FACTORS AFFECTING CONSUMERS' INTENTION TOWARDS MOBILE BANKING IN MALAYSIA

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BY

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DECLARATION

We hereby declare that:

(1) This undergraduate FYP is the end result of our 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 FYP 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) Equal contribution has been made by each group member in completing the FYP.

(4) The word count of this research report is 13625.

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DEDICATION

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LIST OF ABBREVIATIONS

AVE	Average Variance Extracted
BNM	Bank Negara Malaysia
C	Path Coefficient
CA	Cronbach's Alpha
CR	Composite Reliability
HTMT	Heterotrait-Monotrait Ratio
IDV	Independent Variable
INT	Behavioural Intention
MBS	Mobile Banking Services
MCMC	Malaysian Communications and Multimedia Commision
P	P-value
PEOU	Perceived Ease of Use
PLS	Partial Least Squares
PU	Perceived Usefulness
SC	Security Concern
SI	Social Influence
SKM	Sijil Kemahiran Malaysia
SPM	Sijil Pelajaran Malaysia
STPM	Sijil Tinggi Persekolahan Malaysia

TAM	Technology Acceptance Model
UEC	Unified Examination Certificate

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PREFACE

With the rapid growth of technology, digital devices have been used by everyone in daily life. For instance, the payment method has evolved from system barter to currency, followed by check, credit and now mobile banking has been classified as one of the technology-based innovations. In fact, mobile banking has been shaping the financial services landscape and has been changing the business practices in the financial system from the past twenty years until now. Although it's new to the Malaysian market, but it definitely growing. According to the latest report, the number of people who subscribe to mobile banking have increased to 17,973.7 million which took up 55.2% of the total population in Malaysia. Therefore, it proved that people nowadays are more likely prefer digital devices compared to traditional way. In fact, mobile banking services offer a wide range of benefits and advantages to consumers or users that adopt the services such as usefulness, convenient and save time. Therefore, this research is aims to examine the factors affecting consumers' intention to use mobile banking services in Malaysia.

ABSTRACT

The objective of this study is to examine the factors affecting consumers' intention towards mobile banking in Malaysia. This study focused on the investigation of the relationship between the four independent variables such as perceived ease of use, perceived usefulness, social influence, and security concern and the consumers' intention towards mobile banking in Malaysia. A primarily source of data are employed to achieve the objective of this study. The primary data are collected through distributing online questionnaire with 5-point Likert scale to the respondents by using Google Form. The target population of this study is the bank consumers who are non-users and existing users of mobile banking in Malaysia. A total of 389 sets of questionnaires and Smart-PLS Version 3.3.3 are used to conduct the data analysis. The Partial Least Squares (PLS) of Structural Equation Modelling (SEM) method are adopted in this study. The findings of this study showed that the perceived ease of use, perceived usefulness, and social influence have significance relationship with the consumers' intention towards mobile banking in Malaysia. However, security concern do not have significance relationship with the consumers' intention towards mobile banking in Malaysia. This study provided several limitations and recommendations to the future researchers for improvements and this study is advantageous for businesses, especially financial institutions and fintech companies.

CHAPTER 1: RESEARCH OVERVIEW

1.1 Research Background

Traditionally, people who would like to perform a banking transaction are required to visit the bank branch and this branch based retail banking can be said to be the most common method of conducting their transactions over the countries (Davoud, Ali, & Leila, 2015). However, with the rapid growth of technology, the payment method has evolved from system barter to currency, followed by check, credit and now mobile banking has been classified as one of the technology-based innovations. In fact, mobile banking has been shaping the financial services landscape and has been changing the business practices in the financial system from the past twenty years until now (Mun, Khalid, & Nadarajah, 2017). Generally, mobile banking is currently known as a new path that enables consumers to interact with the banks indirectly through mobile devices, tablet or personal digital assistants (Rehman, Omar, Zabri & Lohana, 2019). In detail, the mobile banking can be considered as remote and contactless since most of the banking transactions such as fund transferring or bill imbursement can be conducted easily and immediately at any time and anywhere. Mobile device and internet networks are essential for conducting the mobile banking services where consumers are required to install the mobile banking application in portable devices. However, there are also security risks as the consumers' personal information may be stolen and the functions will be limited as compared to traditional banking.

In Malaysia, with the advance technology developments, most of the financial institutions have implemented mobile banking services in offering superior banking services. For instance, Maybank Berhad has declared as the first financial institution to introduce the mobile banking services so called M2U Mobile Service in 2006

which provide the facilities of bill payment, fund transfer and balance inquiry (Rehman et al., 2019; Bakar, Aziz, Muhammud & Muda, 2017). Besides, Maybank has also launched a mobile banking application which is M2UMap that is available for iPhone in the year of 2009. Bank Islam Malaysia, CIMB Bank Berhad as well as the other banks have also started to offer mobile banking services and application that are much more attractive and advantageous (Rehman et al., 2019).

Next, mobile banking offers a wide range of benefits and advantages to not only financial institutions but also consumers or users that adopt the services. It was introduced to consumers, allowing them to conduct banking activities 24 hours a day rather than going to a traditional banking branch or using broadband computers linked to personal transactions. This helps simplify the use of mobile banking as organizations want to increase their usage intent every time (Mohd Daud et al., 2011).

Furthermore, consumers are allowed to check account balances, perform and view the latest transaction information by using mobile banking. For example, mobile banking improves the progress of financial services as consumers can easily conduct their transactions at any time and anywhere (Laukkanen, 2007). When they are walking around or when they are waiting for the bus to go to work, they can perform their transaction at any time while on the move. Hence, consumers nowadays can access their bank accounts or transactions without using a computer or laptop (Soram, 2009). However, there are some security shortfalls in mobile banking implementation mobile. Inadequate security of mobile banking may result in financial losses and negative feedback because consumers must provide their banking and other personal information when using mobile phones for transactions, they consider Internet transactions less secure (Harris & Goode, 2004, p. 142).

Currently in Malaysia, there are eighteen banks that provide MBS such as AmBank (M) Berhad, Bank Islam Malaysia Berhad, Bank Simpanan Nasional, CIMB Bank

Berhad, Citibank Berhad, Public Bank Berhad, Hong Leong Bank Berhad, OCBC Bank (Malaysia) Berhad, Standard Chartered Bank Malaysia Berhad, Malayan Banking Berhad, and etc (Central Bank of Malaysia, 2020). Recent report from BNM found that the number of people who subscribe to mobile banking in Malaysia is increasing every year. According to the latest report, the number of people who subscribe to mobile banking have increased to 17,973.7 million which took up 55.2% of the total population in Malaysia. However, the penetration rate to mobile subscribers is 40.3%, which means out of the 17,973.7 million of subscribers, only 40.3% of the subscribers are active on using the mobile banking services (Central Bank of Malaysia, 2020). According to Rehman and Shaikh (2020), found that there is lack of consciousness of the acceptance, behavioural intention of Malaysian consumers, and survey of how their intention being influenced by the factors in using mobile banking. Therefore, this research targets to study the factors that affect consumers' intentions towards mobile banking in Malaysia.

1.2 Problem Statement

With the diffusion of information technology and communication networks, online as well as mobile banking has become an important trend in Malaysia's economy (Low, Goh, Tan, & Rasli, 2017). Majority of the banking system has started to employ the technology in order to support the banking services efficiently and effectively. In general, mobile banking can be classified as a platform of conducting the financial transaction through mobile devices (Shuhidan, Hamidi, & Saleh, 2017). It provides several benefits to consumers as the banking transaction can be conducted anytime and anywhere that helps to reduce the time and cost to visit in the bank branches. For example, the mobile banking services including bill payment, account management, fund transfer, loan statement and so on that are available for twenty-four hours per day (Shuhidan, Hamidi, & Saleh, 2017.) Needless to say, mobile banking also offers significant benefits to the financial sectors as it allows

the financial institutions to go paperless, reducing the time consuming and operational cost.

Based on the latest survey conducted by MCMC in 2018, it stated that the majority of the internet users perform their financial activities through online banking and 73.5% of them preferred to use mobile devices especially smartphones as the platform to access the banking applications. According to the statistics of Bank Negara Malaysia, it has revealed that there were 34.7million of subscribers in internet banking and 18.2million subscribers in mobile banking in June 2020. It indicates that the penetration of mobile banking has reached 55.9% of the total population. Based on statistic above, it is clear to see that the subscribers of mobile banking has been increased constantly, but the people in Malaysia has showed less interest and attention towards mobile banking services (Rehman & Shaikh, 2020; Low, Goh, Tan, & Rasli, 2017; Shuhidan, Hamidi, & Saleh, 2017). According to Low, Goh, Tan, and Rasli (2017), the knowledge gap between it may be important since some of the subscribers of mobile banking may not be active users. Due to this reason, it may be a significant challenge to create a pure online banking in Malaysia. In short, the mobile banking services have been widely adopted in several countries but the adoption rate by the people in Malaysia are relatively low as compared to others. For example, mobile banking applications such as Ali Pay and WeChat Pay have been widely used in China for payment purposes (Kharpal, 2019). Most of the people in China prefer to use cashless payment since it is more convenient. Therefore, the purpose of this study is to examine the factors affecting consumers' intention towards mobile banking.

1.3 General Objectives

The general objective of this study is to examine the factors affecting Malaysian consumers' intention towards mobile banking.

1.3.1 Specific Objectives

i. To examine the effects of perceived ease of use on Malaysian consumers' intentions towards mobile banking.

ii. To examine the effects of perceived usefulness on Malaysian consumers' intentions towards mobile banking.

iii. To examine the effects of social influence on Malaysian consumers' intentions towards mobile banking.

iv. To examine the effects of security concern on Malaysian consumers' intentions towards mobile banking.

1.4 Research Question

1. How does the perceived ease of use affect Malaysian consumers' intentions towards mobile banking?

2. How does the perceived usefulness affect Malaysian consumers' intentions towards mobile banking?

3. How does the social influence affect Malaysian consumers' intentions towards mobile banking?

4. How does the security concern affect Malaysian consumers' intentions towards mobile banking?

1.5 Significance of Research Study

Firstly, the research findings are significant to banks. Throughout the study, the banks in Malaysia can better understand the importance of consumers' intention in using mobile banking and increase mobile banking adoption by taking this as an opportunity to improve their mobile banking system. For example, banks can get the feedback from Malaysia's citizens and to know the level of their consumers' expectation by studying the factor of PEOU and PU. Therefore, banks can improve their application and the functions of their mobile banking in order to achieve their consumers' expectation and to attract more people in using mobile banking in Malaysia. Besides, banks can also get more information about the impact of security concerns on Malaysian consumers' intention in using mobile banking. If the security risk of the mobile banking is high, it will lead to the people unfavorable mobile banking adoption. Whereas the security risk of mobile banking is low, it will increase the trust level of the people thereby to help the bank increase the users of mobile banking. Therefore, through the research, the bank policy makers could better understand the security concern and pay more attention to the security risk of their mobile banking in order to provide a more secure mobile banking for their consumers to use.

Moreover, it is important to the companies. It involves the business companies that offer products and services with mobile banking as one of the payment methods. The finding allows the companies to have comprehension about the consumers

intention to use MBS, which tailor and meets consumers' needs and expectations through services performance enhancement. The existing or new companies may use the information on this finding to identify and generate effective and profitable business strategies in the context of advanced technology through understanding and evaluating the consumers' demand for MBS to determine requirements of greater efficient mobile banking transactions. The companies are able to refine and revise the existing strategies to keep abreast with the current situation by using the information of the finding of this study. Through understanding the relationship of the factors and consumers' intention to mobile banking adoption, the companies are also able to discover the potential opportunity in the market or enter into a new market. The companies may collaborate with the bank for mutual benefits, which offered more useful features and benefits to consumers when consumers purchase and pay by using mobile banking in the company. This collaboration encourages adoption of MBS and boosts the sales of companies through analysing and implementing the information of this study into the collaboration strategy.

Lastly, the finding of this study is significant to the future researcher. Future researchers are able to apply the findings to enhance their research or reporting. The finding of this study produces knowledge and insight to future researchers in order to help in developing and investigating more information on the factors affecting the intention of mobile banking among Malaysian consumers. Besides, the information on the relationship of the factors and intention of consumers to adopt mobile banking may act as a guide of the similar studies for future researchers by providing recommendations. Future researchers could use the information and outcome of this study as a useful reference or comparison for their future research.

