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SECURITY IS NO MORE A CONCERN IN MOBILE BANKING: A STUDY AMONG MALAYSIANS

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ABSTRACT

The objective of this study is to examine the factors affecting consumers' intention towards adoption of mobile banking services in Malaysia. By adopting Technology Acceptance Model (TAM), this study examined the relationship between the consumers' intention to use mobile banking (INT) and four variables i.e., perceived ease of use (PEOU), perceived usefulness (PU), social influence (SI), and security concerns (SC). Data were collected by using online survey questionnaires, and analysed. The findings indicate that the PEOU, PU, and SI have a significant positive effect on the consumers' intention to use mobile banking services in Malaysia. However, there is no sufficient evidence to support security concern to have an effect on the intention to adopt mobile banking services. Practically, this study further highlights the importance of the banking industry players to leverage the "ease of use" and "usefulness" as points in their marketing activities to promote mobile banking services.

Keywords: mobile banking, technology acceptance model (TAM), partial least squares of structural equation modelling (PLS-SEM), Malaysia

INTRODUCTION

The world today has witnessed a significant acceleration of digital transformation across various service delivery, including the banking sector. Traditionally, people were required to visit the bank branch to perform retail banking transactions, and it was generally the

most common method of conducting banking transactions (Davoud, Ali, & Leila, 2015). However, the technological disruptions have led banking industry to a constant state of flux. Although the word disruption may commonly have a negative connotation, in this context, the technology disruptions may be turned into opportunities to increase banking efficiency, provided that they are used strategically.

For instance, the diffusion of information technology and communication networks has made mobile banking an important trend in Malaysia's economy (Low, Goh, Tan, & Rasli, 2017). Generally, mobile banking is the new trend that enables consumers to interact with banks indirectly through mobile devices, tablet or personal digital assistants (Rehman, Omar, Zabri & Lohana, 2019; Shuhidan, Hamidi, & Saleh, 2017). In addition, mobile banking allows remote and contactless transactions for various banking transactions such as check account balances, view latest transactions information, fund transfer and bill payments to be conducted easily and immediately at anytime, anywhere, and while on the move (Laukkanen, 2007). It also allows the consumers to conduct banking activities 24 hours and 7 days a week, rather than being restricted to the office working hours. This helps simplify the use of banking services as banks want to increase their usage intent (Mohd Daud, Mohd Kassim, Wan Mohd Said, & Mohd Noor, 2011). 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. In order to use mobile banking services, mobile devices and internet networks are essential whereby consumers are required to install the mobile banking application in their portable devices. Hence, consumers nowadays can access their bank accounts or transactions without using a computer or laptop (Soram, 2009). Despite its wide range of benefits and advantages, there are some security concerns in the implementation of mobile banking. Without adequate and appropriate security, there are risks of the consumers' personal information to be stolen, hence financial losses and negative feedback.

In Malaysia, with the advance technology developments, most of the financial institutions have offered mobile banking services. Maybank Berhad was the first Malaysian financial institution to introduce the mobile banking services called M2U Mobile Service in 2006 which provided the facilities of bill payments, fund transfer, and balance inquiry (Rehman *et al.*, 2019). Besides, Maybank has also launched a mobile banking application called M2UMap that was available for iPhone users in 2009. Pursuant to that, other banks have also started to offer mobile banking services and applications to make them more attractive and advantageous in the eyes of the customers (Rehman *et al.*, 2019). Mobile banking has been steadily shaping both the financial services landscape as well as the business practices in the past twenty years (Mun, Khalid, & Nadarajah, 2017). Today, mobile banking is considered as one of the digital banking innovations which has gained popularity among consumers. As at March 2021, its market penetration is consistently rising, and now standing at 64.8% of total population. However, it is still

lagging far behind the market penetration of the internet banking i.e., 115.2% (Bank Negara Malaysia, 2021).

Based on statistic above, it is clear to see that the number of mobile banking subscribers has been increasing consistently, but it could be further optimised. According to Low *et al.* (2017), the lack of knowledge among the mobile subscribers may be an important factor since some of the subscribers are still not the active users. Due to this reason, it may be a significant challenge to create a pure online banking in Malaysia. In addition, a recent study by PricewaterhouseCoopers Malaysia (2019) which surveyed a total of 4,534 respondents from Malaysia, Singapore, and Hong Kong indicates that Malaysia has the highest percentage of respondents who are looking forward to a virtual bank which could offer a better mobile and digital experience.

