FACTORS AFFECTING MOBILE BANKING ADOPTION AMONG MALAYSIAN

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ABSTRACT

Today, rapid development in technology, especially involving the use of smartphones and tablets make the activities easier and more convenient in delivering the information. All parties, especially financial institutions, today want to give the best services to the customer and the competitiveness in the banking sector keeps rising day to day. The continuous expansion of technological innovations especially in the banking sector has stirred competition which has changed the way businesses operate resulting in the introduction of mobile banking in Malaysia. The purpose of this study is to investigate factors affecting the adoption of mobile banking intention. It contributes to the knowledge in the area by studying the relationship between the dimension of relationship (Ease of use, Perceived usefulness, Security & Privacy, Enjoyment) and Mobile banking adoption. The research is based on questionnaire responses from 150 respondents in 2020. After gathering and entering the data in SPSS the results were analyzed using multiple regression analysis. Each variable was measured using a 5-point Likert scale. Structural Equation Modeling was applied to study the impact. The results show that Ease of use, Perceived usefulness, Mobile banking adoption, Security and Privacy Enjoyment are positively associated with Mobile banking adoption dimensions involving affective, cognitive, and behavioral.

Key Words*:* Adoption, Factors, Mobile Banking, Security and Privacy, Usefulness

Type of Paper: Empirical

1. Introduction

Banks are considered highly dynamic business entities that, joined in a global network that offers better conditions to those clients who decide to use online banking services (Mu˜noz-Leiva. et al., 2010). In contrast to traditional banking activities, online banking provides more features and functionalities at a lower cost (Laukkanen, 2007). Online banking and mobile apps of financial entities allow users to, among other advantages, access their accounts from any location and at any time. Zhou, Lu, and Wang (2010) defined m-banking as the use of mobile devices such as cellphones and personal digital assistants (PDAs) to access banking networks via the wireless application protocol (WAP). Luo, Li, Zhang, and Shim (2010) describe it as an innovative method for accessing banking services via a channel whereby the customer interacts with a bank via mobile device. Such accessibility represents an advantage over traditional banks. Despite all of this, it is important to highlight that the number of clients that operate

through online banking has not increased as much as it was expected. Aspects such as the lack of differentiation between banks, lack of trust in the system, impersonal treatment or lack of security have caused reluctance from many customers to use such tools (Mu˜noz-Leiva et al., 2010). There is a need, at this moment, to comprehend customers' attestation to the factors that are influencing the decrease in mobile banking usage.

Therefore, the purpose of this research is to identify the factors that influence the mobile banking intention in Malaysia and this paper plans to fill this significant hole by researching diverse individual, situational and thin factors that may especially affect the purpose of entirely adaptable banking or associations.

1.1 Research Questions:

The research questions in this study are generated as the following:

1. Is there any relationship between ease of use and consumers' intention of mobile banking adoption?
2. Is there any relationship between perceived usefulness and consumers' intention to the adoption of mobile banking?
3. Is there any relationship between Security and Privacy and consumers' intention of mobile banking adoption?
4. Is there any relationship between Enjoyment and consumers' intention of mobile banking adoption?

1.2 Research Objectives:

The research objectives in this study are generated as follows:

1. To examine whether ease of use has consumers' intention of mobile banking adoption.
2. To examine whether perceived usefulness influences consumers' intention to the adoption of mobile banking.
3. To examine whether Security and Privacy influence consumers' intention of mobile banking adoption.
4. To examine whether Enjoyment influences new production and mobile banking adoption.

