Adoption Behavior in Sustaining the Mobile Banking Services

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ABSTRACT

The usage of M-banking adoption has received substantial attention in recent years. *However, there is limited study investigating the m-banking adoption in Malaysia, specifically among the young adults in Sarawak. This study attempts to determine the relationship between attitude towards banking, compatibility, customer-trust, and perceived benefits towards intention to adopt m-banking. Besides, the present study also aims to investigate the moderating impact of trustworthiness on selected exogenous variables and intention to adopt m-banking. A self-administered questionnaire containing 37 closed-ended questions was developed. Data were collected from 500 respondents and analysed using the SmartPLS. The results depicted that compatibility and trustworthiness were found to have a significant relationship with m-banking adoption. Interestingly, trustworthiness was found moderating the relationship among positive attitudes towards banking on m-banking adoption. Both theoretical and managerial implications were presented.*

Keywords: *Influencing factors, Mobile banking adoption, trustworthiness, moderator, Malaysia*

INTRODUCTION

The usage of smart mobile phones worldwide shows a quick surge in the past decade (Akhter, Asheq, Hossain, & Karim, 2020) especially during COVID-19 pandemic (Statista, 2020). In the Malaysian context, it was found that Malaysian consumers are more comfortable with online or digital banking as compared to US and Canadian consumers (Faridi, 2020). In fact, it has already been recognized as one of the top media choices for Malaysians (Shanmugam, Savarimuthu, & Teoh, 2014). Realizing the increasing usage of mobile phones in fulfilling multiple purposes like making payments, online shopping, and socializing (Lim, Bool, & Lim, 2017), the banking industry has come up with their own mobile banking services (Haider, Changchun, Akram, & Hussain, 2018). As recorded, Standard Chartered was the first bank that offered m-banking services in early 2007. Subsequently, Maybank announced themselves as Malaysia's first financial institution that launched the M-Banking Map (M2U) using IPhone (Cheah, Teo, Sim, Oon, & Tan, 2011). Next, Bank Islam has also declared another 'first banking service' in 2010, to enable users to conduct banking transactions at anytime and anywhere without the internet connection.

Evidently, busy lifestyles discourage people to go to banks for any banking services or monetary transactions (Shankar & Rishi, 2020). Mobile banking (M-banking) services provide solutions in improving consumers' experience dealing with banking services. M-banking promotes the idea of convenient access to banking transaction data and speed transaction of funds through an online platform (Shankar & Rishi, 2020). Hence, a successful implementation of the use of m-banking services can improve productivity, service quality, and competitiveness of the banking industry (Purwanegara, Apriningsih, & Andika, 2014; Siyal, Donghong, Umrani, Siyal, & Bhand, 2019). Although technological innovation is aimed to achieve competitive advantage for a banking organization, there are severe concerns raised by the users such as the security of mobile banking transactions, the risks of phishing, hacking of accounts and etc (Kumar, Dhingra, Batra, & Purohit, 2020).

Past researchers have examined m-banking adoption behaviour from a different point of view (Shankar & Kumari, 2016; Duarte, Silva & Ferreira, 2018; Shankar & Jebarajakirthy, 2019; Shankar *et al*., 2020) and

investigated the potential impact of multiple influencing factors on m-banking adoption (Maktouf Khalid, 2018; Rahi, Ghani, & Ngah, 2019; Lin, Wang, & Huang, 2020). However, there is a limited study investigating the m-banking adoption in Malaysia, specifically among the young adults in Sarawak. This study is one of the initial studies examining the impact of positive attitudes towards banking, compatibility, customer trust, and perceived benefits on m-banking adoption among young adults in Sarawak. Interestingly, this study examines the moderating impact of trustworthiness on the proposed independent variables on m-banking adoption behavior.

LITERATURE REVIEW AND UNDERLYING THEORY

Theory of reasoned action (TRA)

Theory of Reasoned Action (TRA) was developed in 1967 and further reaffirmed in 1970. Generally, TRA analyzes the degree of influence a customer's beliefs and attitudes have towards behavior. TRA was derived from a social psychology background and focused on individual behaviors that led to behavioral intentions (Roca, García, & De La Vega, 2009). TRA is understood as a general structure designed to explain almost all human behavior and based on the importance of an individual's beliefs for prediction of behavior (Fishbein & Ajzen, 1975b). Besides, TRA enacted an important theory to explain human behaviors (Puschel, Mazzon, & Hernandez, 2010). The process flow of TRA is presented in Figure 1.
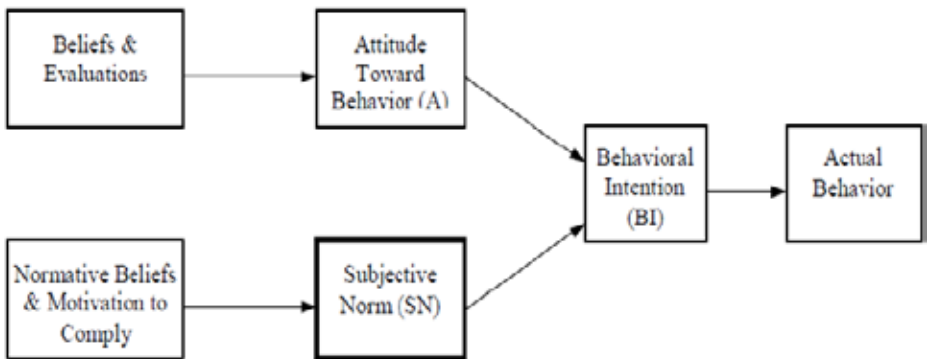