CHAPTER 2: LITERATURE REVIEW

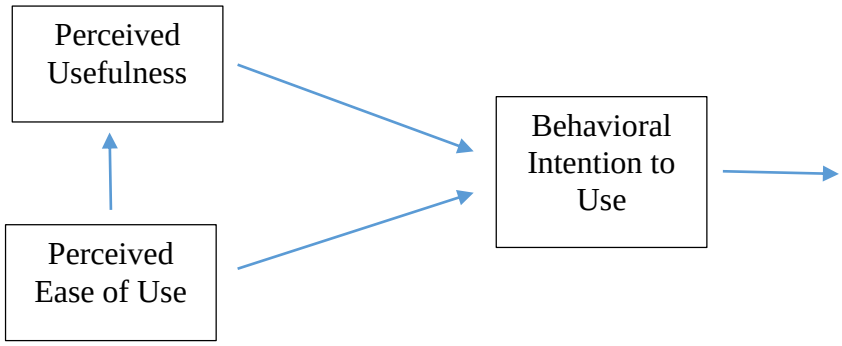
2.1 Underlying Theories

2.1.1 Technology Acceptance Model (TAM)

Davis introduced the Technology Acceptance Model (TAM) theory in 1989, which is a model that helps to describe a technology's acceptance and adoption for the consumers (Irani, 2000). Besides, TAM has been distributed into two different behavioral values which is the perceived ease of use (PEOU) and perceived usefulness (PU) that helps to define the effect of the consumers' behavioural intention towards technology acceptance (Irani, 2000). PEOU refers to a person perceiving that a system can be learned easily and free from effort, while the PU refers to which an individual perceives that it would be beneficial for them by using a certain system (Davis, 1989).

Technology acceptance model as the theoretical framework

Actual System Use



Source: Naeini, F. H., & Krishnam, B. (2012).

Perceived ease of use (PEOU)

As Davis (1989), PEOU is showing the level of an individual who believes the specific system is easy to use. While, from the term of "ease" , it also can be defined as cast off from the difficulty or considerable effort (Davis, 1989). According to Radner and Rothschild (1975), effort can be known as a limitation resource of a person and to decide how to assign their effort in a variety of their responsibility tasks. In addition, a variety of previous styles of studies conclude that PEOU has a significant impact on the acceptance and adoption of IT's users (Lanlan, Ahmi, & Popoola, 2019). Meanwhile, Venkatesh (2000) has mentioned that the fundamental purpose of PEOU is to forecast the conduct of use. Besides, the behavioral decision making and information system (IS) has demonstrated the importance of a wide body of research that shows the individuals are trying to reduce the effort in their work (Venkatesh, 2000). Thereby, even this is the intention proposed by the TAM, yet it also is fostering an association between the PEOU and behavioral use (Venkatesh, 2000).

Perceived Usefulness (PU)

PU is referred to as the extent of a user who assumes that using a technology would increase the productivity of him/her (Venkatesh, 2000). Besides, the meaning of the perceived usefulness also can be known as the "capable of being used advantageously", it is generated from the word useful (Davis, 1989). For the sense of an organization, people who have good results will be rewarded by increasing their bonuses, incentives and so on. Apart from this, a system that has a high perceived usefulness, it will be the most trustable system for the consumer. Also, it will let them feel that there is a high correlation within usage and efficiency (Davis, 1989). Furthermore, according to Pikkarainen et al. (2004), PU is meant to the subjective probability of the prospective consumer that the use of a given application would improve its efficiency. Hence, when someone is impressed by the time that they have used a specific system, they will find out their work performance has been improved to some extent (Lanlan, Ahmi, & Popoola, 2019). Therefore, this would also mean that the system has a greater influence on usefulness, and the attitude of he/she is going to change in a positive direction. Last but not least, in Lanlan, Ahmi, and Popoola (2019) also has mentioned that the perceived usefulness is closely linked to the user satisfaction.

2.2 Review of Variables

2.2.1 Perceived Ease of Use (PEOU)

PEOU can refer to which an individual perceives that a system can be learned easily and free from effort (Alkhaldi & Kharma, 2019; Wong, Lee, Lim, Chua, & Garry, 2012; Vidisha & Harsha, 2014). In other words, it indicates that the complexity of a system can be one of the barriers that thwarted the consumer's intention towards innovation (Wong et al., 2012). Researchers have found that people are more inclined to adopt and utilize MBS provided they believe the system can be learned easily (Vidisha & Harsha, 2014). Other studies also claimed that the PEOU will affect the usage and acceptance of MBS positively if the consumers found that the system can be used and learned easily (Wong, Lee, Lim, Chua, & Garry, 2012; Alkhaldi & Kharma, 2019; Chua, Lim & Aye, 2018; Hosseini, Fatemifar & Rahimzadeh, 2015). However, consumers may face some difficulties in the use of MBS due to complexity, inconvenience and the system itself is not user-friendly (Vidisha & Harsha, 2014). For instance, Mun, Khalid, & Nadarajah (2017) found that some technical limitations of mobile devices including difficulty on entering the information due to a smaller screen display when performing banking transactions may thwart the consumers' intention. In this case, a simple MBS should be designed for consumers to learn and use so that the problems in using technology can be minimized.

Conversely, Shawn (2014) has claimed that PEOU has no significant effect on consumers' intention as both paying with mobile devices and paying with a physical card have similarities. For example, the respondents did not face any difficulties in mobile banking services as they perceived the use of mobile banking service is easy as using the credit card. Besides, the studies

of Bidar, Fard, Salman, Tunga, and Cheng (2014) have found that perceived ease of use is insignificant since the computer-based system has been widely used and people these days have sufficient knowledge about the new technology and thus result in less concern on the complexity.

2.2.2 Perceived usefulness (PU)

The level of enhancement of job performance is perceived by human through adoption of particular system (Davis, 1989). PU has been studied as one of the important factors of the people accepting and adopting new technologies (Karma, Ibrahim, & Ali, 2014; Grace, 2014). Previous research has established that there was important relationship between PU and consumers' intention towards mobile banking (Kabir, 2013; Grace, 2014; Elhajjar & Ouaida, 2019; Ruangkanjanases & Wongprasopchai, 2017; Sripalawat & Ngarmyarn, 2011; Koenig-Lewis, 2010; Bidar, 2018; AlSoufi & Ali, 2014; Hanudin, Baba, & Muhammad, 2007; Kumar, Dhingra, Batra, & Purohit, 2020; Davoud, Ali, & Leila, 2015; Toroitich, Jelaga, & Omwono, 2016; Hosseini, Fatemifar, & Rahimzadeh, 2015; Alalwan, Dwivedi, Rana, & Williams, 2015). According to Cheah, Teo, Sim, Oon, and Tan (2011), PU plays a vital role in the intention of Malaysian consumers for MBS adoption. Consumers possess a positive attitude and are willing to adopt MBS when it is useful and benefits daily life, which is useful in terms of time that consumers can perform financial transactions 24 hours (Vidisha and Harsha, 2014). It is also supported by several studies (Lin, 2011; Luarn & Lin, 2005; Singh, Srivastava, & Srivastava, 2010) that highlighted consumers have favourable effect on continued using MBS when perceived MBS brings personal and business life benefits. AlSoufi and Ali (2014) claimed that consumers would use MBS when perceived it is speedier and easier to perform financial transactions than visit physical bank branches. A

large number of published studies (Toroitich et al., 2016; Alalwan et al., 2015; AlSoufi & Ali, 2014; Kumar et al., 2020; Hosseini et al., 2015; Vidisha & Harsha, 2014) revealed positive influences between PU and intention using mobile banking. Elhajjar and Ouaida (2019) claimed that the positive attitude and increase in the use of mobile banking are caused by greater PU. Consumers will be more incorporated into mobile banking when more consumers understand mobile banking is usefulness (Bidar, 2018). The study of Hanudin, Baba, and Muhammad (2007) further supported that the adoption of new technology increased when perceived greater usefulness on mobile banking.

In contrast, several studies have reported PU is not significant to consumers' intention towards mobile banking. According to the factor analysis and regression technique of study of Karma et al. (2014), the Sudan consumers INT towards mobile banking is not influenced by PU. This study claimed that the decision of consumers adotion MBS is depends on PEOU and trustworthy. Another study undertaken by Al-Jabri (2015) indicated that consumers preferring to other alternate platforms due to believe the level of usefulness is same among other platforms or not used mobile banking before or unable to correctly communicate the experience of mobile banking.

2.2.3 Social influence (SI)

SI is considered as an important variable in influencing the intention of customers to use MBS in Malaysia. The other terms for social influence are subjective norms, social norms or normative pressure. SI indicates the level to which others influence the surrounding social environment such as the influence from family, friends, reference groups, and etc (Alalwan, Dwivedi,

& Rana, 2017). In other words, people around the consumers play a role that is important in influencing the intention of customers to use MBS. People around who are using mobile banking are those people that become the most important channel which can help the banks to promote their mobile banking services to their friends and relatives (Le, Ngo, Trinh, & Nguyen, 2020). For example, Anuar Mokhtar, Katan, and Hidayat-ur-Rehman (2017) stated that consumers will get interested in mobile banking services if the consumers' relatives and friends use good word of mouth to promote the use of mobile banking. However, if consumers think that mobile banking benefits them but they do not stand strong on their own belief and feeling, they will be influenced by their family, friends, and neighbours with those negative references. Similar to Al-Somali, Gholami, and Clegg (2009), the perception from family members, friends, and neighbourhood may influence consumers to have a positive or negative perception towards online banking.

Leon (2019) stated that if individuals think that important people in life will agree to use mobile banking services, they are likely to adopt these services. From the past research, several researchers proved that SI have positive significant relationship with consumers' intention to use MBS (Leon, 2019; Jahan, Bala, & Bhuiyan, 2020; Kabeer Kazi & Adeel Mannan, 2013); Malik, 2020; Hassan & Wood, 2020; Lafraxo et al., 2018; Le, Ngo, Trinh, & Nguyen, 2020; Anuar Mokhtar, Katan, & Hidayat-ur-Rehman, 2017). This means that the consumers who intend to use mobile banking are those consumers with friends, relatives or close people who agree to use mobile banking (Leon, 2019). Banks can hire more influential people in society because if a person is able to have a good social interaction with consumers, they can easily influence others to use mobile banking. For example, persuasive opinion, leaders, celebrities, and social networks can inspire others, despite everyone being from different age or generation (Leon, 2019). However, there are also some researchers found that a positive effect of SI does not exist on the consumers' intention towards the use of MBS (Alalwan,

Dwivedi, & Rana, 2017; Octvie Hariyanti, Hidayatullah, & Arman Prasetya, 2020). This means that opinions from others do not easily affect a persons' intention to use mobile banking. In short, social influence acts as an important channel which can affect consumers' intention towards the use of MBS positively and negatively.

2.2.4 Security Concerns (SC)

In this day and age, perceived sense of security has always been the most significant concern for consumers' intention to adopt mobile banking. The adoption of mobile banking is not immune to security concerns (Hanudin, Baba & Muhammad, 2007). Even though mobile banking can be beneficial due to its mobility and convenience, the implementation of the mobile banking has exposed the security risk and this may result in financial losses and leakage in consumers' personal information. (Harris & Goode, 2004, p. 142). Generally, lack of security is an important factor affecting the consumers' intention using mobile banking. Afshan and Sharif (2016) find that the main barrier of mobile banking is the adoption of security and privacy. The users will have security concerns about the mobile banking system while conducting the financial transaction. Most of them will feel insecure because he or she must share their passwords and details with unknown third parties (Bilal & Sankar, 2011).

As indicated by Luarn and Lin(2005) expressed that the security of the versatile financial framework is critical to guarantee security when consumers embrace the portable financial framework for monetary exchange. This is because individuals will be worried that their personal information will be used by unauthorized parties to perform illegal

transactions. Besides, the perception of the users regarding privacy policies and rules followed by the mobile banking system may influence the usage of this service. Consumers may more depend on responsiveness which means providing the required services, proper assistance and catering consumer needs (Aldiabat, Al-Gasaymeh & Rashid, 2019). As mobile banking is an emerging innovation pattern, seen believability has a prescient and logical capacity for consumers' goal to receive portable banking.