Against this background, it can be observed that there is an untapped market for mobile banking given the rising consumers' interest in it. As suggested by Nair (2017), this new trend does not come from a physical payment's problem, but it is more of a behavioural change. Therefore, in order to achieve greater mobile banking experience in the Malaysian landscape, this study is motivated to examine the factors affecting consumers' intention towards adoption of mobile banking services in Malaysia.

REVIEW OF RELEVANT THEORETICAL MODEL

The Technology Acceptance Model (TAM) theory was first introduced by Davis (1989), which helps to describe the technology acceptance and its effective usage. TAM comprises two different behavioural values namely, the perceived ease of use (PEOU) and perceived usefulness (PU), which help to define the effect of the consumers' behavioural intention towards technology acceptance (Irani, 2000). PEOU refers to the perception of a person that a particular technology could be learned easily, while PU refers to an individual's perception that it would be beneficial and useful for one to use a particular technology or system (Davis, 1989).

PEOU indicates the level of an individual's belief that a particular system is easy to use. The term of "ease" could be defined as free from difficulty or considerable effort (Davis, 1989). Many previous studies supported that PEOU has a significant impact on the acceptance and adoption of IT's users (Lanlan, Ahmi, & Popoola, 2019). PU refers to the extent of a user assuming that using a technology would increase his productivity (Venkatesh, 2000). PU could also be defined as the "capability of being used advantageously" (Davis, 1989). A technology or system that has a high perceived usefulness would attract consumers. It makes them feel that there is a high correlation between usage and efficiency (Davis, 1989). Furthermore, according to Pikkarainen *et al.* (2004), PU indicates subjective probability that the use of a given technology application would improve efficiency. Therefore, the theory suggests that high perceived usefulness would positively influence

consumers to adopt the technology. Lanlan, Ahmi, and Popoola (2019) also highlighted that perceived usefulness is closely linked to the user satisfaction.

LITERATURE REVIEW

Perceived Ease of Use (PEOU) and Consumers' Intention to Use Mobile Banking

PEOU refers to which an individual perceives that a system can be learned easily and effortlessly (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 consumers' intention towards innovation (Wong *et al.*, 2012). Researchers have found that people are more inclined to adopt and utilize mobile banking system provided that 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 mobile banking system positively if the consumers found that the system can be used and learned easily (Alkhaldi & Kharma, 2019; Chua, Lim & Aye, 2018; Hosseini, Fatemifar & Rahimzadeh, 2015; Wong, Lee, Lim, Chua, & Garry, 2012). However, consumers may face some difficulties in the use of mobile banking due to complexity, inconvenience and if 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 in entering the information due to a smaller screen display when performing banking transactions may thwart the consumers' intention. In this case, a simple mobile banking platform should be designed for consumers to learn and use so that the problems in using technology could be minimized.

Conversely, Shaw (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.

H_1: PEOU has a significant effect on Malaysian consumers' intention to use mobile banking.

Perceived usefulness (PU) and Consumers' Intention to Use Mobile Banking

The level of enhancement of job performance is perceived by human through adoption of particular system (Davis, 1989). Perceived usefulness (PU) has been studied as one of the important factors for people to accept and adopt new technologies (Karma, Ibrahim, & Ali, 2014; Grace, 2014). Previous research has established that there is an important relationship

between PU and consumers' intention towards mobile banking (Kumar, Dhingra, Batra, & Purohit, 2020; Elhajjar & Ouaida, 2019; Bidar, 2018; Ruangkanjanases & Wongprasopchai, 2017). According to Cheah, Teo, Sim, Oon, and Tan (2011), PU plays a vital role in the intention of Malaysian consumers for mobile banking services adoption. Consumers tend to possess positive attitudes and are willing to adopt mobile banking services when it is perceived as useful and advantageous (Vidisha and Harsha, 2014). It is also supported by several studies (Lin, 2011; Luarn & Lin, 2005; Singh, Srivastava, & Srivastava, 2010) that highlighted consumers had favourable effect and continued using mobile banking services when it is perceived to bring both personal and business benefits. AlSoufi and Ali (2014) found that consumers would use mobile banking services when they perceived that it is faster and easier to perform financial transactions than visiting physical bank branches. Consumers will be more incorporated into mobile banking when more consumers understand mobile banking is usefulness (Bidar, 2018).