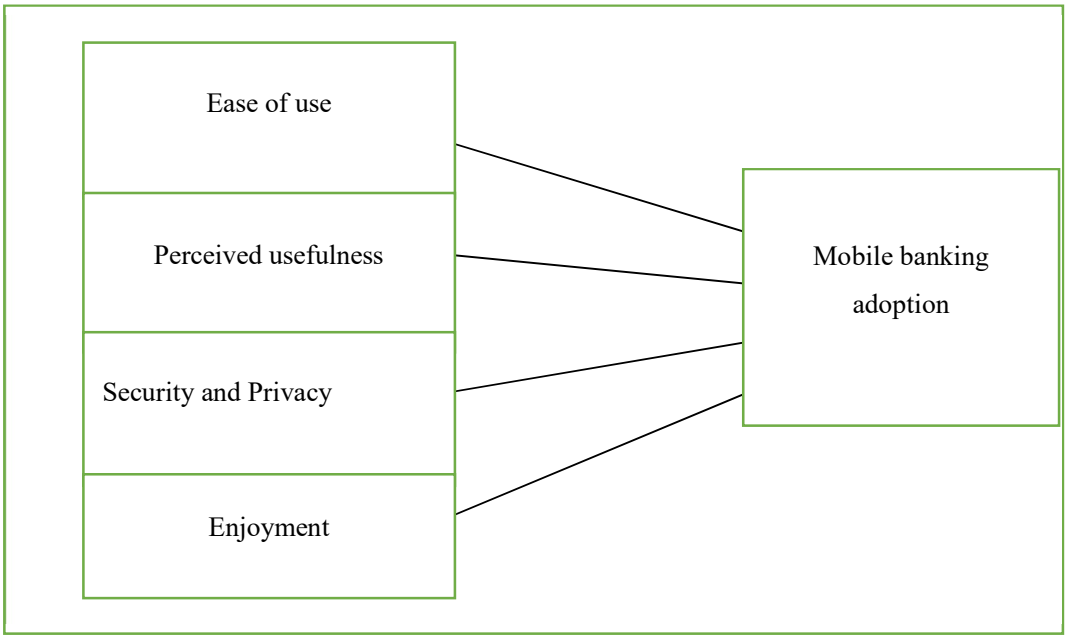
2. Literature Review

This paper adopts Technology Acceptance Model (TAM) by Davis (1989) and the Diffusion of Innovation Theory by Rogers (1983) to test the effect of a couple of components on versatile bank organizations' determination. Davis (1989) explains that future development affirmation analysis must address how various variables impact comfort, ease of use and customer

affirmation. According to Rogers (2003), there are five seen qualities of improvement that can be used to outline a positive or negative aura toward a headway.

Based on the two models, this paper will study the components of ease of use, perceived usefulness, security and privacy and enjoyment in adopting mobile banking. A conceptual framework is developed to summarize the variables and relationships.

Figure 2.1 Conceptual Framework



2.1 Mobile Banking Ease of Use

Ease of use as explained by Davis (1989) and Venkatesh and Davis (2000) is the extent to which the use of M-banking is free of effort. It is the opinion of an individual's assessment of the effort utilised on account of using a technology (Davis, 1989).

H1: Ease of Use is positively related to the adoption of mobile banking.

2.2 Perceived usefulness

Perceived usefulness (PU), in the opinion of an individual, can be explained as the level to which the performance of his or her job is enhanced by utilising a certain technology (Rauniar et al., 2014). According to TAM, PU is believed as a key determinant of technology. According to Davis et al. (1992), PU is highly associated with the intention to use technology. Hence, it can be hypothesised that

H2: Perceived Usefulness is positively related to the adoption of mobile banking.

2.3 Security and Privacy

Security and Privacy can be defined as the extent to which risk is involved in innovation (Laukkanen et al., 2007; Ram and Sheth, 1989). Hanafizadeh et al. (2014) suggest that mobile banking is comparatively more associated with risk than other devices as it displays a distant connection and the provision of a secured monetary transaction would result in the success of M-banking. Hence, the greater is the risk associated with M-banking, the negative will be the attitude of the consumer towards it

H3: Security and Privacy is positively related to the adoption of mobile banking.

Since this study examines mobile banking adoption by smartphone users, such an extra variable relates to the smartphones' usage which, like that of other hedonic information systems, provides self-fulfilling value to smartphone users (Van der Heijden, 2004). Kim et al. (2013) studied mobile users' engagement focusing on their motivations and found that smartphones by default provide users with fun tools and entertainment applications, and support users' hedonic motivation for fun, enjoyment, relaxation, pleasure and excitement, which then drives their future mobile engagement. In addition, they provided evidence for the strong and positive relationship between users' engagement motivation and their perceived value.