Figure 1: Theory of Reasoned Action (TRA)

Behavioral intention is acknowledged as an individual customer's expression which can shape his or her behavior on adoption intention during the purchase decision process (Liu, 2010). Behavioral intention is also referred to possible actions of individuals in the future, which can be based on forecasting people's behavior (Molinari, Abratt, & Dion, 2008). An individual's positive attitude may generate strong behavioral intention and, eventually it creates higher probability of a corresponding behavior (Mohamed Gamal Aboelmaged & Gebba, 2013). Past studies have adopted TRA as the underpinning theory for study on m-banking adoption (Doswell, Braxter, Cha, & Kim, 2011; Kazemi, Nilipour, Kabiry, & Hoseini, 2013). This study is focused on the intention to adopt m-banking. Thus, TRA is used to postulate that attitude has the capability to stimulate behavioral intention beyond the adoption of information technology. TRA is adopted to underlying the proposed research framework, specifically in looking at the impact of the four proposed independent variables on m-banking adoption behavior among the young adults in Sarawak.

M-banking adoption

Generally, adoption is a kind of decision in taking optimal use of any innovation and new technologies (Amit Shankar & Kumari, 2016; Rehman, Omar, Zabri, & Lohana, 2019). M-banking is an application of m-commerce that enables customers to bank virtually at any convenient time and place (Suoranta, 2003). It is an innovative method for accessing banking services via a channel whereby the customer interacts with a bank via a mobile device, such as a mobile phone or a personal digital assistant (PDA) (Barnes & Corbitt, 2003). M-banking can also be considered as the convergence of m-technology and financial services (Chung & Kwon, 2009).

M-banking is seen to become a popular banking channel among the consumers and the most typical application in m-commerce (Liu *et al.*, 2009; Krishanan, Khin, & Low, 2015; Chaouali, Souiden, & Ladhari, 2017). The study of Suoranta and Mattila (2004) indicated that m-banking is among the most recent financial channels today (Cheah *et al.*, 2011). This is because m-banking allows everyone easy access to their banking activities via mobile handsets (Yu & Fang, 2009). A variety of financial functions have been offered by m-banking, such as micropayments to merchants, balance enquiry, bill-payments, transference, business-to-business (B2B) transfers, business-to-person (B2P) transfers, and long-distance remittances

(Chitungo & Munongo, 2013; Akhter *et al*., 2020). Furthermore, m-banking services enable m-users to conduct ubiquitous payments (Zhou, 2011). It allows the users to use any portable computing device or smartphone to do banking tasks, for example, monitoring, finding ATM locations, and transferring funds (Afshan & Sharif, 2016).

Attitude towards banking

Attitude is acknowledged as an individual behaviour after evaluating the result of actions done by individuals (Fishbein & Ajzen, 1975a). It is a set of beliefs, experiences, and feelings that make up the tendency to act in the given direction (Louis, 2011). In this study, consumer's attitude towards m-banking service is based on customer's expectation, in which communication should be well-informed, transaction processing with limited duration, requires interaction, and easy to use. An individual attitude towards m-banking is related to technological innovation (Akhter *et al*., 2020). In fact, individuals' perceptions of innovation played a significant factor in adopting decisions towards internet-based information systems (Teo & Pok, 2003).

Compatibility

Compatibility is an important aspect of innovation (Ravichandran & Madana, 2016) and it is defined as the extent to which a new service is consistent with users' existing values, beliefs, previous experiences, and habits (Odumeru, 2013). Gera and Chen (2003) defined compatibility as the degree to which an innovation is consistent with existing facilities and practices (Dai & Palvia, 2009). This innovation, which is in compliance with an individual user's lifestyle, will result in a faster rate of adoption (Rogers, 1995). As noted, lifestyle compatibility and needs are referred to as the extent of services that incorporate the value of users, beliefs, habits, and experiences (Chen, Gillenson, & Sherrell, 2004). Therefore, compatibility is considered the most important determinant to predict customer's attitude towards e-banking services and its usage (Wu & Wang, 2005).

Although young people have a busy lifestyle, however, they can still move forward and adopt m-banking (Teo & Pok, 2003). In line with this, the study of Koening-Lewis, Palmer and Moll (2010) found that young people are willing to adopt m-banking because it can fit their lifestyle

(Verrecchia, 2016). This is perhaps why they felt comfortable in adopting the m-banking (Sangle & Awasthi, 2011) and enjoying cashless.

Customer trust

Trust is acknowledged as the consumer's belief and expectation that mobile service providers can provide reliable services to the customers (Chuchi Prakarn, 2005). In the context of m-banking adoption and e-commerce, Jarvenpaa and Tractinsky (1999) redefined trust as e-consumers' willingness to rely on e-retailers and make the customers vulnerable in a virtual environment. Moreover, Cheung and Lee (2000) acknowledged that trust is gained from individuals' expectations and customers' willingness to engage in the transactions. A sense of trust allows individual customers to involve themselves in uncertained activities that are uneasy to monitor (Jarvenpaa & Tractinsky, 1999). Additionally, trust could help to reduce social complexity in a virtual environment (Cho, Kwon, & Lee, 2007). Therefore, a sense of beliefs towards the services provided may encourage an individual to adopt m-banking (Kim, Shin, & Lee, 2009; Purwati, Soewarno, & Isnalita, 2018).