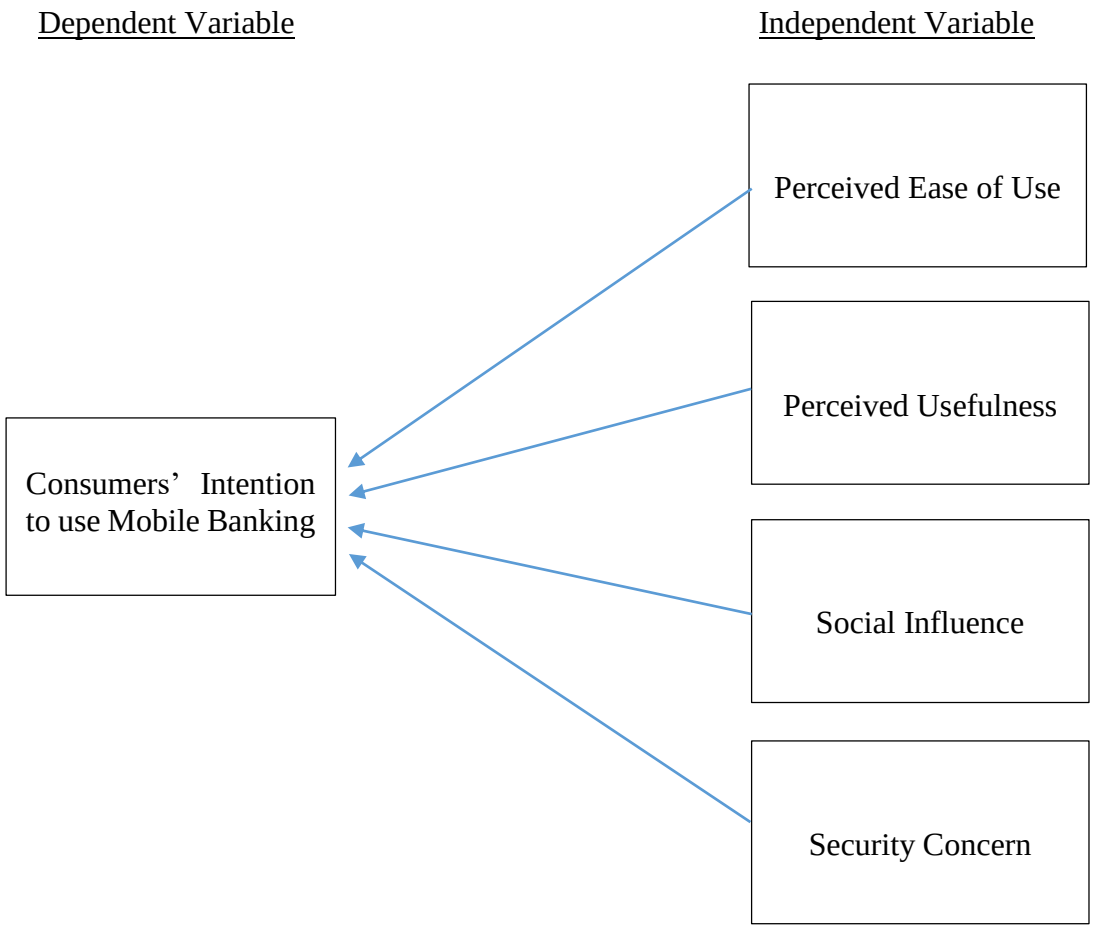
Moreover, studies have shown the security issues are important factors towards using mobile banking transaction-based systems (Floh & Treiblmaier, 2006). Therefore, consumers' intention and confidence in using mobile services depends on how the bank handles erroneous transactions that may raise the security concern occurring during mobile banking (Polasik & Piotr Wisniewski, 2009). However, according to the results of Laukkanen and Lauronen (2005) study, the security of mobile banking does not seem to be a barrier for the users to experienced mobile banking and some recent studies also shown that consumers no longer consider security issues as one of the biggest obstacles to adopting mobile banking.

Table 2.1: Summarized Table of Literature Review

Independent variables	Significant		Insignificant
	Positive	Negative	
Perceived ease of use	Chua, Lim & Aye (2018); Hosseini, Fatemifar & Rahimzadeh (2015); Legris et al. (2003); Pal, Vanijja, & Papasratorn (2015); Mun, Khalid, & Nadarajah (2017); Grace (2014); Alkhaldi & Kharma (2019); Wong, Lee, Lim, Chua, & Garry (2012); Davoud, Ali, & Leila, (2015); Vidisha & Harsha (2014)		Shawn, (2014); Bidar, Fard, Salman, Tunga, & Cheng (2014)
Perceived Usefulness	Kabir (2013); Grace (2014) ; Cheah, Teo, Sim, Oon, & Tan (2011); Elhajjar & Ouaida (2019); Toroitich, Jelaga, & Omwono (2016); Bidar, Fard, Salman, Tunga, & Cheng (2014); Ruangkanjanases & Wongprasopchai (2017); Sripalawat & Ngarmyarn (2011); Koenig-Lewis, Palmer, & Moll (2010); Bidar (2018); Alalwan, Dwivedi, Rana, & Williams (2015); AlSoufi & Ali (2014); Hanudin, Baba, & Muhammad (2007); Kumar et al. (2020); Hosseini, Fatemifar, & Rahimzadeh (2015); Davoud, Ali, & Leila (2015); Vidisha & Harsha (2014)		Karma, Ibrahim, & Ali (2014); Al-Jabri (2015)

Social Influence	Le, Ngo, Trinh, & Nguyen (2020); Anuar Mokhtar, Katan, & Hidayat-ur-Rehman (2017); Jahan & Bhuiyan (2020); Kabeer Kazi & Adeel Mannan (2013); Malik (2020); Hassan & Wood (2020); Lafraxo et al. (2018); Leon (2019)	Malaquias & Silva (2020)	Alalwan, Dwivedi, & Rana (2017); Octvie Hariyanti, Hidayatullah, & Arman Prasetya (2020)
Security Concern	Chen & Barnes, (2007); Chen, (2008); Poon, (2008b); Bakar et al., (2017); Sohail & Shanmugham, (2003); Masrek et al., (2012); Aldiabat et al., (2019); Afshan & Sharif (2016); Ahmad & Al-Zu'bi, (2011); Floh & Treiblmaier, (2006); Gorgani, (2016); Poon et al., (2008); Wu & Chang (2005).		Suoranta, (2003); Laukkanen & Lauronen, (2005)

2.3 Proposed Theoretical Framework



2.4 Hypothesis Development

There are few hypothesis statements that have been proposed to identify the relationship between dependent variables, consumers' intention towards mobile banking and independent variables including perceived ease of use, perceived usefulness, social influence and security concern .

$\boldsymbol{H_1}$: PEOU has a significant effect on Malaysian consumers' intention to use mobile banking.

$\boldsymbol{H_2}$**:** PU has a significant effect on Malaysian consumers' intention to use mobile banking.

$\boldsymbol{H_3}$**:** SI has a significant effect on Malaysian consumers' intention to use mobile banking.

$\boldsymbol{H_4}$**:** SC has a significant effect on Malaysian consumers' intention to use mobile banking.

Table 2.2 Summarized Table of Research Objective, Research Question and Hypothesis

Research Objective	Research Question	Hypothesis
i. To examine the effects of perceived ease of use on Malaysian consumers' intentions towards mobile banking.	1. How does the perceived ease of use affect Malaysian consumers' intentions towards mobile banking?	$\boldsymbol{H_1}$: PEOU has a significant effect on Malaysian consumers' intention to use mobile banking.
ii. To examine the effects of perceived usefulness on Malaysian consumers' intentions towards mobile banking.	2. How does the perceived usefulness affect Malaysian consumers' intentions towards mobile banking?	$\boldsymbol{H_2}$ **:** PU has a significant effect on Malaysian consumers' intention to use mobile banking.
iii. To examine the effects of social influence on Malaysian consumers' intentions towards mobile banking.	3. How does the social influence affect Malaysian consumers' intentions towards mobile banking?	$\boldsymbol{H_3}$ **:** SI has a significant effect on Malaysian consumers' intention to use mobile banking.
iv. To examine the effects of security concern on Malaysian consumers' intentions towards mobile banking.	4. How does the security concern affect Malaysian consumers' intentions towards mobile banking?	$\boldsymbol{H_4}$ **:** SC has a significant effect on Malaysian consumers' intention to use mobile banking.

CHAPTER 3: METHODOLOGY

3.1 Research Design

3.1.1 Quantitative Research Design

Quantitative research design is adopted and it allows evaluation of the variable's relationship (USC Libraries, n.d.). It involves collecting numerical data that is analysed using statistical, mathematical or computational based methods in order to explain a phenomena (Mujlis, 2004). According to Apuke (2017), quantitative research is mainly focused on the numerical, mathematical or statistical analysis for data. The source of data in quantitative research is collected from survey, questionnaire, polls, or processing existing statistics, which the data that gathered and categorized into rank of order or measured in unit measurement (Mcleod, 2019). Cross-sectional data employed to conduct investigation of the relation between PEOU, PU, SI, SC and intention of Malaysian consumers towards mobile banking. Fraser Health Authority (as cited in Apuke, 2017) indicated the level of strength and significance of the relationship between variables able to be analysed by adopting statistical methods. Besides, the instrument to collect and gather the numerical data that is used to perform analysis of this study is survey questionnaire method. The survey questionnaires are distributed through Google Form to the respondents in Malaysia.

3.2 Sampling Design

3.2.1 Target Population

It is individual sets targeted to use in making inferences for data analysis of a study (Lavrakas, 2008). The study also highlighted that the geographic, temporal characteristics, and unit types of the target population should be determined specifically after designing a survey in order to identify the eligible individual to respond to the survey. The targeted population for this research is bank consumers. The bank consumers can be Malaysian mobile banking non-users and existing mobile banking users. Non-users of mobile banking are the retail banking consumers that have never used mobile banking services to perform banking transactions. Since non-users may become the potential MBS users now or in future, thus, they are also part of the target population. According to Khraim, Al Shoubaki, and Khraim (2011) and Siyal, Donghong, Umrani, Siyal, and Bhand (2019), the reason why non-users refrain from using mobile banking could be determined by studying the factors affecting consumers' intention toward mobile banking. The existing users are the users that have been using mobile banking services to perform financial management and transaction regularly. The reason for choosing existing users is that it can discover the ways to retain users to continually use mobile banking, and to identify the loyalty barriers on mobile banking (Siyal et al., 2019). Expectation and experience of existing users in using mobile banking are obtained. Therefore, banks can determine strategies and provide the benefits to consumers in order to draw attention from non-users for adoption and maintain the loyalty of existing users.

3.2.2 Sampling Technique

Sampling techniques could be separated into two types which are probability and non-probability sampling. Besides, the technique that would be chosen for this research is convenience sampling technique that under the non-probability sampling. In addition, the primary aim of convenience sampling is to obtain data information from those people who are readily available to the researcher (Etikan, 2016). Lastly, one of the reasons for us to use convenience sampling techniques is because this sampling is inexpensive and convenient, and also the subjects are easy to access (Etikan, 2016).

3.2.3 Sampling Size

The total population of Malaysia's citizens is around 33.10 million. According to the criteria set of sampling size in Krejcie and Morgan (1970), when the population is more than 100,000, at least 384 questionnaires are needed to conduct a research. Therefore, this study targets to collect 400 questionnaires in order to prevent any problem of the data missing and make the results of the research more precise.

3.3 Data Collection Methods

3.3.1 Primary Data

Primary data also known as original data source, it is data which was gathered by the investigators for a specific purpose under the study (Oluwatosin, 2017). The information can be collected through interviews, observations, questionnaires and experiments. In this research study, we will use the method of questionnaire for the data collection process. A questionnaire contains a series of questions that are specific to the research problem and can be tailored to meet the objective of the study. The questionnaire is more convenient to use and it can be distributed to different populations. Besides, a better alternative which is distribution on online questionnaires would be used in the data collection process during the pandemic of Covid-19. The questionnaire will be created by using Google Form to increase the efficiency in the data collection process.