H4: Enjoyment is positively related to the adoption of mobile banking.

3. Research Methodology

This section is to explain the method that is used to collect information to get the answers to the research question and hypotheses.

3.1 Data collection

Primary and secondary data are collected for this research. Primary data is used to validate the hypotheses and secondary data is used to construct the hypotheses by various journals to support the research. The procedure begins with the right target group and the respondents for this study are the youth of Malaysia. This research distributes 150 questionnaires and a total of 10 copies of questionnaires will be distributed as a pilot test. The questionnaire is designed in English, which contains both open-ended and closed-ended questions as it is easier for the respondents and has the facility of depth responses it requires. The questionnaire begins with a simple introduction and instructions for the respondents, which is divided into two sections which are Section A (demographic profile) and Section B.

Table 3.1 Source of Questions

No	Component	Questions included	Item	Source
EOU	Mobile banking Ease of use	Learning how to use Mobile banking is easy for me.	4	Hao et al. (2015)
		My interaction with Mobile banking is clear and understandable.		
		I find Mobile banking easy to use.		
		It is easy for me to become skillful at using Mobile banking.		
PU	Perceived usefulness	Using mobile banking would improve my performance in conducting banking transactions.	3	Pritchard et al. (2017)
		Using mobile banking would make it easier for me to conduct banking transactions.		
		I would find mobile banking useful in conducting my banking transactions.		
SP	Security and Privacy	I think that the personal information that I provide on mobile is well protected.	3	Wang (2016)
		I think that online transactions carried out on mobile are secure.		
		I think that the confidentiality and privacy of my personal information are assured when I do mobile banking.		
E	Enjoyment	I enjoy the mobile banking system more than the web-based baking system.	3	Jiang and Wang (as cited in Malik, 2018)
		Mobile banking makes my life more enjoyable.		
		One-stop mobile banking app is making me enjoy my time as it saves me a lot of hassle.		
MBA	Mobile banking adoption	I would use m-banking for my banking needs.	3	Byambaa and Kuo-Chung Chang. (2018)
		Using m-banking for handling my banking transactions is something I would do.		
		I can see myself using m-banking for handling my banking.		

3.2 Measuring instrument

Pilot test is conducted. 10 questionnaires are tested in a time span of five days to find out the grammatical mistakes, typing errors and unclear terms to increase the accuracy. The reliability test is conducted through Statistical Package for Social Science version 18 program. This research would conduct descriptive analysis, normality test and multi-collinearity, Pearson Correlation Analysis and multiple regression analysis to test hypotheses.

3.3 Hypotheses Testing

3.3.1 Multiple Linear Regressions

Multiple Linear Regression is used to assess the relationship between more than one independent variable and a single dependent variable (Zikmund, Babin, Carr, & Griffin, 2010). According to Saunders et al. (2009), the regression coefficient indicates the relative significance of the independent variables in the forecast of the dependent variable while the coefficient of multiple determinations (R square) provides the measurement of how well a predictor of the equation of multiple linear regressions is likely to be. Moreover, if the p-value of multiple linear regressions is less than 0.05, then the relationship between the selected independent variables and the dependent variable will be significant. Table 3 shows the equation for multiple linear regressions and the meaning of each unknown item and the linear equation in the research.

Table 3.2. Equation for Multiple Linear Regressions

$MB = B_0 + b_1(PU)_1 + b_2(E)_2 + b_3(EOU)_3 + b_4(SP)_4$
Where: $\hat{Y}$ *= Dependent variable* B_0*= Constant value (also known as Y-intercept) b= The slope, for any corresponding change in one unit of X X= Independent variable e = Error term (normally distributed about a mean of zero)* *MB = Mobile Banking* *PU= Perceived Usefulness* *E = Enjoyment* *EOU = Ease of Use* *SP = Security and Privacy*

4. Results

4.1 Descriptive Statistics

For demographic background, 51% of respondents are female and 49% are male. Among the respondents, 23% were Chinese, 18% Indian, 26 Malay and 33% other respondents in terms of

race. The majority of the respondents are 20-24 years old. 29% of the respondents have monthly allowances or salaries of RM500 to 1500 and most are high school graduates. Most of the respondents in this study are related to technical skills by profession. Last but not least, 30% of these respondents have not used mobile banking.