Perceived benefits

Perceived benefits are referred to as advantages that are generated from m-banking services. It was defined as the degree of users wanting to believe that using technology can lead to improve the current performance (Purwanegara *et al*., 2014). Mostly, customers will only search the beneficial products and service products in the buying process (Peter & Lawrence, 1975). Wright (1975) stated that users are mostly concerned about cost-benefits activity during the decision-making process. In the context of m-banking services, all mobile users are able to access m-transactions without any boundaries, such as no time limitation (Laukkanen, 2007). Besides, the m-users can also save their time to queue and need not worry about transportation (Delport, 2010). Additionally, customers are able to easily check their account balance, obtain transaction history, transfer funds, pay bills, manage their portfolio of assets, and many others.

Trustworthiness

Trustworthiness is defined as the characteristics of trustees, which consists of competence, reliability, and desires (Fuan & Stephen, 2011). Trustworthiness itself is the nature of trust of the trustees and beliefs of a customer to trust (Kate, 2009). Mayer and Gavin (2005) identified three elements of trustworthiness, namely ability, benevolence, and integrity. These three elements are named as trusting beliefs (McKnight, Choudhury, & Kacma, 2002a). The ability is the skills or efforts of a group that enables a party to influence within domains which allows the actual trustee to be accredited (Mudassir & Rahim, 2012). Benevolence is the extent in which a trustee is believed to be good by a trustor other than the profit motives, synonymous with loyalty, openness, affection, or assistance (Mayer, Davis, & Schoorman, 1995). Additionally, integrity is the characteristics of a trustee than the relationships between trustees and trustors (McKnight & Chervany, 2001). A recent study by Kong and Barsness (2018) adopted perceived managerial trustworthiness as a moderator and examined the relationship between overall fairness and perceived supervisory trustworthiness. This study adopted trustworthiness as a moderator to examine its moderating impact on the four proposed independent variables on m-banking adoption among the young adults in Sarawak.

HYPOTHESES DEVELOPMENT

Several studies from the past revealed that individual's attitudes led to intentions to adopt m-banking technology (Mohammadi, 2015; Shaikh & Karjaluoto, 2015). According to Davis (1989), attitude is the greater influence towards technology, resulting in actual use or dismissal. The study of George (2002) also found that an individual's attitude leads to online purchasing and the user's behavioural intention (Mohamed Gamal Aboelmaged & Gebba, 2013). This is because the attitude towards using a particular system (m-banking) is reflected as the foremost predictor of intention, this in turn, form an actual behavior (Ajzen, 1991). From the above discussion, the following hypothesis is made:

H1: Positive attitude towards banking is positively related to m-banking adoption among the young adults.

Compatibility has been found to play a crucial role in m-banking adoption (Ravichandran, Bandaralage, & Madana, 2016). Compatibility captures the consistency between an innovation and the potential adopters' existing values, current needs, and present lifestyle. In the context of m-payment services, peoples' lifestyles are strongly affecting their decision to adopt the technology (Lu, Yang, Chau, & Cao, 2011). In fact, m-payment services are an extension of Internet payment services, people who frequently use Internet payment services have less resistance to accept the mobile version. Suoranta and Mattila (2004) designated that relative advantage, complexity, compatibility, and trial-ability strongly contributed to m-banking adoption in Finland (Mohamed Gamal Aboelmaged & Gebba, 2013). Similarly, Koenig_Lewis, Palmer and Moll (2010) demonstrated that compatibility is positively related to m-banking services adoption. The finding is also concurrent with the findings of Al-Jabri and Sohail (2012). They found that relative advantage, compatibility, and observability have a positive impact on adoption. Hence, the study proposes the following hypothesis:

H2: Compatibility is positively related to m-banking adoption among the young adults.

Establishing m-user's initial trust is important for M-service providers (Narteh, Mahmoud, & Amoh, 2017) as there is little guarantee or feeling of security and confidence that the e-consumers are unable to touch, to smell, and to feel the service product as offered. It leads to urge and boost m-users to subscribe to m-banking for the first time (Mcknight *et al.*, 2002a). The study done by Chandra, Srivastava, and Theng (2010) stated that trust is led to m-payments systems. Correspondingly, Dass and Pal (2011) also found that lack of trust on technology could be a stopper for m-users to adopt m-financial services among Indian. Hanafizadeh, Behboudi, Koshksaray and Shirkhani (2014) discovered that trust significantly affects m-banking adoption. Therefore, the following hypotheses can be suggested:

H3: Customer trust is positively related to m-banking adoption among the young adults.

Several studies found that perceived benefit directly affects an individual's intention to adopt mobile technology adoption (Liu, Yang, & Li, 2012; Lee, 2009). The study of Eastin (2002) revealed that the elements of prior to adoption, convenience, and financial benefits contribute to e-

shopping, banking, and e-payment adoption (Teoh, Wendy Chong, Lin & Chua, 2013). Therefore, the following hypothesis can be formulated:

H4: Perceived benefits are positively related to m-banking adoption among the young adults.

In the study, trustworthiness played an imperative role in the decision making of adopting the m-banking (Malaquias & Hwang, 2016) because it reduces uncertainty (Li & Yeh, 2010). The study of Kaasinen (2005) indicated that the confidence of using the services affected trust in the systems (Govender & Sihlali, 2014). Similarly, Abrazhevich (2004) depicted that trustworthiness is important to success e-payment (Teoh *et al.*, 2013). In other words, the users should be provided the assurance systems in order to prevent hackers and fraudsters. Thus, this study has postulated to test the following hypotheses:

H5: Trustworthiness is positively related to m-banking adoption among the young adults.