3.3.2 Questionnaire Design

The survey constructed in this research topic comprises 40 questions. There are two sections for this questionnaire including Section A and B. The demographic information of respondents including gender, age, education level, the awareness and usage of mobile banking services are the questions designed in Section A. Section B consists of 32 questions that are associated

with the dependent variable and independent variables including PEOU, PU, SI and SC by using the 5-point Likert scale.

3.3.3 Likert Scale

Likert scale also known as satisfaction scale can be defined as a research instrument that is utilized in the questionnaire. Likert scale is one of the easy and reliable ways to capture the respondent's opinions, behaviours and attitudes as well as provide a holistic view (Liedke, 2020). Besides, the Likert scale has its superiority which allows the degrees of opinion instead of just expecting a simple yes or no response (McLeod, 2019). Therefore, the survey questionnaire on Section B in this research topic is using a 5 point Likert scale that represents a different level of agreement from the respondents. For example, the 5 point Likert scale refers starting from 1 as Strongly Disagree to 5 as Strong Agree.

3.3.4 Pilot Test

A good research study with appropriate research methodology and directed towards a specific purpose is needed in order to obtain high-quality results (In, 2017). Hence, as a first step of the whole research project, pilot study usually will be useful in planning and amending the major study for a smaller-sized study. To be specific, the pilot or small-scale study usually will be conducted before the main trial to assess the research's validity in clinical studies (In, 2017). According to Van Teijlingen, Rennie, Hundley

and Graham (2001), one of the benefits to conducting a pilot study is to be a prior warning regarding the probability of failure of a research project to the researcher. For instance, which areas of the research project are not followed, the suggested method or techniques are ineffective or too complex and so on (Van Teijlingen, Rennie, Hundley & Graham, 2001).

In our research, we had collected 30 respondents by using convenience sampling techniques for our pilot study. Besides, the data of pilot study is analysed by using SmartPLS. After running up the data of pilot study, the Composite Reliability of the security concern (CR=0.151) is below the criteria of the Composite Reliability (CR=0.7). Therefore, we had dropped two questions of security concern from our questionnaire. While due to one of the questions in social influence had highly related to the security concern, therefore, we also have taken out the question from our study. Last but not least, the HTMT of PEOU is 0.963. It is higher than the requirement of 0.9. Hence, we had also dropped three questions of perceived ease of use from our questionnaire due to the highly relationship between consumer intention (dependent variables) between the perceived ease of use.

In short, we have amended all the problems that have been found in the pilot study result and finalized questionnaire for our real study.

3.4 Proposed Data Analysis Tool

The statistical methods to be conducted in analysing data are namely, descriptive statistics and inferential statistical analysis. Descriptive statistics are used in this research to find the mean values that will help to clarify the scale categories and help to analyse each statement. While inferential statistical analysis is used in this

research as a way to verify the research hypothesis. Besides that, there are several tests will be conducted in this research to examine the relationship between the dependent variable (consumers' intention to use mobile banking) and the independent variables (PEOU, PU, SI, and SC). The statistical analysis used in this research is PLS by using smart-PLS software that helps to achieve the objectives.

3.4.1 Descriptive Analysis

This investigation enables in analysing the collected data from the questionnaire conducted. Besides that, descriptive analysis provides simple summaries to describe the large amounts of data with charts and tables which can transform the collected data into a form that can be easily explained. Descriptive analysis will explain the characteristics of the respondents, and analyse the feedback collected from the respondents. The characteristics of the respondents will be explained by the frequency and percentage analysis. Meanwhile the feedback collected from the respondents will be analysed through central tendency methods.

3.4.2 Partial Least Square (PLS) Analysis

PLS analysis is a method of structural equation modelling (SEM) which allows predicting the complex causality of multiple variables in the model. The benefit of Partial Least Squares (PLS) is that it is designed to deal with data problems, especially small data sets, missing values and multicollinearity. Partial Least Square (PLS) consists of two steps for

analysis which included measuring and structuring the model. Measurement model gives the results for the validity and reliability tests. Besides, it was conducted to define the relationship between the observed data and not observed data which are known as latent variables. There are two stages in validity tests which are convergent and discriminant validity. In the first stage, the variables meet the requirement of convergent validity if the loading factor is greater than the standard value 0.7. The second stage is discriminant validity. The variables meet the requirement of discriminant validity when each variable has higher value compared to its correlated variables. After conducting the validity test, the following test will be the reliability test. The reliability test can be examined through two methods which are the CR value and the CA value. Meanwhile the result for the coefficient of determination (R^2) is given by the structural model. R^2 is used to quantify the degree of change from independent variable to dependent variable and also measure the model explanatory power. The high value of R^2 can have a better prediction of the consumers' intention, behaviour, and perceptions.

3.4.2.1 Outer Loading Analysis

This examination indicates as a reliability of every individual item. Outer loading analysis indicates the relationship between each measured index variable and its specific structure. According to Hulland (1999), the rules of thumb mentioned that items with loadings equal or higher than 0.7 is considered as the acceptable value. According to Yong and Pearce (2013), outer loading of a variable is a measure of the contribution of the variable towards the factor, therefore, high score in factor loading indicates that the variable can better illustrate the dimension of the factor. However, the item should be taken out if the loadings are lower than 0.4 or 0.5.

This is because items with low loadings may lead to low reliability and poor content validity (Hulland, 1999). In short, if the item is lower than the acceptable value, it is considered insignificant which means it does not have empirical support to keep the items. Therefore, the items should be removed.

3.4.2.2 Reliability Test

Reliability refers to a result that is consistent and free from random errors. (Khalid, Abdullah, & Kumar M, 2012). The reliability test also can test the questionnaires under the same conditions to generate the same results (Field & Hole, 2002). In simple words, the objective of the reliability analysis is to optimize the validity of the study by examining it (Thorndike et al., 1991). In PLS, the reliability test is based on Cronbach's alpha value and the composite reliability value (Pertiwi, Suprapto, & Pratama, 2020).

According to Rosaroso (2015), reliability is an important feature of inspection standardization in research. This is because opportunities for bias will be greatly reduced and increase the transparency involved in the research (Shekhar Singh, 2014). It is invalid when the variable is unreliable, but does not mean to be completely unreliable. Hence, reliability tests can be considered as independent on the instrument validity and effectiveness (Tavakol & Dennick, 2011). The findings will have high reliability when similar results are generated in consistent conditions.

3.4.2.2.1 Cronbach's alpha (CA)

CA was proposed by Lee Cronbach to test the consistency of the study internally since1951. CA is a way to measure the strength of consistency. Internal consistency depicts the extent to which each item in the test measures similar ideas or developments, and therefore it is related to the correlation between the variables in the test.

Generally, the range of CA is determined by a number between 0 and 1 (Tavakol & Dennick, 2011). CA allows the rator to estimate reliability and understand all the components between score variance and covariance (Crocker & Algina, 1986). Additionally, when all the scale items are independent or unrelated, alpha is equal to zero. The alpha value goes up when the variables in a test are correlated to each other. It may be affected by consistency questions, poor inter-project correlation or heterogeneousness.

Cronbach's Alpha is necessary to conduct when using the Likert scale because it will increase the research variables's reliability. The measurement scale will be more reliable if there is a bigger value of alpha coefficient (Clow & James, 2013). The length of the test may be affected by alpha and therefore the greater value of the coefficient alpha does not necessarily generate the internal consistency with a higher degree. Therefore, when the test length is significantly shortened, the alpha value will be significantly reduced (Tavakol & Dennick, 2011).

Table 3.1: Scale of Cronbach's Alpha

CA alpha value	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Source: (Sharma, 2016)

Sharma's CA scale is shown in the table above (2016). The intention of the test is to determine the instrument's dependability. If the tested CA value is equal to or less than 0.5 and between 0.5 and 0.6, it needs to be proposed as it is considered unacceptable and poor. When the CA value is about 0.7 and 0.8, it is acceptable. An alpha value of between 0.8 and 0.9 is considered acceptable while greater than 0.9 is considered excellent. Based on rules of thumb, the acceptable standard of reliability coefficient is 0.8 or higher.

3.4.2.2.2 Composite reliability (CR)

Composite reliability is a way of assessing the interrelationship between variables by measuring internal accuracy of scale particles (Ab Hamid et al., 2017). The total sum of true score variance measurement compared to the

overall score variance can be considered equal (Brunner & SÜβ, 2005). Previous studies have taken reliability as an important analysis index. Since the researchers focused on the overall reliability or synthetic reliability. Even though the indicators have different burdens, the composite reliability is very similar to the CA, between 0 and 1 (Netemeyer, Bearden, & Sharma, 2003). However, the composite reliability enables the findings to be less biased as it takes into account the measurements of each variable correlation error and standardized regression weights.

Based on the studies of Nunnally and Bernstein (1994), the CR value less than 0.6 is considered as a lack of reliability. The CR values considered appropriate in exploratory studies is in between 0.60 to 0.70, while it might be 0.70 or above for more advanced stage (Ab Hamid et al., 2017) Regardless of which particular reliability coefficient is used, the reliability value for internal consistency must achieve satisfactory standard between 0.7 and 0.9. In order words, **composite reliability** is considered reliable between latent variables and indicators if CR above 0.7 (Bargozzi & Yi, 1988). It is more ideal when the CR values are above 0.90.

3.4.2.2.3 Average Variance Extracted (AVE)

Fornell and Lacker have been the proposers of AVE since 1981. It is a stringent method to assess the method of convergence validity. Convergent validity is used to measure

the correlation level of multiple variables (Ab Hamid et al., 2017). The mean-variance of constructing the variable component to be explained is the AVE. Besides, it also represents the squared intercorrelation between variables in the context framework and the variance between one variable and another variable (Hilkenmeier et al., 2020). The AVE square root level has to exceed the correlation involving constructs to determine discriminant validity.

Furthermore, compared to composite reliability, AVE is more conservative than composite reliability by figuring the component scores of the potential variables and the reliability of the results. This is because the scholar may conclude that there is sufficient convergent validity of the structure when studying composite reliability itself, even though errors may result in a variance of more than 50% or 0.5.

The value ranges of AVE are from 0 to 1, which defines the total variance ratio due to the underlying variable. The result was good if the AVE value is more than 0.7 (Hair et al., 2010). Besides, there is sufficient convergent validity (considered reliable and acceptable) if AVE value is greater than 0.50 or 50% more of the variance from the indicators (Fornell & Larcker, 1981). In previous studies, when AVE values are displayed at or above 0.5, latent variables can be defined as the majority of the mean-variance of indicators (Gotz, Liehr-Gobbers, & Krafft, 2010).

3.4.2.3 Discriminant Validity

In 1959, Campbell and Fiske had proposed the Discriminant Validity concept during their evaluation of test validity. It is used for ensuring that instruments are not significantly associated with other variables that could have the same reason (Tseng et al., 2017). It is necessary to be included in the research study in order to avoid multicollinearity issues. When the correlation coefficient of two latent variables exceeds 0.9, they have a significant overlap structure. In other words, multicollinearity exists among the variables (Hiar et al. 2010).

Discriminant validity is to distinguish or compare two groups with known differences and served as a method to test which compares the correlation between two instruments and after that using the concept of AVE to assess discriminant validity's degree of accuracy (Meirte et al., 2017; Ghadi et al., 2012). There is a condition which is that the AVE square root level must be higher than the correlation construct to test discriminant validity (Fomell & Larcker,1981).

In the PLS model, discriminant validity becomes a necessary requirement to prove the strong relationship between reflective structure has a with its indicators (Hair et al., 2017). Moreover, the cross-loading of indicators can assess the discriminant validity. For example using **Fornell Larcker criterion** and **Heterotrait-Monotrait Ratio (HTMT)** ratio of correlation (Ab Hamid, Sami, & Mohmad Sidek, 2017). To further substantiate, both indicators can be used for testing and analysing the discriminant validity problems in the instruments based structural equation model will be further discussed.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

SmartPLS 3.0 is used to explain and discuss the results obtained from the questionnaire. The descriptive and inferential analysis will be carried out to study the factors that affects consumers' intention towards MBS in Malaysia. The analysis of the results collected from the SmartPLS 3.0 will be obtained in the inferential data analysis. Other than that, there are also summary and discussion being conducted to study the relationship between the consumers' intention towards MBS in Malaysia, PEOU, PU, SI, and SC. Finally, reasons will also be explained according to the results obtained.