On another note, there are also several studies which reported that 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), consumers' intention to use mobile banking is not influenced by PU, but it is significantly affected by PEOU and trust. In addition, Al-Jabri (2015) implied that when consumers believe that the perceived usefulness of mobile banking is the same across the industry, it does not affect the adoption but more likely to affect the choice of mobile banking platforms that are offered by various providers.

H_2: PU has a significant effect on Malaysian consumers' intention to use mobile banking.

Social influence (SI) and Consumers' Intention to Use Mobile Banking

Social influence (SI) is considered as an important variable in influencing the intention of customers to use mobile banking services in Malaysia. The other terms for social influence are subjective norms, social norms or normative pressure. SI indicates the level to which others could influence the surrounding social environment, such as the influence from family, friends, reference groups, and etc (Alalwan *et al.*, 2017). In other words, people around the consumers play a role that is important in influencing the intention of customers to use mobile banking services. People surrounding the consumers who have had the experience in using mobile banking are those people who become the most important "ambassador" which could help banks to promote their mobile banking services to their friends and relatives via words of mouth (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 speak positively promoting the use of mobile banking. This is especially true for consumers who are still on the fence. On the one hand, they think that mobile banking benefits them, but on the other hand, they have some doubts about it. With some influence from the social environment, it

will affect their intention towards the adoption of mobile banking services; either positively or negatively as highlighted by Al-Somali, Gholami, and Clegg (2009). Therefore, as a marketing strategy, banks could hire influential people in the society to promote mobile banking services, such as leaders, celebrities, and social media influencers. This is because these groups of people are believed to have the ability to strongly influence their followers and fans. However, there are also previous research which found insignificant effect of SI on the consumers' intention towards the use of mobile banking services (Octvie Hariyanti, Hidayatullah, & Arman Prasetya, 2020; Alalwan, *et al.*, 2017). This means that opinions from others do not easily affect a persons' intention to use mobile banking.

H_3: SI has a significant effect on Malaysian consumers' intention to use mobile banking.

Security Concerns (SC) and Consumers' Intention to Use Mobile Banking

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). 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 they have to share their passwords and details with unknown third parties (Bilal & Sankar, 2011).

As indicated by Luarn and Lin (2005), a versatile financial framework is critical to guarantee security when consumers embrace the mobile banking services. 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. Prior studies have shown that the security issues are important factors towards the adoption of 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 which may raise security concerns occurring in mobile banking activities (Polasik & Piotr Wisniewski, 2009). Nevertheless, a contradicting view was presented by Laukkanen and Lauronen (2005), suggesting that consumers no longer consider security as a major concern, and hence not a significant barrier in advancing mobile banking services in the market.

H_4: SC has a significant effect on Malaysian consumers' intention to use mobile banking.

Proposed Research Model

Based on the preceding discussion, the proposed research model is presented in Figure 1.