Trustworthiness which is the party's word or promises in exchange the relationship is critical to influence the young adults to adopt m-banking (Rotter, 1967). As noted, trust beliefs itself lead to customer trust against the websites (Kate, 2009) which led to decision making of the m-banking adopting. Further, it affects the attitude of a person, which good characteristics of a trustee can make customer trust, have a good attitude, and build customer trust against the products (Fuan & Stephen, 2011). When customers trust e-retailers, they are willing to disclose their personal information (Kim, 2003). Thus, financial services providers should provide relevant and customised services in banking transactions to the customers (Souranta & Matila, 2004). Hence, it is therefore to postulate the following hypotheses:

H6: Trustworthiness moderates the relationship between attitude towards behavior and intention to adopt m-banking; such that when trustworthiness is high, the relationship between attitude towards behavior and intention to adopt m-banking will be stronger.

H7: Trustworthiness moderates the relationship between compatibility and intention to adopt m-banking; such that when trustworthiness is high, the

relationship between compatibility and intention to adopt m-banking will be stronger.

H8: Trustworthiness moderates the relationship between customer trust and intention to adopt m-banking; such that when trustworthiness is high, the relationship between customer trust and intention to adopt m-banking will be stronger.

H9: Trustworthiness moderates the relationship between perceived benefits and intention to adopt m-banking; such that when trustworthiness is high, the relationship between perceived benefits and intention to adopt m-banking will be stronger.

METHODOLOGY

A quantitative method through distribution of structured questionnaires was employed. Data collected were analyzed using Statistical Package for Social Sciences (SPSS) Version 23 and SmartPLS 3.0. SPSS was used to test the data, especially descriptive analysis, whereas SmartPLS is a professional statistical technique used to evaluate a measurement model and structural model with the purpose to minimize error variance (Chin, 1998a). This technique was chosen as this study is categorized as prediction-oriented modelling.

A self-administered survey was used to obtain the primary data. The unit of analysis for this study is at individual level, the existing m-banking customers. G*Power (version 3.1.9.2) software was adopted to calculate the minimum sample size. By running a priori power analysis using a medium effect size with a significant level of 0.05 and the power of 0.95, thus, the suggested minimum sample size needed to assess the research model developed is 166. Out of the 600 questionnaires distributed, a total of 500 were returned, which indicated an 83.33% response rate. The response rate of 83.33% has indicated a free from response error as it exceeds the suggested percentage of 70% (Nulty, 2008). The studied population of this study were those m-users who have experienced m-banking (e.g., m-transaction, m-payment, etc.) in the past three months (from September 2019 to December 2019). To select the right sample, the researcher used a

purposive sampling technique, in which only those m-banking users with experience were selected.

The questionnaire was divided into two sections: section A, the construction of m-adoption intention, with 30 items, and section B, the demographic profile, with seven open-ended questions. The measurement items were adopted from different sources that have suited the study. M-banking adoption comprises five items which were adapted from Sripalawat Thongmak, & Ngramyarn (2011). Attitude towards banking was constructed in four items, from Lee and Chung (2009), and Nor and Pearson (2007). The five-measuring of lifestyle compatibility and needs were adapted from Lin (2011). The items of perceived benefits were extracted from Lee (2009) and Tan and Teo (2000). The trustworthiness dimension consists of five items and they were generated predominantly from the studies conducted by Zhou (2011). Each of the dimensions was measured by a 7-point Likert-scale, ranged from 1= strongly disagree to 7= strongly agree.

FINDINGS

Demographics profile

Descriptive statistics was conducted to obtain the general information of the respondents. Out of the 500 respondents, 347 respondents were females (69.4%) which are higher as compared to the male respondents (153 or 30.6%). The majority were within the age groups of 21 to 25 years (61.2%), 34.2 percent of respondents to 20 years old (n=171), and 4.6 percent (n=23) were 26 to 30 years old. According to Sin, Nor, and Al-Agaga (2012), they designated that University students were actively engaged in online activities and m-shopping in Malaysia (Luqman, Razli Che Razak, Mohammad Ismail, & Mohd Afifie Mohd Alwi, 2016). As for ethnicity, Chinese scored the largest group of respondents, represented by 351 samples (70.2%), others were 15.8 percent (n=79) followed by 14 percent of Malays (n=14). Majority of the respondents have attained degree qualifications, with 63.2 percent whilethose holding upper secondary qualifications represented 16 percent (n=80). Only a minority of respondents were holding foundation (n=50, 10%) and diploma certificates (n=51, 10.2%). Next, the majority of the respondents recorded a monthly

income of RM3001 to RM5000, while 35.8 percent (n=179) was within the range of RM1001 to RM3000, followed by 11.6 percent (n=58) who earned RM5001 to RM7000. In terms of e-transaction methods, the majority of respondents used m-banking for cash transfer (n=105, 21%), account statement checking (n=91, 18.2%), and cash withdrawal purposes (n=76, 15.25%).

Assessment of Measurement Model

The measurement model assessment identifies the causal relationship between the observed variables and latent variables. Table 1 illustrates that the cross-loading for all items were loaded highly on its own construct rather than other constructs. The cut-off values for loading was 0.5 as suggested by Hair, Black, Babin, Anderson, and Tatham (2010). Thus, it inferred that the model's construct was good and sufficient for the study. To test convergent validity, composite reliability (CR) and average variance extracted (AVE) were conducted. Composite reliability is used to measure the degree to which items are free from random error and provide consistent results (Riquelme & Rios, 2010). Average variance extracted (AVE) is a common measure used to examine convergent validity (Fornell & Larcker, 1981). The recommended value for loading is readied to more than 0.5 and the value for CR should be more than 0.7 (Hair *et al*., 2010). As presented in Table 2, all the AVEs were greater than 0.50, which means that the latent variables of this study were able to explain more than half of the variance of indicators on average (Götz, Liehr-Gobbers, & Krafft, 2010).