4.1 Descriptive Analysis

This analysis characterises the interviewee's specifications and overall response. It can clearly demonstrate, interpret, and summarize the data collected. In this questionnaire, there are several questions being set up regarding the demographic data of the respondents and also few questions that related to mobile banking.

4.1.1 Demographic information of respondents

4.1.1.1 Gender

Table 4.1: *Gender*

Gender	Number	Percentage
Male	139	35.7%
Female	250	64.3%

Figure 4.1: Gender

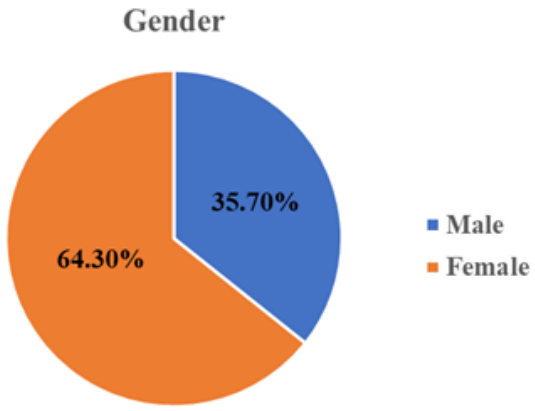


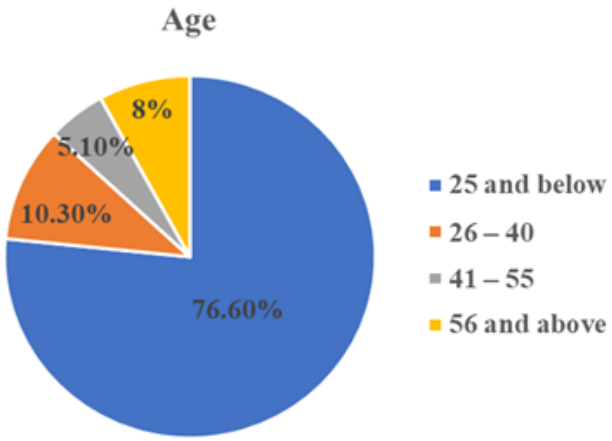
Table and Figure 4.1 indicate the survey results on the gender ratio of respondents. The target respondents in this research are all Malaysian. The overall respondent in this research are 389 respondents. There are 250 female respondents who participated in this research which took up 64.3% of the overall respondent. While the remaining 35.7% are the number of male respondents which consists of 139 respondents.

4.1.1.2 Age

Table 4.2: *Age*

Age	Number	Percentage
25 and below	298	76.6%
26 - 40	40	10.3%
41 - 55	20	5.1%
56 and above	31	8%

Figure 4.2: Age



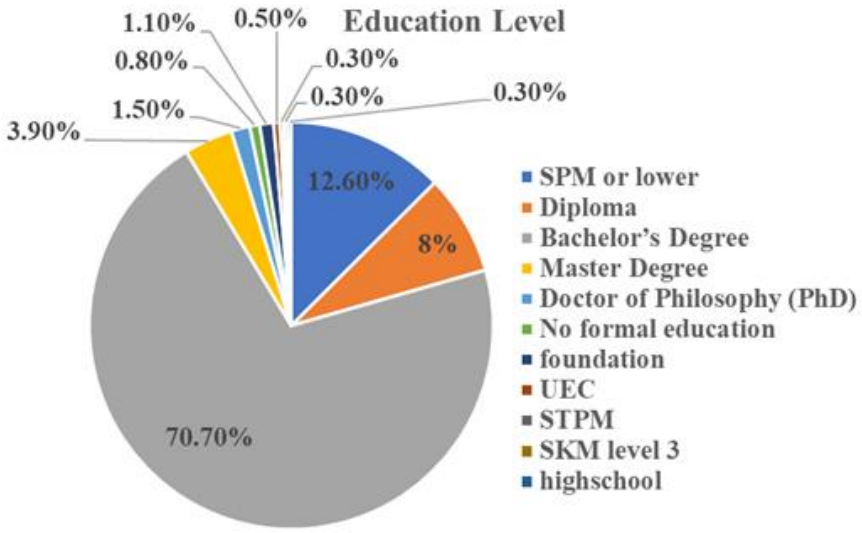
The ratio for the respondents' age is presented in Table 4.2 and Figure 4.2. The survey divided the age into four age groups. The respondents are mostly from the age group of 25 and below which consists of 76.6% for 298 number of respondents. Followed by 26 to 40 age group which comprise of 10.3% for 40 number of respondents, and the age group of 56 and above with 31 number of respondents at 8% which less than the age group of 56 and above by 9 respondents. Lastly, 20 respondents from 41 to 55 age group with the lowest percentage of 5.1%.

4.1.1.3 Education Level

Table 4.3: *Education Level*

Education Level	Number	Percentage
SPM or lower	49	12.6%
Diploma	31	8%
Bachelor's Degree	275	70.7%
Master Degree	15	3.9%
Doctor of Philosophy (PhD)	6	1.5%
No formal education	3	0.8%
Others	10	2.5%

Figure 4.3: Education Level



Based on Table 4.3 and Figure 4.3, it shows the results for the ratio of education level of respondents. The education level in this research has separated into six levels which are SPM or lower, diploma, bachelor's degree, master degree, doctor of philosophy (PhD), and no formal education. Meanwhile, there is an "other" option for the respondents who have other education levels such as foundation, UEC, STPM, SKM level 3, and High School. The highest percentage is 70.7% which consists of 275 respondents who

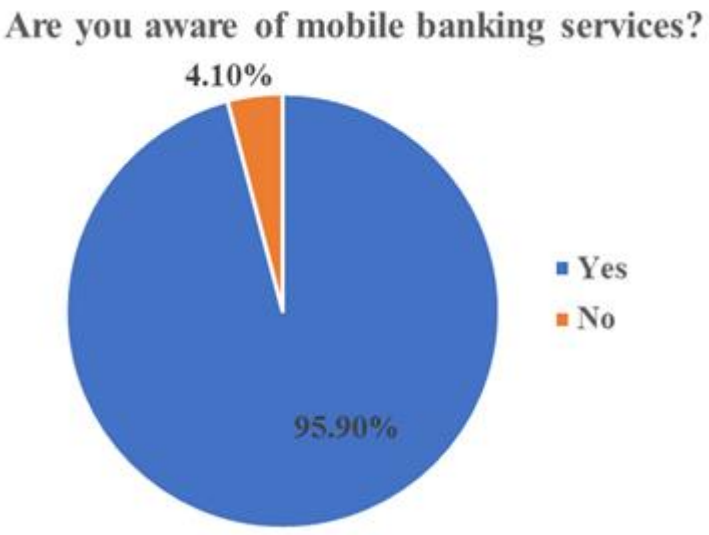
have completed the bachelor's degree. The second highest percentage is the respondents who completed SPM or lower education which comprised 49 respondents at 12.6%. While the number of respondents who completed diplomas is 31 which took up 8% of the overall education level. Followed by a master degree of 15 respondents, doctor of philosophy (PhD) of 6 respondents, and 3 respondents from no formal education which occupied 3.9%, 1.5%, and 0.8% respectively. Last but not least, the total respondents with other education levels consists of 10 number of respondents at 2.5%.

4.1.1.4 Awareness of MBS

Table 4.4: *Awareness of MBS*

Awareness of mobile banking services	Number	Percentage
Yes	373	95.9%
No	16	4.1%

Figure 4.4: Awareness of MBS



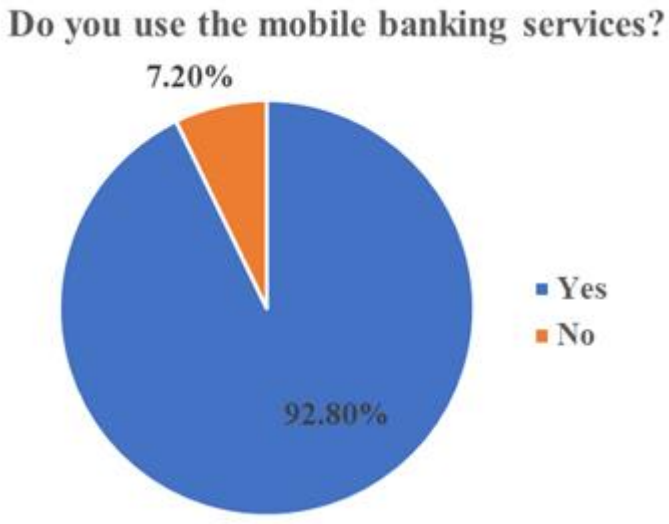
From this question onwards are the questions asked related to mobile banking. The above table 4.4 and figure 4.4 indicates the ratio of respondents' awareness towards mobile banking services. There are only two options given, either yes or no. There are 373 respondents who choose yes option has taken up 95.9% of respondents who are aware of the MBS. Meanwhile, the number of respondents who are not aware of MBS is 16 respondents which occupied 4.1%.

4.1.1.5 Use of MBS

Table 4.5:*Use of MBS*

Use of mobile banking services	Number	Percentage
Yes	361	92.8%
No	28	7.2%

Figure 4.5: Use of MBS



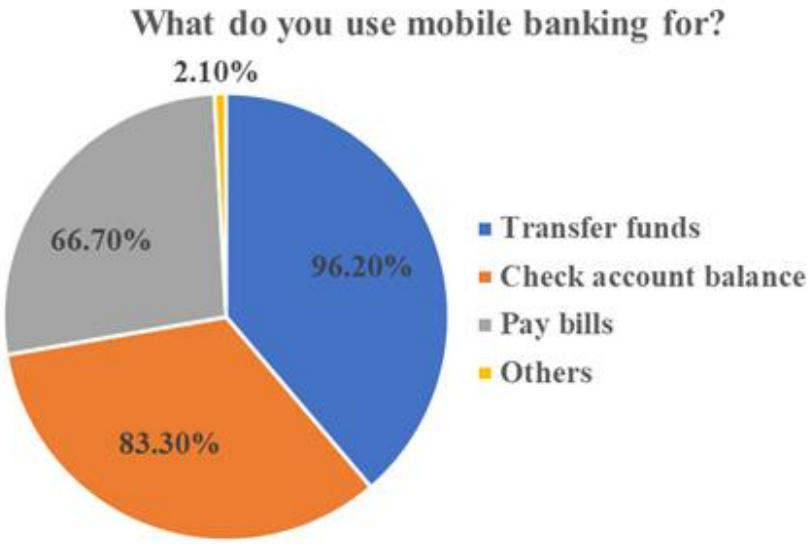
According to above results indicate the number of respondents who use and who did not use MBS. From the results obtained, there are 361 respondents who use mobile banking services which has taken up 92.8% of the total respondent. While there are only a small portion of 28 respondents (7.2%) who do not use mobile banking services because some of them are not aware of MBS or some of them might be aware but they do not use it.