4.3 Normality and Reliability test

Table 4.6: Reliability Analysis

	Cronbach's Alpha
Mobile Banking Adaptation	.944
Enjoyment	.701
Security & Privacy	.918
Perceived Usefulness	.882
Ease of Use	.890

Based on the skewness and kurtosis, all variables are normally distributed. Based on table 4.6, the results have revealed that the internal reliability of each construct has ranged from .944 to .701. Mobile banking adaptation had the highest coefficient (0.944) while Enjoyment (0.701). According to Malhotra (2002), the alpha coefficient below 0.6 portrays weak reliability of the variables. If the alpha coefficient ranges from 0.6 to 0.8, they are moderately strong. If the alpha coefficient is in the range of 0.8 to 1.0, they are very strong. Based on table 4.6, the range from the Cronbach‟s Alpha in this study is 0.944 to 0.701 which is strong. In particular, for Mobile Banking Adaptation, Perceived Usefulness, Security & Privacy, Ease of Use, it is at a strong level; Enjoyment is at a moderate strong level.

4.3 Pearson Correlation Analysis

Table 4.7 Pearson Correlation Analysis

		EOU	P	SP	Et	MB
EOU	Pearson Correlation	1	.709**	.923**	.902**	.890**
	Sig. (2-tailed)		.000	.000	.000	.000
	N		100	100	100	100
P	Pearson Correlation		1	.833**	.426**	.882**
	Sig. (2-tailed)			.000	.000	.000
	N			100	100	100
SP	Pearson Correlation			1	.712**	.918**
	Sig. (2-tailed)				.000	.000
	N				100	100
E	Pearson orrelation				1	.701**
	. (2-tailed)					.000
	N					100
MB	Pearson orrelation					1
	. (2-tailed)					
	N					

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

4.4 Multiple Regression Analysis

Table 4.8: Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.959[a]	.920	.917	.21979
a. Predictors: (Constant), Perceived Usefulness, Enjoyment, Security & Privacy, Ease of Use			

Based on Table 4.8, the value of adjusted R Square is 0.920. Hence, the changes of mobile banking adaptation were 92.0% which were influenced by the factors of Perceived Usefulness, Enjoyment, Security & Privacy, Ease of Use. Furthermore, the other 8% of the model is explained by other factors, which can influence mobile banking adaptation.

Table 4.9: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.768	4	13.192	273.083	.000[b]
	Residual	4.589	95	.048		
	Total	57.357	99			

Based on the ANOVA table, the F value proved to be significant at 273.083. The overall regression model with Perceived Usefulness, Enjoyment, Security & Privacy, Ease of Use has worked well in explaining the variation in mobile banking adaptation.

Table 4.10: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.047	.106		.445	.658
Enjoyment	.093	.083	.123	2.311	.032
Ease of Use	.253	.163	.292	2.583	.011
Security & Privacy	.114	.097	.137	1.988	.049
Perceived Usefulness	.405	.048	.508	8.406	.000

Table 4.7 shows all independent variables, Enjoyment, Ease of Use, Security & Privacy and Perceived Usefulness have significant relationships with mobile banking. Further analysis on Multiple Regression Analysis, based on Table 4.10, Enjoyment, Ease of Use, Security & Privacy and Perceived Usefulness have significant positive relationships with mobile banking. The perceived usefulness has a statistically significant positive relationship with mobile banking at 1% significance level. Security and privacy, Ease of use and enjoyment have significant positive relationships with mobile banking at 5% significance level.

5. Discussion

The hypotheses that have been developed are tested against the regression result of the study. Following is the discussion of the results.