Discriminant validity emerged when the square root of AVE exceeds the correlation level. It pointed out the extent to which a given construct differs from other constructs (Barroso, Carrion, & Roldán, 2010). The discriminant validity was examined through Fornell and Larcker (1981) criterion as shown in Table 4. These results confirmed that all the square roots of the AVEs exceeded the correlations with their variables. Hence, discriminant validity was attained. To summarize, the measurement model was completely satisfactory with the evident findings of reliability, convergent validity, and discriminant validity.

Table 1: Loading and Cross Loading

	Attitude towards banking	Compatibility with lifestyle and needs	Customer trust	Perceived benefits	Trustworthiness	Mobile banking adoption
A.T.B1	**0.758**	0.502	0.510	0.400	0.428	0.504
A.T.B2	**0.921**	0.700	0.713	0.637	0.661	0.580
A.T.B3	**0.917**	0.691	0.706	0.616	0.664	0.561
A.T.B4	**0.796**	0.668	0.692	0.623	0.623	0.529
C.W.L.A.N1	0.715	**0.865**	0.779	0.730	0.752	0.606
C.W.L.A.N2	0.710	**0.915**	0.753	0.740	0.738	0.614
C.W.L.A.N3	0.614	**0.881**	0.692	0.735	0.727	0.553
C.W.L.A.N4	0.654	**0.892**	0.716	0.684	0.748	0.601
C.W.L.A.N5	0.668	**0.900**	0.722	0.711	0.778	0.627
Cus_Trust1	0.645	0.673	**0.816**	0.669	0.685	0.490
Cus_Trust2	0.671	0.763	**0.893**	0.680	0.752	0.589
Cus_Trust3	0.679	0.730	**0.861**	0.619	0.707	0.592
Cus_Trust4	0.687	0.699	**0.867**	0.600	0.705	0.601
Cus_Trust5	0.565	0.588	**0.761**	0.560	0.623	0.535
Perceiv.B2	0.640	0.719	0.685	**0.871**	0.686	0.544
Perceiv.B3	0.609	0.737	0.672	**0.942**	0.730	0.548
Perceiv.B4	0.593	0.739	0.678	**0.938**	0.725	0.552
Perceiv.B5	0.579	0.710	0.637	**0.846**	0.738	0.578
Trustworth1	0.607	0.762	0.719	0.727	**0.860**	0.597
Trustworth2	0.570	0.699	0.678	0.669	**0.847**	0.542
Trustworth3	0.620	0.716	0.728	0.685	**0.844**	0.557
Trustworth4	0.624	0.741	0.731	0.701	**0.885**	0.597
Trustworth5	0.618	0.745	0.731	0.701	**0.906**	0.605
Trustworth6	0.613	0.710	0.713	0.684	**0.857**	0.646
M.B.Adop1	0.575	0.639	0.621	0.617	0.662	**0.886**
M.B.Adop2	0.574	0.623	0.628	0.571	0.655	**0.906**
M.B.Adop3	0.552	0.590	0.600	0.580	0.640	**0.840**
M.B.Adop4	0.535	0.531	0.532	0.455	0.495	**0.852**
M.B.Adop5	0.511	0.501	0.482	0.402	0.451	**0.816**

Note: Bold values are loadings for items that are above the recommended value 0.5.

Table 2: Results of Measurement Model

Model Construct	Measurement Items	Cronbach's Alpha	Factor Loading	Composite Reliability (CR)	Average Variance Extracted (AVE)
Mobile banking adoption	M.B.Adop1	0.913	0.885	0.934	0.741
	M.B.Adop2		0.905		
	M.B.Adop3		0.840		
	M.B.Adop4		0.852		
	M.B.Adop5		0.817		
Attitude towards banking	A.T.B1	0.870	0.758	0.913	0.725
	A.T.B2		0.921		
	A.T.B3		0.917		
	A.T.B4		0.796		
Compatibility with lifestyle and needs	C.W.L.A.N1	0.935	0.865	0.950	0.793
	C.W.L.A.N2		0.915		
	C.W.L.A.N3		0.881		
	C.W.L.A.N4		0.892		
	C.W.L.A.N5		0.900		
Customer trust	Cus_Trust1	0.896	0.816	0.923	0.707
	Cus_Trust2		0.893		
	Cus_Trust3		0.861		
	Cus_Trust4		0.867		
	Cus_Trust5		0.761		
Perceived benefits	Perceiv.B2	0.921	0.871	0.945	0.810
	Perceiv.B3		0.942		
	Perceiv.B4		0.938		
	Perceiv.B5		0.846		
Trustworthiness	Trustworthiness1	0.934	0.860	0.948	0.751
	Trustworthiness2		0.847		
	Trustworthiness3		0.844		
	Trustworthiness4		0.885		
	Trustworthiness5		0.906		
	Trustworthiness6		0.857		

Note:
a. Composite Reliability (CR) = (square of the summation of the factor loadings)/ {(square of the summation of the factor loadings) + (square of the summation of the error variances)
b. Average Variance Extracted (AVE) = (summation of the square of the factor loadings)/ {(summation of the square of the factor loadings) + (summation of the error variances)}

The results for t-values analysis, illustrated in Table 3 indicated all the measures of their respective constructs are valid, based on the parameter estimates and statistical significance (Chow & Chan, 2008). Hence, the measurement items were significantly explained by the respective constructs.