4.1.1.6 Usage of MBS

Table 4.6: *Usage of MBS*

Usage of mobile banking	Number	Percentage
Transfer funds	352	96.2%
Check account balance	305	83.3%
Pay bills	244	66.7%
Others	7	2.1%

Figure 4.6: Usage of MBS



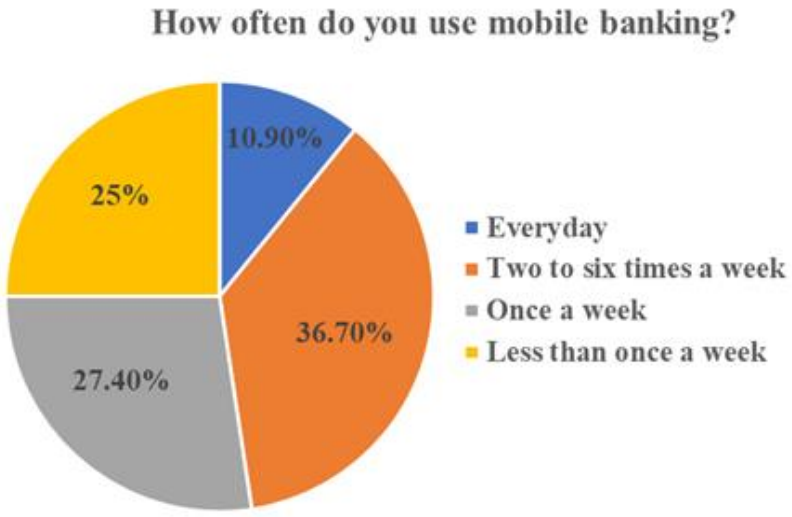
Above result illustrate the number of respondents in every distinct usage of mobile banking. The question set up with three main types of mobile banking usage such as transfer funds, check account balance, and pay bills. Meanwhile, there is also another option for the respondent to list out other usage that they used in mobile banking services. The other usages of mobile banking that are listed out by the respondents are investment, check fixed deposit, savings, and online shopping. Respondents are permitted to select multiple options in this question. Respondents mostly use mobile banking for transfer funds which consists of 352 respondents at 96.2%. There are also 305 respondents who check their account balance using mobile banking (83.3%). Besides that, 244 numbers of the respondents also use mobile banking to pay bills (66.7%). Last but not least, there are also 7 numbers of the respondents who listed out the other usage of mobile banking (2.1%).

4.1.1.7 Frequency of using MBS

Table 4.7: *Frequency of using MBS*

Frequency of using mobile banking services	Number	Percentage
Everyday	40	10.9%
Two to six times a week	135	36.7%
Once a week	101	27.4%
Less than once a week	92	25%

Figure 4.7: Frequency of using MBS



Above results indicate how frequent the respondents use mobile banking services in their daily life. According to the results obtained, most of the respondents spend two to six times a week in using mobile banking services which consists of 36.7% for 135 numbers of the respondents. Moreover, the number of respondents who use mobile banking once a week and less than once a week are not much different with 101 numbers of respondents (27.4%) and 92 numbers of respondents (25%) respectively. Last but not least, there are only

40 numbers of respondents who use mobile banking services everyday (10.9%).

4.1.2 Central Tendency Measurements of Constructs

Table 4.8 Central Tendency (LV Descriptive)

Descriptive Statistics

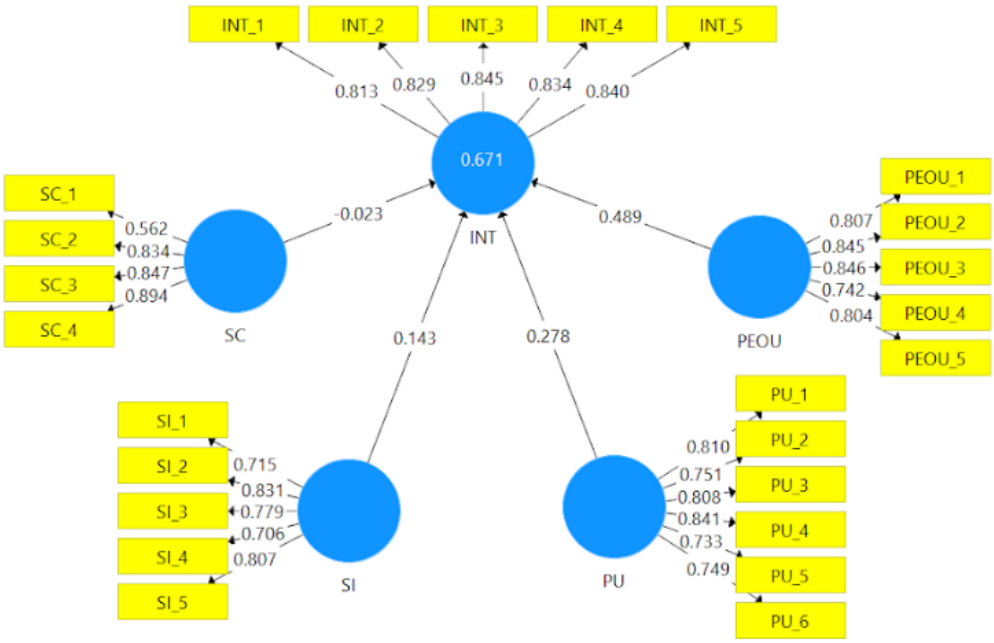
	N	Minimum	Maximum	Mean	Standard Deviation
MEANINT	389	1.60	5.00	4.2555	0.68834
MEANPEOU	389	1.40	5.00	4.3254	0.66480
MEANPU	389	1.17	5.00	4.1939	0.67623
MEANSI	389	1.60	5.00	3.8725	0.75954
MEANSC	389	1.00	5.00	1.9190	0.77547

Firstly, the table showed that the highest mean of this study is PEOU which amounted to 4.3254. Thus, the PEOU has the most positive response from respondents. Apart from this, there is a lower mean of the security concern which amounted to 1.9190. Hence, the security concern has the neutral response from the respondents toward the variable.

The mean of social influence is 3.8725, mean by the response of social influence are better than neutral response, yet still can qualify as viability and trustworthiness response from respondent. Meanwhile, the mean of consumers' intention of using mobile banking and perceived usefulness are 4.2555 and 4.1939 respectively. Therefore, we can conclude that these two variables have a strongly agreed response from the respondent.

4.2 Scale Measurement Figure

Figure 4.8 PLS-SEM measurement model



4.2.1 Outer Loading

Table 4.9 Outer Loading

	INT	PEOU	PU	SC	SI
INT_1	0.813				
INT_2	0.829				
INT_3	0.845				
INT_4	0.834				
INT_5	0.84				
PEOU_1		0.807			
PEOU_2		0.845			

PEOU_3	0.846			
PEOU_4	0.742			
PEOU_5	0.804			
PU_1		0.81		
PU_2		0.751		
PU_3		0.808		
PU_4		0.841		
PU_5		0.733		
PU_6		0.749		
SC_1			0.562	
SC_2			0.834	
SC_3			0.847	
SC_4			0.894	
SI_1				0.715
SI_2				0.831
SI_3				0.779
SI_4				0.706
SI_5				0.807

Source: Developed for the research

In Hulland (1999), outer loading analysis is a measurement to investigate the reliability of every individual item. A thumb's rule of many researchers, when the value of loading item is equal 0.7 or higher than 0.7 could be considered acceptable value. In contrast, when the value of loading item is smaller than 0.4, this loading item should be dropped from the research (Hulland, 1999). In short, a minimum value of 0.4 to 0.7 or more are the acceptable value of outer loading item in this model.

According to result above, the result of consumer intention in outer loading for INT_1, INT_2, INT_3, INT_4, INT_5 is 0.813, 0.845, 0.829, 0.834 and

0.84 respectively. Besides, the value of each outer loading item of PEOU is 0.807, 0.845, 0.846, 0.742 and 0.804 at PEOU_1, PEOU_2, PEOU_3, PEOU_4, and PEOU_5 respectively. Furthermore, the outer loading results of PU are PU_1 (0.81), PU_2 (0.751), PU_3 (0.808), PU_4 (0.841), PU_5 (0.733) and PU_6 (0.749). In short, all the outer loading items of consumer intention, PEOU and PU are higher than 0.7, hence, all of the items are acceptable.

Apart from this, security concern has the lowest outer loading items at SC_1 at the value of 0.562. However, SC_1 had the lowest value of outer loading but it's still considered an acceptable value since SC_1 it is higher than 0.4 (Hulland, 1999). The outer loading items of SC_2, SC_3 and SC_4 are 0.834, 0.847 and 0.894 respectively. Lastly, the result of outer loading items of social intention is 0.715, 0.831, 0.779, 0.706 and 0.807 at SI_1, SI_2, SI_3, SI_4, and SI_5 respectively. Therefore, we can conclude that the social influences are also acceptable in the outer loading model.

4.2.2 Construct Reliability and Validity Test

Table 4.10 Construct Reliability and Validity

	Cronbach's Alpha (CA)	**rho_A**	**Composite Reliability (CR)**	**Average Variance Extracted (AVE)**
INT	0.889	0.89	0.918	0.693
PEOU	0.868	0.872	0.905	0.655
PU	0.874	0.879	0.905	0.613
SC	0.825	0.855	0.87	0.632
SI	0.826	0.831	0.878	0.591

Source: Developed for the research

Cronbach's Alpha (CA) is an important measurement for our research in order to test the internal conformity and trustworthiness of the sample group.

While based on Sharma (2016), when the result is in between 0.8 to 0.9 is considered as a good level of internal conformity and trustworthiness. Thus, from table 4.10, it shows that the highest score of CA comes from consumers' intention of using mobile banking (CA=0.889). This means that among these five variables, consumer intentions are the most trustworthy variable. In contrast, the security concern (CA=0.825) has the lowest score of Cronbach's Alpha, yet it's still between 0.8 to 0.9, therefore, security concern still can be considered at a good level. In short, all variables of this result had a good level of internal conformity and trustworthiness since all of their CA's results are below 0.8 and above 0.9.

Furthermore, consumer intention, PEOU and PU have highest point of the Composite Reliability (CR) which are 0.918, 0.905 and 0.905 respectively. While according to the criteria set under Composite Reliability, it would be more ideal if the result of CR surpasses 0.9. Besides, the Composite Reliability (CR) result of social influence and security concern had achieved the satisfactory standard since their CR result are 0.878 and 0.87 respectively which fall between 0.7 and 0.9.

Last but not least, all the variables on this research had reached the AVE's convergent validity requirements which all variables on this research are more than the acceptable level at 0.5. Hence, we can conclude that all the AVE's results of these five variables are adequate convergent validity under this sample group. While the highest value of AVE's result is 0.693 under the variable of consumers' intention of using mobile banking.

4.2.3 Discriminant Validity Test

Table 4.11 Fornell-Larcker Criterion

	INT	PEOU	PU	SC	SI
INT	**0.832**				
PEOU	0.782	**0.81**			
PU	0.732	0.758	**0.783**		
SC	-0.141	-0.137	-0.119	**0.795**	
SI	0.575	0.556	0.566	-0.129	**0.769**

Source: Developed for the research

According Ab Hamid et al. 2017, Fornell-Larcker Criterion is modus to evaluate the AVE's square root with the correlation of latent constructs. While in order to certify that the discriminant validity is existing in the model, the correlation between the independent variables and dependent variables in this study ought to lower than the AVE's square root in the Fornell-Larcker criterion.

In table above, the value of consumer intention, PEOU, PU, security concern and social influence are 0.832, 0.81, 0.783, 0.795 and 0.769 respectively. All the values of independent variable and dependent variable are higher than other latent constructs. As a result, the discriminant validity in this analysis appears to be satisfactory.

4.2.4 Cross Loading

Table 4.12 Cross Loading

	INT	PEOU	PU	SC	SI
INT_1	**0.813**	0.626	0.566	-0.131	0.442
INT_2	**0.829**	0.673	0.604	-0.135	0.49
INT_3	**0.845**	0.635	0.585	-0.115	0.517
INT_4	**0.834**	0.662	0.654	-0.038	0.472
INT_5	**0.84**	0.656	0.635	-0.171	0.469
PEOU_1	0.631	**0.807**	0.607	-0.122	0.518
PEOU_2	0.693	**0.845**	0.665	-0.139	0.451
PEOU_3	0.649	**0.846**	0.62	-0.083	0.408
PEOU_4	0.552	**0.742**	0.587	-0.093	0.47
PEOU_5	0.632	**0.804**	0.59	-0.115	0.411
PU_1	0.646	0.648	**0.81**	-0.105	0.464
PU_2	0.638	0.645	**0.751**	-0.162	0.407
PU_3	0.551	0.567	**0.808**	-0.065	0.421
PU_4	0.574	0.619	**0.841**	-0.088	0.486
PU_5	0.454	0.473	**0.733**	-0.007	0.457
PU_6	0.538	0.576	**0.749**	-0.103	0.431
SC_1	-0.006	0.001	-0.051	**0.562**	-0.125
SC_2	-0.106	-0.113	-0.113	**0.834**	-0.07
SC_3	-0.117	-0.1	-0.071	**0.847**	-0.128
SC_4	-0.14	-0.141	-0.121	**0.894**	-0.126
SI_1	0.463	0.503	0.494	-0.174	**0.715**
SI_2	0.499	0.448	0.453	-0.044	**0.831**
SI_3	0.407	0.371	0.375	-0.014	**0.779**

SI_4	0.39	0.393	0.414	-0.13	**0.706**
SI_5	0.435	0.409	0.432	-0.137	**0.807**

Source: Developed for the research

According to Hair et al. (2014), cross loading is being measured by ensuring that an indicator should have the highest value with its corresponding constructs than other constructs. For example, the standard requirement for cross loading is where the item (row) should load higher with its corresponding constructs (column) than with other constructs (columns).