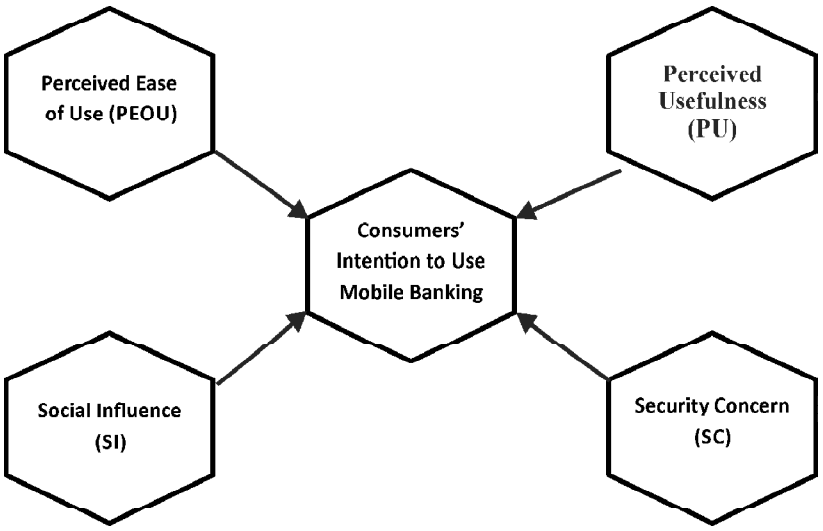

Figure 1: Proposed Research Model

RESEARCH METHODOLOGY

Sample and Procedure

This study is using a quantitative method to test the hypotheses and to confirm the proposed research model. Primary data was collected by using questionnaires. The targeted population for this research is bank consumers. The findings from this study could further explain the expectation and experience of bank consumers with regards to the use of mobile banking services. Subsequently, banks could devise appropriate strategies to not only maintain the loyalty of existing users, but also to draw attention from non-users for adoption.

A non-probability sampling i.e., convenience sampling technique, was adopted in this study. The advantages of this sampling technique are that it is inexpensive and convenient, with easy access to respondents (Etikan, 2016). The survey questionnaires were distributed through Google Forms to the respondents in Malaysia. The advantage of using online questionnaires is that it could reach to a wider range of respondents. Furthermore, since the data collection was conducted during the restricted movement control order period due to Covid-19 pandemic, the online questionnaire distribution is considered as the best option for safety and health reasons. According to Krejcie and Morgan (1970), when the population is more than 100,000, at least 384 questionnaires are needed to conduct the research analysis. This study managed to collect 389 questionnaire responses to be used in the data analysis.

Measures and Instrument

The questionnaire in this study comprises 32 questions in two main sections. The demographic information of respondents which includes gender, age, and education level, as well as the information on the awareness and usage of mobile banking services are set in Section A. Meanwhile, Section B consists of questions on the five measurement items i.e., behavioural intention to consumer mobile banking services (INT), perceived ease of use (PEOU), perceived usefulness (PU), social influence (SI), and security concerns (SC) by using five-point Likert scale.

Likert scale is one of the easy and reliable ways to capture respondents' opinions beyond a simple yes or no response in order to provide a holistic view (Liedke, 2020; McLeod, 2019). The Likert scale used in this study ranged from 1 as Strongly Disagree to 5 as Strongly Agree. The questionnaire was developed based on various previous literature. A pilot study was conducted with 30 respondents to check for the reliability and validity of the measurement constructs in the questionnaire using Smart-PLS 3.0 software. Based on the pilot test results, some questions have been dropped from the questionnaire in order to achieve instrument reliability and validity. The finalised construct measurement summary and its respective sources are presented in Table 1.

Table 1: Sources of Construct Measurement

Constructs	*No. of items*	*Sources*
INT	5	Shawn (2014), Venkatesh *et al.* (2012)
PEOU	5	Shawn (2014), Legris *et al.* (2003)
PU	6	Grace (2014), Kabir (2013), Shawn (2014), Vidisha and Harsha (2014)
SI	5	Hassan and Wood (2020), Malaquias and Silva (2020), Anuar Mokhtar *et al.* (2017), Jahan *et al.* (2020)
SC	4	Bakar *et al.* (2017), Bilal and Sankar (2011), Masrek *et al.* (2012)

DATA ANALYSIS

SmartPLS 3.0 software is used to conduct the partial least square structural equation modelling (PLS-SEM) in estimating the research model (Ringle, Wende, & Becker, 2015). 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 PLS is that it is designed to deal with data problems, especially small data sets, missing values and multicollinearity. It involves two stages, i.e., measurement model analysis (outer model), and structural model analysis (inner model).

The 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. Meanwhile, the structural model provides the model's predictive capabilities and the examines the relationship between the constructs. The analysis of the results further delineates the relationship between the behavioural intention to use mobile banking services in Malaysia with the perceived ease of use, perceived usefulness, social influence, and security concerns.

RESULTS AND FINDINGS

This section presents the results from both the descriptive analysis and the partial least squares (PLS) analysis conducted in this study from a total of 389 respondents.