Table 3: Summary Results of the Model Constructs

Model Construct	Measurement Items	Standardised Estimate	t-value
Mobile banking adoption	M.B.Adop1	0.885	65.614
	M.B.Adop2	0.905	96.834
	M.B.Adop3	0.840	50.714
	M.B.Adop4	0.852	50.175
	M.B.Adop5	0.817	36.416
Attitude towards banking	A.T.B1	0.758	30.660
	A.T.B2	0.921	104.247
	A.T.B3	0.917	94.664
	A.T.B4	0.796	32.995
Compatibility with lifestyle and needs	C.W.L.A.N1	0.865	53.385
	C.W.L.A.N2	0.915	81.840
	C.W.L.A.N3	0.881	64.216
	C.W.L.A.N4	0.892	68.193
	C.W.L.A.N5	0.900	73.806
Customer trust	Cus_Trust1	0.816	41.857
	Cus_Trust2	0.893	74.766
	Cus_Trust3	0.861	52.286
	Cus_Trust4	0.867	58.115
	Cus_Trust5	0.761	30.217
Perceived benefits	Perceiv.B2	0.871	55.397
	Perceiv.B3	0.942	150.369
	Perceiv.B4	0.938	121.245
	Perceiv.B5	0.846	47.926
Trustworthiness	Trustworthiness1	0.860	55.419
	Trustworthiness2	0.847	46.558
	Trustworthiness3	0.844	51.800
	Trustworthiness4	0.885	69.848
	Trustworthiness5	0.906	85.971
	Trustworthiness6	0.857	64.714

Table 4: Discriminant Validity of Constructs (Fornell-Larcker)

	Attitude towards banking	Compatibility with lifestyle and needs	Customer trust	Mobile banking adoption	Perceived benefits	Trust worthi ness
Attitude towards banking	**0.851**					
Compatibility with lifestyle and needs	0.756	**0.891**				
Customer trust	0.774	0.823	**0.841**			
Mobile banking adoption	0.640	0.675	0.671	**0.861**		
Perceived benefits	0.673	0.808	0.743	0.618	**0.900**	
Trustworth iness	0.703	0.841	0.827	0.684	0.801	**0.867**

Note: Diagonals represent the square root of the average variance extracted while the other entries represent the correlations.

Assessment of Structural Model

Structural model is an assessment that predicts the casual relationship between constructs in a model (Hair, Hult, Ringle, Sarstedt, & Thiele, 2017). To test path analysis and the hypotheses, the researcher used the bootstrapping technique to determine the significant t-statistic. The researcher used the bootstrapping approach with 500 samples, with 0 cases per sample to test the path coefficient (β) and proposed hypotheses. To support the hypothesis, *t*-value must exceed 1.96 (Chin, 1998a), and the individual *r*-squared greater than 0.10 (10 percent) (Falk & Miller, 1992).

The goodness of structural model is established by variance explained (R^2) and the predictive relevance of the endogenous constructs (Q^2) (Hair, Hult, Ringle, & Sarstedt, 2014). According to Chin (2010), R^2 can be assessed to obtain the predictive power of the structural model. The thumb of rule of R^2 endogenous LVs was 0.67 (substantial), 0.33 (moderate), followed by 0.19 (weak) (Chin, 1998b). In this study, the research found that the R^2 for the two indicators were m-adoption intention at 0.532, suggesting that 53.2 percent of the variance in extend of intention to use m-banking can be explained by attitude towards banking, compatibility with lifestyle and needs, customer trust, and perceived

benefits. Meanwhile, trustworthiness represented 0.497. These two indicators demonstrated the fit of the proposed model to the aggregate data and the R^2 values achieved substantial levels in this research.

Apart from assessing the magnitude of R^2, the researcher also assesses the Stone-Geisser's Q^2 value based on the blindfolding method in PLS statistical analysis. Q^2 is a measure of how well-observed values are reconstructed by the model and its parameter estimates (Chin, 2010). If Q^2 value is larger than zero for a certain reflective endogenous construct specifies the path model's predictive relevance for that construct (Hair *et al.*, 2014). In this study, Q^2 value of the m-adoption intention was 0.417, which is above zero value, thus, providing support that the model in this study has predictive relevance for all its endogenous constructs. The formula of predictive relevance is shown below:

$$Q^2 = 1 - \frac{\Sigma_D E_D}{\Sigma_D O_D}$$

For Common Method Bias (CMS), Harman's single factor analysis had been utilized. It is a phenomenon which is caused by the measurement method used in SEM study (Kock, 2015). The results established that the first loading was approximately 41.2 percent, which is not exceeding 50 percent. In summary, it is considered that free from method biases problems.