Table 4.12 shows the highest cross loading for the consumer intention is INT_3 (0.845), followed by other constructs such as INT_1, INT_2, INT_4, and INT_5 with the value of 0.813, 0.829, 0.834, and 0.84 respectively. For PEOU, the cross loading 0.846 is the highest at PEOU_3, the value for other constructs is 0.807, 0.845, 0.742, and 0.804 at PEOU_1, PEOU_2, PEOU_4, and PEOU_5 respectively. Besides that, the highest cross loading value for perceived usefulness is PU_4(0.841) which compared to the other constructs PU_1(0.810), PU_2(0.751), PU_3(0.808), PU_5(0.733), and PU_6(0.749). Moreover, the cross-loading value of 0.894 at SC_4 was obtained the highest among the security concerns, while the value for other three constructs are SC_1 (0.562), SC_2 (0.834), and SC_3 (0.847). Last but not least, the last independent variables which is the social influence, SI_2 (0.831) has the highest cross loading compared to the other constructs SI_1 (0.715), SI_3 (0.779), SI_4 (0.706), and SI_5 (0.807). In short, according to the results of the cross loading and the standard rule of discriminant validity, it can be concluded that each of latent variables described has a strong representative as the indicator has higher loading value with its corresponding constructs than other constructs.

4.2.5 Heterotrait-Monotrait Ratio (HTMT)

Table 4.13 Heterotrait-Monotrait Ratio (HTMT)

	INT	**PEOU**	**PU**	**SC**	**SI**
INT					
PEOU	0.888				
PU	0.82	0.863			
SC	0.147	0.135	0.132		
SI	0.667	0.656	0.666	0.179	

Source: Developed for the research

Heterotrait-Monotrait Ratio (HTMT) is a test that helps to determine whether the model is well-fitting based on the results obtained. Regarding the standard requirements, the normal requirement for HTMT value should be lower than 0.85. However, some of the past studies stated that the model can be considered as well-fit if the HTMT values are either lower than 0.85 or 0.9 (Cheah, Ali Memon, Chuah, Ting, & Ramayah, 2018). In short, it could be concluded that when the value is greater than 0.85, the discriminant validity is insufficient, but HTMT value is acceptable if the value is lower than 0.90.

Based on Table 4.13 there are two HTMT values that are greater than 0.85. Firstly, is the HTMT value that falls between PEOU and consumer intention which is 0.888. While the second HTMT value that is greater than 0.85 is 0.863 which falls between the PU and PEOU. Meanwhile, for all the other constructs the HTMT value is less than 0.85. In short, from the results obtained on Table 4.13 shows that discriminant validity is among all of the constructs.

4.3 Inferential Analysis

4.3.1 Direct effect analysis

Table 4.14 Path Coefficients

	Original Sample (O)	**P-values**
PEOU ~~> Consumer Intention	0.489	0.000
PU ~~> Consumer Intention	0.278	0.000
SC ~~> Consumer Intention	-0.023	0.509
SI ~~> Consumer Intention	0.143	0.001

Source: Developed for the research

Table 4.15 Hypothesis Testing result for Direct Effect

Hypothesis	**Path Coefficients**	**P Values**	**Supported**
H_1: PEOU has significant effect on Malaysia consumers' intention to use mobile banking	0.489	0.000	yes
H_2: PU has significant effect on Malaysia consumers' intention to use mobile banking	0.278	0.000	yes
H_3: SI has significant effect on Malaysia consumers' intention to use mobile banking	0.143	0.001	yes
H_4: SC has significant effect on Malaysia consumers' intention to use mobile banking	-0.023	0.509	no

Source: Developed for the research

(*Note*: significant level = 5%)

The direct relationship between the independent variables (PEOU, PU, SI, and SC) and consumers' intention towards MBS in Malaysia is being investigated using the analysis of path coefficient. The results will be analysed according to Table 4.15 with significant level of 5% (α=0.05). First of all, the relationship between PEOU and the consumer intention of using MBS is significant because its p-value (C=0.489, P=0.000) is smaller than 0.05. Furthermore, the p-value for PU (C=0.278, P=0.000) is less than the 5% significant level. Hence, the H_2 is supported. Besides, SI also has significant effect on Malaysia consumers' intention to use MBS since its p-value (C=0.143, P=0.001) is lower than the 5% significant level. Last but not least, the table indicates that the relationship between the SC and consumer intention of using MBS is not significant due to its p-value (C=-0.023, P=0.509) is larger than significant level at 5%. Therefore, H_4 is not supported. In short, it can be concluded that the independent variables of PEOU, PU, SI, and SC have a relationship with the consumers' intention of using MBS, while the security concern have not relationship with the consumers' intention of using MBS.

4.4 Conclusion

The result from the 389 questionnaire respondents has been discussed and presented in this section. The main indicators of data analysis are descriptive and inferential analysis, reliability and validity test, discriminant validity. The following chapter will talk about the results of finding.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.1 Summary of Measurement Model

Table 5.1: Summaries of the Assessment Conducted on the Research Measurement Model

	Assessment	Criterion	Result	Comment
1	Internal Consistency	CA	The CA value for all constructs fall between range 0.825 to 0.889.	The internal consistency and reliability are being attained for every item.
		CR	All CR values fall between the range 0.870 to 0.918.	The internal consistency and reliability are being attained for every item.
2	Convergent Validity	Outer Loadings	All items are superior from 0.4 to 0.7 above (0.562 to 0.894)	An adequate convergent validity is being demonstrated by the measurement model.

		AVE	All items' AVE have exceeded the cut-off point of 0.5, ranging from 0.591 to 0.693.	A sufficient convergent validity is being demonstrated by the measurement model.
3	Discriminant Validity	Fornell-Larcker Criterion	AVE's square root is greater than correlations between each pair of constructs.	The criterion of Fornell-Lacker is achieved.
		Cross Loading	The loading value of the indicator with its corresponding constructs is higher than other constructs.	The discriminant validity is being set up in the measurement model.
		HTMT	The HTMT value for all constructs is lower than 0.85 or 0.9, ranging from 0.132 to 0.888.	The discriminant validity is among all of the constructs.

Source: Developed for the research

5.2 Discussion on Major Findings

5.2.1 Perceived Ease of Use

According to the findings generated from PLS, it indicates that PEOU has influenced Malaysian consumers' intentions towards mobile banking. In other words, it indicated that the consumers who participate in this survey think that the PEOU can be known as an essential element in building up their intention towards MBS. Besides, PEOU has positively affected the consumers' intention as the path coefficient result is 0.491 which exceeds 0.1. Therefore, the results obtained are reliable and trusty as the findings are in line with the previous researches such as Chua, Lim and Aye (2018), Alkhaldi and Kharma (2019) as well as Mun, Khalid, and Nadarajah (2017). In details, PEOU is an important element in TAM as it reveals how an individual believes that the use of MBS is free from any effort (Davis, 1989). Moreover, researchers have found that people intend to utilize the MBS if they believe it can be used and understand easily (Vidisha & Harsha, 2014). Therefore, consumers will be more satisfied if they can perform the mobile banking transactions that are simple and effortless which in turn affects the consumers' intention towards the mobile banking services.

5.2.2 Perceived Usefulness

The finding shows PU has influenced Malaysian consumers' intentions towards mobile banking. Rejected the null hypothesis for PU since p-value (0.000) is smaller than the significance level (0.05). This outcome was consistent and supported by the past studies of Davoud, Ali, and Leila (2015), Grace (2014), Cheah et al. (2011), Bidar et al. (2014), Alalwan (2015) and Vidisha and Harsha (2014). Likewise, PU and Malaysian consumers' intentions towards mobile banking also positively related, which the path coefficient (0.278) is higher than 0.1. It was proved by Toroitich et al. (2016), AlSoufi and Ali (2014), Kumar et al. (2020) and Bidar (2018). Malaysian consumers have greater willingness in mobile banking adoption if believing MBS is advantageous and offers useful features which enhance daily task performance. Based on Toroitich et al. (2016) and Hosseini et al. (2015), PU crucially influenced the adoption of MBS among other variables. The customers' acceptance towards mobile banking was dependent on the system that provides numerous advantages and it's met the daily needs of customers (Bidar et al., 2014). Since the accessibility of financial services that are great in quality through mobile banking was not constrained by time and place, thus, the possibility of mobile banking services adoption was greater among the customers who believed a channel that is useful and enable transaction operated efficiently in daily life (Alalwan et al., 2015; Vidisha & Harsha, 2014). Therefore, the consumers develop an intention for MBS adoption when they believe MBS is beneficial to their personal and commercial daily tasks fulfilment, which the benefits is in terms of usefulness, effectiveness and efficiency, and no time and place restrictions.

5.2.3 Social Influence

The results of this research indicate that the relationship between the social influence and consumers' intention towards mobile banking services in Malaysia are significant. Based on the collected questionnaire, it shows that the intention of the respondents toward mobile banking services in Malaysia is affected by the social influence. According to the results obtained, this relationship proved to be positive as the path coefficient and p-value (C=0.144, P=0.001) reach the standard of higher than 0.1 and lower than significant level 0.05 respectively. This result is the same from Le, Ngo, Trinh, and Nguyen (2020), Jahan, Bala, and Bhuiyan (2020), and also Leon (2019) proved that social influence is a factor to be considered in affecting the consumers' intention towards MBS. Furthermore, one of the studies emphasized that the surrounding people such as friends and family will influence the potential adopters of the technology (Kabeer Kazi & Adeel Mannan, 2013). For example, when the consumers' friends and family speak out good words about the products or services, this will increase the consumers' intention to use the products or services (Anuar Mokhtar, Katan, & Hidayat-ur-Rehman, 2017). In short, this shows that consumers' intentions towards mobile banking will be affected by referring to the opinions given by people around.

5.2.4 Security Concern

To explore the factors that will influence consumers' intentions toward mobile banking in Malaysia, a conceptual model was developed and evaluated. This result of this research concluded that do not reject the security concern as the significant level (0.05) is less than p-value (0.507).

It highlights that in Malaysia, there is no significant between security concerns and customer intentions toward mobile banking. Security concerns may not affect consumers who participate in this survey toward their intentions to utilize mobile banking services. This outcome was supported by Suoranta (2003), Laukkanen and Lauronen (2005) as well as Priya, Gandhi and Shaikh (2018). According to researchers mentioned above, they study the factors influencing the use of Mobile Banking. They indicated that security concerns are not the main factors that will affect consumers' intention towards mobile banking. Besides, Priya, Gandhi & Shaikh (2018) also found that security concern issues are irrelevant, as most mobile banking consumers are less likely to believe that there are any significant security and privacy issues associated with using mobile banking for banking transactions. However, this result did not agree by few researchers such as Chen, (2008), Poon, (2008b), Bakar et al., (2017) and so on. Nonetheless, these studies were targeted to the consumers from different countries, therefore, some of the findings are not applicable to Malaysia. As a result, there cannot be denied that consumers' behavioural intentions may change over time; Furthermore, our research targeted UTAR undergraduate students who studied in Kampar Campus. Through our research, we found that most of them feel that security concerns are not the main factors affecting their intention to adopt mobile banking services.

5.3 Implication of Study

Most mobile banking services are digital versions of existing banking services. Financial institutions are becoming more innovative in the products and services they offer. A rapid increase in the frequency of mobile banking, as new payment standards have witnessed rapid innovation. However, it is bringing several implications of study towards consumers on using mobile banking services which

related to the banks and companies. Theoretically, this study successfully verifies the TAM theory of mobile banking, which is helpful to the research of information technology acceptance. Practically, perceived ease of use and usefulness are main factors driving the use of mobile banking services in Malaysia. The implication of the research can be served as recommendations to banks and future researchers who implement mobile banking services.