DESCRIPTIVE ANALYSIS

Descriptive analysis provides a simple summary on the characteristics of the respondents, and their respective feedback from the questionnaire. The respondents in this study comprise Malaysian bank consumers. A demographic profile if the 389 respondents to the survey is presented in Table 2.

Table 2: Demographic Profile of Respondents

Demographic Profile	*Frequency (n)*	*Percentage (%)*
Gender		
Male	139	35.7%
Female	250	64.3%
Age		
25 and below	298	76.6%
26 - 40	40	10.3%
41 - 55	20	5.1%
56 and above	31	8%
Education		
SPM or lower	52	13.4%
Diploma	31	8%
Bachelor's Degree	275	70.7%
Postgraduate Degree	21	5.4%
Others	10	2.5%

This study also examined additional information about the respondents regarding their use of mobile banking services. The data is presented in Table 3.

Table 3: Use of mobile banking services by respondents

Mobile Banking Services Usage Profile	*Frequency (n)*	*Percentage (%)*
Awareness on mobile banking services		
Yes	373	95.0%
No	16	4.1%
Use of mobile banking services		
Yes	361	92.8%
No	28	7.2%
Types of mobile banking services used		
Transfer funds	352	96.2%
Check account balance	305	83.3%
Pay bills	244	66.6%
Others	7	2.1%
Frequency of using mobile banking services		
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	25.0%

The construct measurement is analysed using the central tendency method, as presented in Table 4.

Table 4: Central tendency of the construct measurement

	Min	*Max*	*Mean*	*Std. Dev.*
INT	1.60	5.00	4.26	0.69
PEOU	1.40	5.00	4.33	0.66
PU	1.17	5.00	4.19	0.68
SI	1.60	5.00	3.87	0.76
SC	1.00	5.00	1.92	0.78

Based on Table X, with the exception of security concern (SC), the mean for other variables exceeded 3-point. Therefore, the result suggests that on average, the respondents have high intention to use mobile banking services, perceived favourable ease of use and usefulness, were strongly influenced by the society, and have limited trust in the adequacy of security in the mobile banking services.

Assessment of Measurement Model

This study used a reflective measurement model, whereby assessments will be made to confirm the internal consistent reliability, convergent validity, and discriminant validity. The objective of the reliability analysis is to optimize the validity of the study and to ensure that it is consistent and free from random errors (Khalid, Abdullah, & Kumar, 2012; Thorndike *et al.*, 1991). First, the indicator loadings of the items were examined. It is a measurement to investigate the reliability of every individual item (Hulland, 1999). Values exceeding 0.7 indicate acceptable item reliability because it suggests that the items are able to explain at least 50 per cent of the indicator's variance (Henseler, Ringle, & Sinkovics, 2009). On the other hand, if the loading value of is smaller than 0.4, then the item should be dropped from the questionnaire (Henseler *et al.*, 2009; Hulland, 1999). The finding shows that the loadings for all construct items exceeded the cut-off value of 0.7, except for SI4 and SC1. However, neither value is lower than 0.4 and therefore not dropped from the analysis. The results are presented in Figure 2.