Table 5.1 Hypotheses Testing and Implementation

Research Question	**Hypothesis**	**Result (p=0.01)**	**Supported**
Is there any relationship between ease of use and consumers' intention of mobile banking adoption?	H1: Mobile banking Ease of Use is positively related to the adoption of mobile banking.	r= 0.890 ($p<0.05$)	**Yes**

Is there any relationship between perceived usefulness and consumers' intention of adoption of mobile banking?	H2: Perceived Usefulness is positively related to the adoption of mobile banking.	r= 0.882 (p<0.05)	**Yes**
Is there any relationship between Security and Privacy and consumers' intention of mobile banking adoption?	H3: Security and Privacy is positively related to the adoption of mobile banking.	r= 0.918 (p<0.05)	**Yes**
Is there any relationship between Enjoyment and consumers' intention of mobile banking adoption?	H4: Enjoyment is positively related to the adoption of mobile banking.	r= 0.701 (p<0.05)	**Yes**

5.1.1 H1: Mobile banking Ease of Use is positively related to the adoption of mobile banking.

The result of Table 5.1 has shown that Mobile banking Ease of Use is significant towards the Mobile banking adaptation. It is supported by the previous studies by Chryssohoidis and Krystallis (2005), Chung & Kwon (2009) and Lee et al. (2008).

5.1.2 H2: Perceived Usefulness is positively related to the adoption of mobile banking.

Based on the findings of this study, perceived usefulness is positively related to mobile banking adaptation. This result is supported by previous studies which are Hamid et al., 2016), Jamal & Sharifuddin (2015), Al-Jabri & Sohail (2012) and Chuah et al. (2016). Researchers have indicated that usefulness is a fundamental determinant of TAM.

5.1.3 H3: Security and Privacy are positively related to the adoption of mobile banking.

The finding of this study supports that security and privacy are positively related to the adaptation of mobile banking. This is also found by past investigators who have exhibited that clear danger can create a negative attitude towards adaptable money-related appointments (Akturan & Tezcan, 2012; Arif et al., 2016; Bagadia& Bansal, 2016). These results are supported by other studies which are by Hanafizadeh et al. (2014) Ramdhony & Munien (2013), Tashmia & Khumbula (2011), Luarn and Lin (2005) and Amin et al. (2008)

5.1.4 H4: Enjoyment is positively related to the adoption of mobile banking.

The study has found a positive correlation between enjoyment and mobile banking adaptation. The findings are consistent with the previous research. Noteworthy enjoyment of advancement makes it be grasped even more viably by the others (Rogers, 2003). Innovative consumers have an outstanding role in the diffusion and adoption of enjoyment. Several researches have pursued to determine the variables which are used to segment consumers into categories as innovators or late adopters (Goldsmith & Hofacker, 1991; Hirshman, 1980; Im et al., 2003; Lassar et al., 2005; Truong, 2013).

6. Limitation and future research direction

There are several predicaments that have been diagnosed during the development of carrying out this look. Firstly, data collection was limited to the customers of those banks who live in Malaysia. Therefore, the findings should be circumspectly generalized to other countries. Secondly, this research mainly conducted a cross-sectional study. Thirdly, the research objects are limited to the observation that was conducted within the cross-section time range for one single time. It affects the finding related to the causality relationship among the research's variables. The measurement of the research variables uses customers' perceptions. There will be a trend that the respondents during filling up the questionnaire will always provide good/agreed answers which cannot be used to represent the generalization of the research findings.

Therefore, a longitudinal study is recommended for providing more insights into mobile banking adoption over time. Other factors apart from TAM and MSQ such as demographic factors are not considered in this study. Studying the adoption of mobile banking by including demographic factors such as age, gender, income, and education is recommended for future research.

7. Conclusion

In conclusion, this study reveals that smartphones are not only a gadget for communications, but also for interactive banking transactions, so designers and marketers should create friendly devices that incorporate the function of banking transactions and also the inclusion of multimedia elements that promote perceived enjoyment whilst one's performing banking transactions. In parallel, the study's practical contribution is versatile, as new knowledge is provided to industry (banks, software houses/ developers, mobile technology giants, fintech) practitioners, challenging them to develop and advertise mobile payment devices and solutions in a way that consumers regard them as well-suited to their individual needs for enjoyment.

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