Both perceived ease of use and usefulness act as a mediating variable that must be found to have an impact on the relationships among other independent variables. Most customers do not consider themselves proficient with smartphone technology, therefore, banks are advised to add more comfort zones for users of mobile banking service applications, complete transactions with a small effort and cost as possible and increase more value. For example, some technical limitations of mobile devices when performing banking transactions may thwart the consumer intention towards the mobile banking services (Mun, Khalid, & Nadarajah, 2017). Hence, mobile banking applications are designed to make consumers easily recognize them on their smartphones (Aldiabat, Al-Gasaymeh & K.Rashid, 2019). Also, Wong (2012) indicated that the complexity of the services may be one of the barriers to consumers' intentions to use. In this case, banks should ensure mobile banking applications appear simple, operate easily and compatible with their lifestyle and needs so that the problems in using technology can be minimized (De Leon, 2019).

The financial institutions are one of the parties that would benefit from this research. The reason is they are the main providers of mobile banking services in Malaysia. They can adopt significant factors such as perceived ease of use as well as perceived usefulness in providing the services. Banks should focus on investing in mobile banking services by adding features to give users more choices and gain value from mobile banking services. Therefore, more profitable for banks, because the consumer will find that services easy to use and convenient which no require to visit the physical branch, hence enhancing their intent to adopt the service. As a result, financial institutions may introduce more services and secure mobile cheque

deposits via smartphone cameras. In this study, the results show that customers using mobile banking will certainly have a certain return advantage. The performance and reliability of a mobile banking service can affect an individual's intention to be used. When consumers perceived to be unrealistic and not diverse enough, then mobile services would not be used (Suaranta, 1970).

The next benefited parties are future researchers who have an interest in analyzing factors' effects on consumers' intention towards mobile banking. Since they are willing to discover mobile banking could be benefited from this research. Based on the results, it has been stated that security concerns bring an insignificant impact on the consumers' intention. However, perceived ease of use, usefulness and social influence have demonstrated a significant association. Therefore, here suggested that future researchers may use those variables as a benchmark and include those significant variables to study the adoption of mobile banking. Besides, future researchers can use this research study as the purpose of a reference for future investigation which has been done in Malaysia.

5.4 Limitations of the Study

The survey questionnaire was not distributed equally among genders. The number of female respondents for this study occupied more than half of total respondents, with the percentage of females being 64.3% whereas the percentage of male is 35.7%. The population of male is higher than the population of females in Malaysia (Department of Statistic Malaysia, 2020). Hence, the consumers' intention towards mobile banking of all genders of Malaysian may not be represented precisely by the outcome of this study. Besides that, the age level of respondents was restricted at younger generation, which the respondents aged 25 and below has occupied the highest percentage at 70.7% as compared to others age level such as the respondents

aged 56 and above that recorded at only 8%. It indicated that this study was unable to obtain adequately the opinion and perspective of the old generation about the intention of mobile banking. Thus, lack of comprehensive analysis in order to explain and represent the intentions towards mobile banking of all age level consumers in Malaysia as a whole.

Apart from that, restriction in the choices of data collection methods was the limitations of this study. The data collection methods for collecting primary data was limited at online questionnaires since people were not allowed to conduct physical activity due to the Covid-19 outbreak in Malaysia. We are unable to explain in detail and assist the respondents through face-to-face interaction, which is more effective if they faced difficulty when filling up the questionnaire. The respondents may misunderstand this research or interpret certain meanings differently. Therefore, this may lead to less accurate data and less reliable data.

Lastly, this study only focused on four factors affecting consumers' intentions towards mobile banking, that is PEOU, PU, SI and SC. Nevertheless, the intentions of Malaysian consumers towards mobile banking may be influenced by other factors that are not tested in this study. Therefore, this study may consist of insufficient variables to investigate the consumers' intention of using mobile banking in Malaysia.

Although this study consists of several limitations. However, the significance of findings and outcomes were not derogated by the limitation and even provide opportunities for improvement to the future research or act as a reference.

5.5 Recommendation for Future Study

There are some constraints being discovered during the process of research study and thus should be taken into consideration for improvements. Firstly, it would be great if the future researcher can conduct research that is more focused on different age groups. According to the research study, the age level of respondents was restricted at the younger generation, which aged 25 and below has occupied the highest percentage at 70.7% as compared to others age level such as the respondents aged 56 and above that recorded at only 8%. Therefore, the age of the target respondents should widen especially the generation of Y and X. This is because individuals who are from distinct generations may generate a different point of view towards the use of mobile banking related technology due to the historical context as well as the level of education. With this, the financial technology developers may focus more on the demands and expectations of consumers and thus it is able to benefit the consumers by providing a user-friendly banking system.

In addition, the researchers are encouraged to adopt the simple random sampling instead of convenience sampling for the research study. In fact, convenience sampling is considered as a method of collecting data from a readily available source. Its non-random way of collecting the data may produce biased results which reduce the accuracy of the research study. However, with the use of simple random sampling, it can help the researcher to avoid sampling bias when collecting the data as each individual has the chance to be chosen as the sample. Therefore, simple random sampling can be said to provide a fairly representative since it is one of the probability sampling methods that the data is randomly collected and it is able to deliver a high accuracy of representation when extracting a research sample from a large frame of population. Besides, the researchers are urged to conduct a face-to-face interview during the data collection process with the respondents since it can provide accurate screening and keep the respondent focused. With this, it allows the researchers to capture more information including verbal and non-verbal cues which help to avoid inaccuracy and misleading.

Last but not least, the researchers are recommended to further expand the research framework by adding more variables so that it can generate more accurate results and improve the research study. In details, aside from PEOU, PU, SI and SC, there may be some of the other variables that can bring impacts on the consumers' intention in using MBS. For instance, perceived risk and trust, awareness as well as credibility can be included in the research study as it may contribute significantly towards their findings and thus lead to more accurate and reliable data.

5.6 Conclusion

In conclusion, this study emphasizes on exploring the determinants that affect consumers' intention towards MBS in Malaysia including perceived PEOU, PU, SI and SC. According to the findings, all determinants have influenced Malaysian consumers' intentions towards mobile banking except for security concerns. Eventually, this research could be advantageous for future investigators and businesses, especially financial institutions as well as fintech companies in the field of financial technology.

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APPENDICES

APPENDIX A: Certification Letter

UNIVERSITI TUNKU ABDUL RAHMAN
Wholly Owned by UTAR Education Foundation (Company No. 578227-M)

24th August 2020

To Whom It May Concern

Dear Sir/Madam,

Permission to Conduct Survey

This is to confirm that the following students are currently pursuing their *Bachelor Of Business Administration (Hons) Banking And Finance* program at the Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR) Perak Campus.

I would be most grateful if you could assist them by allowing them to conduct their research at your institution. All information collected will be kept confidential and used only for academic purposes.

The students are as follows:

Name of Student	**Student ID**
Chooi Jia Lee	17ABB03664
Loh Su Cheng	17ABB03434
Tan Siao Wei	17ABB03230
Tang Xian Zhen	17ABB03641
Yu Jia Ling	17ABB03707

If you need further verification, please do not hesitate to contact me.

Thank you.

Yours sincerely,

Suki

……

Dr. Kuah Yoke Chin
Head of Department,
Faculty of Business and Finance
Email: kuahyc@utar.edu.my

……

Dr Nurul Afidah Binti Mohamad Jusob @ Mohamad Yusof
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Website: www.utar.edu.my

APPENDIX B: Questionnaire

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DU012(A)

UNIVERSITY TUNKU ABDUL RAHMAN
FACULTY OF BUSINESS AND FINANCE
BACHELOR OF BUSINESS ADMINISTRATION
(HONS) BANKING AND FINANCE

FINAL YEAR PROJECT

RESEARCH TOPIC:
Factors Affecting the Consumer Intention towards Mobile Banking in Malaysia

We are final year banking and finance students from Universiti Tunku Abdul Rahman (UTAR) and currently conducting a study on factors that affecting consumers' intention towards mobile banking. Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

PERSONAL DATA PROTECTION STATEMENT

Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

Notice:

1. Your personal data provided in this questionnaire may be used for various UTAR academic and educational purposes.

2. UTAR is committed in ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

Consent:

1. By submitting this form, you hereby authorise and consent to us processing (including disclosing) your personal data and any updates of your information, for the purposes and/or for any other purposes related to the purpose.

Questionnaires

Section A

1. Gender:
   - Male
   - Female

2. Age (as at 31 Dec 2020)
   - 25 and below
   - 26-40
   - 41-55
   - 56 and above

3. Education Level
   - SPM or lower
   - Diploma
   - Bachelor's degree
   - Master's degree
   - Doctor of Philosophy (PHD)
   - No formal education
   - Others:

     _____

4. Are you aware of mobile banking services?
   - Yes
   - No

5. Do you use the mobile banking services? (If yes, please proceed to Question 6-7)
   - Yes
   - No

6. What do you use mobile banking for? (You may choose more than one option)
   - Transfer funds
   - Check account balance
   - Pay bills
   - Others:

     _____

7. How often do you use mobile banking?
   - Everyday
   - Two to six times a week
   - Once a week
   - Less than once a week

Section B

Intention to use mobile banking

items	Description	Strongly Disagree	Disagree	Neutral	Agree	Stongly Agree
INT 1	I expect my use of the mobile banking services to increase in the future.	1	2	3	4	5
INT 2	I will recommend the use of the mobile banking services to friends.	1	2	3	4	5
INT 3	I plan to use the mobile banking services frequently.	1	2	3	4	5
INT 4	I would positively consider mobile banking in my choice set.	1	2	3	4	5
INT 5	I would use mobile banking services for different kinds of banking transactions.	1	2	3	4	5

Perceived Ease of Use

items	Description	Strongly Disagree	Disagree	Neutral	Agree	Stongly Agree
PEOU1	I prefer to use mobile banking to pay my student bills, rental or utilities since it is easy to use.	1	2	3	4	5
PEOU2	I prefer to use mobile banking to make payment since it is more convenient.	1	2	3	4	5
PEOU3	I would say that mobile banking	1	2	3	4	5

	services is easy to use.					
PEOU4	I prefer to use mobile banking to make payment rather than using cash since it is easier to use.	1	2	3	4	5
PEOU5	Learning to use mobile banking service is easy to me.	1	2	3	4	5

Perceived usefulness

items	Description	Strongly Disagree	Disagree	Neutral	Agree	Stongly Agree
PU1	Using mobile banking is advantageous.	1	2	3	4	5
PU2	Using mobile banking would allow me to accomplish banking transactions more quickly.	1	2	3	4	5
PU3	Using mobile banking would make it more effective for me to manage my finances.	1	2	3	4	5
PU4	I think that mobile banking is useful for financial resource management.	1	2	3	4	5
PU5	I would say that mobile banking provides a better control over finances.	1	2	3	4	5

PU6	The use of mobile banking has enables me to access to banking services anywhere and anytime.	1	2	3	4	5

Social influence

items	Description	Strongly Disagree	Disagree	Neutral	Agree	Stongly Agree
SI1	My relatives and friends around me do transactions through mobile banking.	1	2	3	4	5
SI2	People who influence my behaviour think that I should make banking transactions using mobile banking.	1	2	3	4	5
SI3	Recommendation from my family and friends on mobile banking influences me to use it.	1	2	3	4	5
SI4	I think that I can have a professional status by using mobile banking.	1	2	3	4	5
SI5	I think that the opinion given by people who use mobile banking is important to me.	1	2	3	4	5

Security Concern

items	Description	Strongly Disagree	Disagree	Neutral	Agree	Stongly Agree
SC1	I find it risky to share my private and sensitive information with the bank	1	2	3	4	5
SC2	I worry that someone can access my financial information when I use open Wi-Fi to conduct mobile banking.	1	2	3	4	5
SC3	When transferring money through mobile banking, I am afraid that I will lose money due to carelessness and mistakes.	1	2	3	4	5
SC4	I fear that other people may access my account through hacking or other means.	1	2	3	4	5

Google Form link: https://docs.google.com/forms/d/e/1FAIpQLSd6VYDuh5u_p-qFzZrWr6YMGOPfxTwlousvLhfKcmho2nmXtw/closedform