In sum, this study examined a total of nine hypotheses. Five of the hypotheses tested were direct relationship and four hypotheses tested were moderation (See Table 5). The statistical results revealed that only two out of five direct hypotheses tested were found supported, namely compatibility (β=1.195; t=1.696) and trustworthiness (β=0.451; t=2.314) were found positive significantly related to m-banking adoption. Interestingly, trustworthiness was found moderating the relationship among attitudes towards banking and m-banking adoption (β=0.204; t=2.106). Thus, H2, H5, and H6 were supported. Surprisingly, attitude towards banking (β=-0.663; t=1.554); customer trust (β=0.000; t=0.001); and perceived benefits (β=0.196; t=0.266) were negatively related to m-banking adoption. Also, out of the four moderation hypotheses tested, three hypotheses were found not supported. It is therefore to conclude that H1, H3, H4, H7, H8, and H9 were not supported.
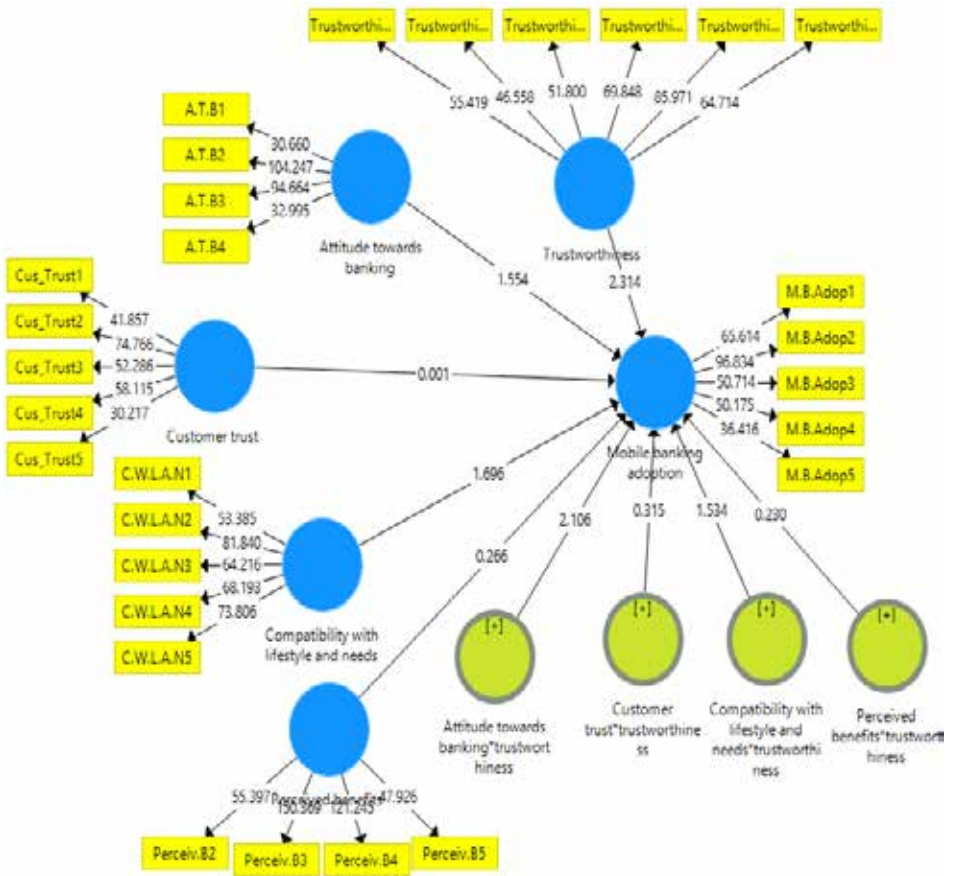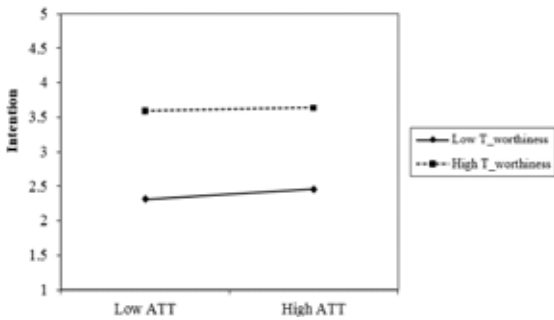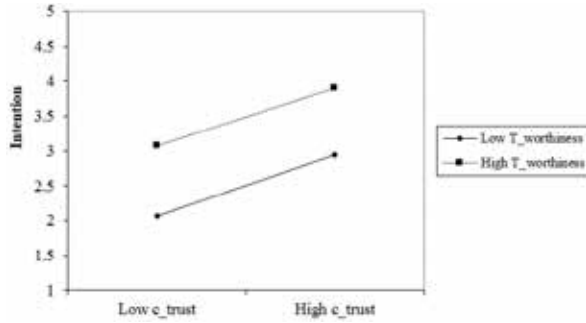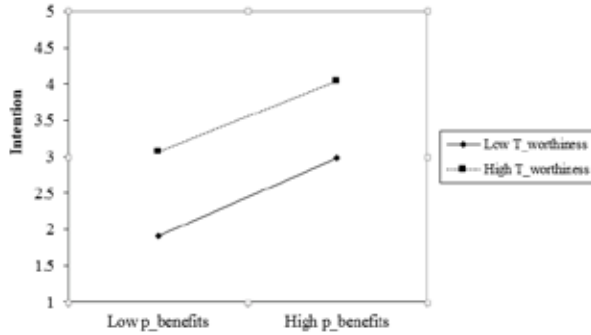
Figure 2: Research Framework with T-values
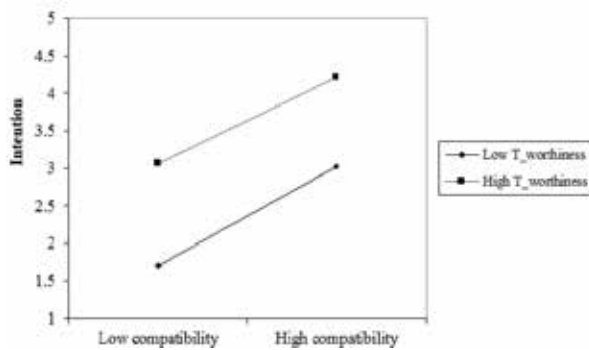

(a)   Moderating plot for attitude towards banking

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(b)   Moderating plot for customer trust