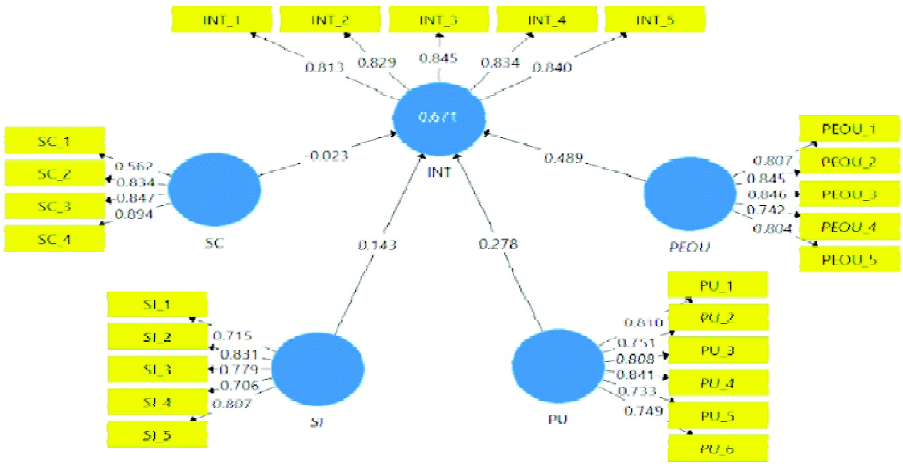

Figure 2: PLS-SEM Measurement Model

Next, the internal consistency reliability test was done based on the Cronbach's alpha (CA) and the composite reliability (CR) values (Pertiwi, Suprapto, & Pratama, 2020). According to Hair, Risher, Sarstedt, and Ringle (2019), the recommended range is between 0.7 to 0.9; while values exceeding 0.95 indicates redundance problem. As presented in Table 5, the results indicate acceptable level of reliability.

The objective convergent validity is to measure the correlation level of multiple variables of the same construct (Ab Hamid, Sami, & Mohmad Sidek, 2017), and to indicate to which extent do the constructs converge in explaining the variance of its items (Hair *et al.*, 2019). The measurement metric used is average variance extracted (AVE) for all items

in each construct. The minimum threshold for the AVE value is 0.5 to indicate sufficient convergent validity of the structure (Hair *et al.*, 2018; Kock, 2011). The results in Table 5 indicate that the AVE for all constructs are higher than 0.5, therefore it suggests that the model has adequate convergent validity.

Table 5: Reliability and Validity Tests

	Cronbach's Alpha (CA)	*Composite Reliability (CR)*	*Average Variance Extracted (AVE)*
INT1	0.889	0.918	0.693
PEOU	0.868	0.905	0.655
PU	0.874	0.905	0.613
SI	0.826	0.878	0.591
SC	0.825	0.870	0.632

In the PLS model, discriminant validity becomes a necessary requirement to examine the relationship between constructs in the structural model with its indicators (Hair *et al.*, 2019). Three metrices were used namely, cross loading, Fornell-Larcker criterion, and Heterotrait-Monotrait (HTMT) ratio of correlation (Hair *et al.* 2019; Ab Hamid *et al.*, 2017). In Fornell-Larcker criterion, the levels of square root of the AVE for each construct should be greater than the correlation involving the constructs. Meanwhile, as a rule of thumb for HTMT, the proposed maximum threshold value is 0.9 (Henseler *et al.*, 2015). The results for Fornell-Larcker criterion and HTMT are presented in Table 6 and Table 7, respectively.

Based on Table 6, the value of INT, PEOU, PU, SI and SC are 0.832, 0.810, 0.783, 0.795 and 0.769 respectively. These values are greater than their respective off-diagonal elements in the corresponding row and column. Based on Table 7, all HTMT values are less than 0.9 i.e., within the recommended range. In short, both the Fornell-Larcker and HTMT results support discriminant validity among constructs in the research model.

Table 6: Fornell-Larcker Criterion

	INT	*PEOU*	*PU*	*SI*	*SC*
INT	0.832				
PEOU	0.782	**0.810**			
PU	0.732	0.758	**0.783**		
SI	0.575	0.556	0.566	**0.769**	
SC	-0.141	-0.137	-0.119	-0.129	**0.795**

Table 7: Heterotrait-Monotrait (HTMT) ratio

	INT	*PEOU*	*PU*	*SI*	*SC*
INT					
PEOU	0.888				
PU	0.820	0.863			
SI	0.667	0.656	0.666		
SC	0.147	0.135	0.132	0.179	

Assessment of Structural Model

By using the Technology Acceptance Model (TAM), this study examines the relationship between PEOU, PU, SI, and SC with INT. The structural model results are presented in Table 8.

Table 8: Structural model results

Hypothesis	*Estimated coefficient*	*p-values*	*Decision*
H1: PEOU → INT	0.489	0.000	Supported
H2: PU → INT	0.278	0.000	Supported
H3: SI → INT	0.143	0.001	Supported
H4: SC → INT	-0.023	0.509	Not Supported

Based on the path coefficient presented in Table 8, it is found that H1, H2, and H3 are positively and statistically significant at 99% confidence level, and thereby supported. H4 is however, not statistically significant and thus not supported. In addition, the R^2 is 0.671, which means that the independent variables (PEOU, PU, SI, SC) are able to explain 67.1% of the variances for the dependent variable (INT).

