear of making a mistake that I cannot correct.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

32. **I seldom use technologically based products and services.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

Need for interaction

Please rate each of the statements below from strongly disagree to strongly agree.

33. **Personal contact with an employee is enjoyable for me.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

34. **Personal attention by the service employee is very important to me.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

35. **If I interact with a front desk representative, I have lesser risk of infringement of my personal information.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

36. **Talk to front desk representative is convenient because there is no work on my part.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

37. **I like interacting with the person who provides the service.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

38. **It bothers me to use a machine when I could talk with a person instead.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

Hedonic Value

Please select the best description for each of the statements below.

39. **Using the self-service technology is _____.** *
Mark only one oval.

	1	2	3	4	5	6	7	
definitely not enjoyable	◯	◯	◯	◯	◯	◯	◯	deninitely enjoyable

40. **Using the self-service technology is _____.** *
Mark only one oval.

	1	2	3	4	5	6	7	
definitely not entertaining	◯	◯	◯	◯	◯	◯	◯	definitely entertaining

41. **Using the self-service technology is _____.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Not fun at all	◯	◯	◯	◯	◯	◯	◯	very fun

42. **Using the self-service technology is _____.** *
Mark only one oval.

	1	2	3	4	5	6	7	
extremetely boring	◯	◯	◯	◯	◯	◯	◯	very interesting

Attitudes toward using self-service technologies (SSTs)

Please select the best desciption that fits your attitude towards SSTs

43. **SST is _____.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Bad	◯	◯	◯	◯	◯	◯	◯	Good

44. **I _____ SST.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Hate	◯	◯	◯	◯	◯	◯	◯	Love

45. **SST is _____.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Harmful	◯	◯	◯	◯	◯	◯	◯	Beneficial

46. **SST is _____.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Unfavourable	◯	◯	◯	◯	◯	◯	◯	Favourable

Behavioral Intentions to use self-service technology

Please rate each of the statements below from strongly disagree to strongly agree.

47. **I expect to perform the task through self-service technology in the near future.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

48. **There is high probability that I will use the self-service technology in the future.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

49. **There is high likelihood that I would recommend to my friend using self-service technology.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

50. **On my next visit it is more likely that I will use a self-service technology kiosk.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

Section C - User's Profile

51. *Mark only one oval.*

- ◯ Option 1

52. **Gender** *
Mark only one oval.

- ◯ Male
- ◯ Female

53. **Age** *
Mark only one oval.

- ◯ 21 –30
- ◯ 31 – 40
- ◯ 41 - 50
- ◯ 51 – 60
- ◯ More than 60

54. **Ethnic group** *
Mark only one oval.

- ◯ Malay
- ◯ Chinese
- ◯ Indian
- ◯ Other: .....

55. **Religion** *

Mark only one oval.

- Muslim
- Christian
- Hindu
- Buddhist
- Taoist
- Other: .....

56. **Education level** *

Mark only one oval.

- No formal education
- Primary
- Secondary
- Pre-university / STPM / A-level
- Certificate/Diploma/ Sijil/Diploma
- Degree
- Master/PhD
- Professional qualifications
- Other: .....

57. **What is your current employment status?** *

Mark only one oval.

- Employee - Private Sector
- Employee - Government Sector
- Employer
- Self-employed
- House-wife
- Retired
- Student
- Unemployed
- Other: .....

58. **What is your HOUSEHOLD MONTHLY Income (RM) ? ***

Mark only one oval.

- ◯ Less than 2000
- ◯ 2,000 - 2,999
- ◯ 3,000 - 3,999
- ◯ 4,000 - 4,999
- ◯ 5,000 - 5,999
- ◯ 6,000 - 6,999
- ◯ 7,000 - 7,999
- ◯ 8,000 and above

59. **What is your FAMILY MONTHLY Expenses (RM)? ***

Include all expenses such as car, house installment, utility, children education....etc

Mark only one oval.

- ◯ Less than 2000
- ◯ 2,000 - 2,999
- ◯ 3,000 - 3,999
- ◯ 4,000 - 4,999
- ◯ 5,000 - 5,999
- ◯ 6,000 - 6,999
- ◯ 7,000 - 7,999
- ◯ 8,000 and above

60. **What are your main sources of information? ***

Check all that apply.

- ☐ Radio
- ☐ Television
- ☐ Newspapers
- ☐ The Internet (eg. blogs, Facebook, online news)
- ☐ Other: .....