(c)   Moderating plot for perceived benefits

(d)   Moderating plot for compatibility with lifestyle and needs

Figure 3: Moderating Plot for Mobile Adoption Intention

Table 5: Path Coefficients and Hypotheses Testing

Hypothesis	Relationship	Coefficient	t-value	Decision
H1	Attitude towards banking -> Mobile banking adoption	-0.663	1.554	Not Supported
H2	Compatibility with lifestyle and needs -> Mobile banking adoption	1.195	1.696	**Supported**
H3	Customer trust -> Mobile banking adoption	0.000	0.001	Not Supported
H4	Perceived benefits -> Mobile banking adoption	0.196	0.266	Not Supported
H5	Trustworthiness -> Mobile banking adoption	0.451	2.314	**Supported**
H6	Attitude towards banking*trustworthiness -> Mobile banking adoption	0.204	2.106	**Supported**
H7	Compatibility with lifestyle and needs*trustworthiness -> Mobile banking adoption	-0.257	1.534	Not Supported
H8	Customer trust*trustworthiness -> Mobile banking adoption	0.036	0.315	Not Supported
H9	Perceived benefits*trustworthiness -> Mobile banking adoption	-0.036	0.230	Not Supported

Note: *t*-value >1.645 ($p < 0.05$*); *t*-value >2.33 ($p < 0.01$**)

DISCUSSION

Based on the statistical findings revealed that H2, H5, and H6 were found supported. Hypothesis H2 examined the relationship between compatibility on m-banking adoption among young adults in Sarawak, and it was found supported. The findings of Hypothesis 2 (β=1.195; t=1.696) is congruent with the past study by Sitorus, Govindaraju, Wiratmadja, and Sudirman (2017). Compatibility with lifestyle and needs is referred to the extent to which the service is seen as consistent with the value of users, beliefs, habits and current experiences (Chen *et al.*, 2004). It is found that young adults in Sarawak are concerned about the compatibility that fits with their lifestyle when it comes to m-banking adoption, because the higher the compatibility will lead to the higher adoption of m-banking services. Therefore, the banking industry should pay more focus on the design and compatibility

when designing m-banking applications to ensure higher adoption of m-banking services among the users.

Furthermore, the present study also found that trustworthiness led to m-banking adoption among young adults, thus H5 was found supported (β=0.451; t=2.314). Past studies signified that trustworthiness significantly impacted the adoption of online banking (Nayanajith & Damunupola, 2019). In fact, having a sufficient banking system is vital to gain personal trustworthiness in the service industry. Murphy and Blessinger (2003) itemized that trust is important to first timer Internet users because they are unfamiliar with the purchasing process (Yen & Lin, 2010). These first-time users or irregular customers have to spend a period of time to build up and gain their trust beliefs before developing a positive perception. Thus, a sense of trust can earn a positive position in their mind.

Interestingly, the presence findings found that trustworthiness moderate the relationship among positive attitudes towards banking on m-banking adoption, thus H6 was found supported (β=0.204; t=2.106). The findings revealed that the higher the trustworthiness among the users, the stronger the relationship among the young adults' positive attitude towards banking on m-banking adoption. It is justifiable that the higher the trustworthiness of the m-banking services, users tend to be more willing to accept the m-banking adoption.

CONCLUSIONS, THEORETICAL AND PRACTICAL IMPLICATIONS

In conclusion, the paper is aimed to investigate the factors that influence an individual's intention to adopt the m-banking services. The results revealed that compatibility and trustworthiness were the two factors that affected an individual's customer intention to adopt m-banking. Interestingly, trustworthiness was found moderating the relationship among positive attitudes on m-banking adoption.

For theoretical implication, the results of this study can be used to improve the existing literature that create knowledge in the literature of intention to use m-banking. Besides, the conceptual framework that developed have provided more information, knowledge and understanding

about the relationships between independent variables (attitude towards banking, customer trust, compatibility with lifestyle and needs and perceived benefits) and dependent variable (mobile banking adoption) and how the variables influence each other and determine individual decisions to adopt and use the mobile banking to do the bank transactions. Hence, this study provides guidance for future studies about the mobile banking adoption in Sarawak state context.

Furthermore, the present study has also demonstrated that the Theory of Reasoned Action (TRA) is an applicable theory to explain the direct impact of proposed attitudes towards banking, customer trust, compatibility with lifestyle and needs and perceived benefits in influencing young adults' (consumer) intentions in adopting the mobile banking services. Theory of Reasoned Actions is able to help the young adults (consumer) to have better understand the individual's perspectives in adopting the mobile banking services whether mobile banking service can bring benefits to them or not and identify whether attitude towards banking, customer trust, compatibility with lifestyle and needs and perceived benefits has successfully supported or not supported on the mobile banking adoption.

For managerial implication, the findings of this study also can serve as guidelines to banks in recognizing the predictors and the challenges to encourage customers to use m-banking. The precious results of this study suggested that bank service providers should think and design m-banking services that could attract more consumers to use the services. Additionally, service providers should also focus on the trustworthiness element, as it is enacted as one of the significant predictors of intention to adopt m-banking. Thus, this research has provided valuable knowledge and information to banks.

LIMITATION AND SUGGESTION FOR FUTURE RESEARCH

For future researches, firstly, the researcher can use Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), and Decomposed Theory of Planned Behavior (DTPB) to have better a understanding and to examining the factors that influence young adults' intentions in adopting the mobile banking application. Secondly, the researcher can design and conduct the questionnaire qualitatively. The opened-ended questions enable

the respondents to give their own feedback, recommendations or suggestions to the researcher in the blank given. Moreover, the researcher can use both qualitative and quantitative methods, which is also known as a mixed method approach in the future research. This is due to the fact that qualitative methods which interview the respondents have become the strong evidence to get an answer to the research questions.

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