DISCUSSION

First, the result indicates that perceived ease of use (PEOU) has a significant positive effect on the intention to use mobile banking services. It suggests that an individual would be more inclined to use the mobile banking services if he believes that the process is easy to understand, simple and effortless (Vidisha & Harsha, 2014; Davis, 1989). 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 *et al.*, 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).

Second, the result indicates that perceived usefulness (PU) has a significant positive effect on the intention to use mobile banking services. This is consistent with some past studies by Alalwan (2015), Davoud *et al.* (2015), Grace (2014), Bidar *et al.* (2014), Vidisha and Harsha (2014), and Cheah *et al.* (2011). It suggests that an individual would have higher willingness to use mobile banking services if he believes that it offers useful features to enhance daily task performance, and thus advantageous. In addition, it is also believed that by using mobile banking, the accessibility to financial services is greater because consumers are no longer constrained by time and location (Alalwan *et al.*, 2015; Vidisha & Harsha, 2014). The performance and reliability of a mobile banking service can affect an individual's intention to use the service.

Third, the result indicates that social influence (SI) has a significant positive effect on the intention to use mobile banking services. It is in line with the findings by Le *et al.* (2020), Jahan *et al.* (2020), and Leon (2019). It suggests that the surrounding people such as friends and family have an influence on the potential adopters of the technology (Kabeer Kazi & Adeel Mannan, 2013). For example, when friends and family share good words about any products or services, it will attract others to try them and hence increasing the consumers' intention to use the products or services (Anuar Mokhtar *et al.*, 2017). In short, this shows that consumers' intentions towards mobile banking will be affected by referring to the opinions given by people around them.

Fourth, the result indicates that there is no sufficient evidence to support that security concern has an effect on the intention to use mobile banking services. This is interesting because in the media and the industry itself, security concern is one of the main issues being discussed in the mobile banking services. Intuitively, consumers are less likely to have the intention to use mobile banking services if they lack the trust in the security system. Indeed, the result indicates negative coefficient between the two variables, however it is not statistically significant. This result is consistent with previous studies such as Priya, Gandhi and Shaikh (2018), Laukkanen and Lauronen (2005), and Suoranta (2003) which found that security concern is not a main factor affecting consumers' intention towards mobile banking. In fact, Priya *et al.* (2018) suggests that security concern is irrelevant because most mobile banking consumers are less likely to believe that there is any significant security and privacy issues associated with using mobile banking services. Therefore, it is concluded that despite some concern over the security of using mobile banking services, consumers are still encouraged to use them due to other more dominating factors such as the perceived ease of use, perceived usefulness, and social influence.

CONTRIBUTIONS

Theoretically, this study provides support to the body of literature confirming the factors affecting the intention to use mobile banking services by using the TAM framework. Practically, this study further highlights the importance of the banking industry players to leverage the "ease of use" and "usefulness" as points in their marketing activities to promote mobile banking services. At the same time, they should also focus on investing in enhancing mobile banking services by adding features which give users more choices and values. In addition, since social influence is also an important factor, the banking industry players should also utilise the social media platforms to heighten the presence and awareness of mobile banking services as one of their marketing strategies. Lastly, given the global pandemic faced by the world, it is suggested for future researches to broaden the scope of this research framework to include how the pandemic has affected the use of mobile banking services from the perspective of connectivity.

CONCLUSION

The world today has witnessed a significant acceleration of digital transformation across various service delivery, including the banking sector. According to Bank Negara Malaysia (2021), the mobile banking has gained popularity among consumers with its market penetration in a consistent rise and now standing at 57.5%. In view of the situation, this study examined the factors affecting the intention to use mobile banking services in Malaysia within the theoretical framework of Technology Acceptance Model (TAM). As a conclusion, it is supported that perceived ease of use (PEOU), perceived usefulness (PU), and social influence (SI) are the contributing factors affecting the intention to use mobile banking services. Meanwhile, security concern (SC) is not a significant factor; most likely due to the belief that there is no significant concern over the security issues associated with mobile banking services.

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