

*Research Paper***Factors Influencing Mobile Banking Adoption in Cambodia:
The Structuring of TAM, DIT, and Trust with TPB**Sokha Norng^{1*}¹*Centre for Research & Innovation, ACLEDA Institute of Business, Cambodia**Corresponding author: norngsokha@yahoo.com**Abstract**

There is a significant growth in mobile banking adoption, accompanied by service providers such as financial institutions or banks in Cambodia; however, little is known about customers' attitude and intention to adopt mobile banking. Therefore, this study aims at analyzing factors that influence customers' intention to adopt mobile banking by structuring the Technology Acceptance Model, the Diffusion of Innovation Theory, and Trust with the Theory of Planned Behavior. The study uses a survey questionnaire with 385 mobile banking adopters who live in Phnom Penh City. By using Amos software to run confirmatory factor analysis and path analysis, the result shows that perceived usefulness and perceived ease of use have a significant positive effect on attitude. Furthermore, attitude, subjective norm, perceived compatibility, and observability positively affect behavioral intention. However, trust does not have a significant impact on behavioral intention. Finally, perceived behavioral control significantly interacts between attitudes and behavioral intention.

Keywords: Mobile banking, Technology acceptance model, Diffusion of innovation theory, Theory of planned behavior, Confirmatory factor analysis, Structural equation model.

Introduction

Industry 4.0 has changed the banking sector worldwide, especially the way banks interact with their clients (Mekinjić, 2019). Therefore, the banks have constantly upgraded their products and services into a digital platform so that they can address their clients' demands. For instance, a digital wallet or e-wallet has been developed to allow users to complete their purchases easily and quickly by using electronic devices, and it is very secure with strong password requirements (Kagan, 2022; North, 2021). This e-wallet allows users to store funds, make transactions, and check payment history; moreover, it has currently been connected to an individual's mobile banking application (Kagan, 2022).

Mobile banking is a fintech application that enables customers to do banking transactions anywhere, anytime on a smartphone (GooglePlay, n.d.). It is a user-friendly app created in order to allow customers to do bank transactions efficiently wherever an Internet connection is available (North, 2021). Mobile banking serves several advantages, namely checking account information, making payments, depositing, withdrawing cash from ATMs, and transferring money (Kumar & Kalva, 2014). In addition, Huei, Yu, and Lane (2013) raised some other advantages of mobile banking, such as paying bills, sending text messages, consulting an investment advisor, and using business intelligence like budget limit control.

This research looks into Cambodia as the case for studying mobile banking adoption because adopters and service providers have significantly grown since the government encouraged customers and retailers to adopt e-wallets and apps during the Covid-19 pandemic.

Actually, mobile banking has been ignored for nearly a decade in Cambodia since it was first adopted in 2009. Banks or financial institutes are reluctant to provide the mobile banking service because there is a limitation in the development of infrastructure, technology, and digital payments in the financial sector, including limited resources (Economic Council Supreme National [ECSN], 2021). For instance, there are 43 commercial banks, 14 specialized banks, seven microfinance deposit-taking institutions, and 74 microfinance non-deposit-taking institutions. However, around 20 banks and financial institutions have offered mobile banking services in Cambodia (National Bank of Cambodia [NBC], 2018).

Cambodia is moving from a cash-based economy to a cashless one since more Internet banking and mobile banking services have been expanded with the ATM networks (Youdy, 2021). During the Covid-19 pandemic, the number of e-wallets, registered with NBC, increased from 1.3 million in 2019 to 3.6 million by the end of 2020 (NBC, 2020). The growth of e-wallets is consistent with the growth of mobile banking users; for instance, there are 1.7 million users registering ACLEDA Mobile app at the end of 2020 (Channy, 2021); and 854,000 users adopt the ABA Mobile app in 2022 (Asia Money [AM], 2020).

However, there is a lack of a study on mobile banking adoption intention in Cambodia. According to the Science Direct database, Scopus, and Web of Science, mobile banking studies have been conducted in 26 countries from 2009 to 2019, excluding Cambodia (JARIDE et al., 2021). Furthermore, the issue of mobile banking adoption intention is

worth studying because very few studies have integrated the Technology Acceptance Model (TAM) and the Diffusion of Innovation Theory (DIT) with the Theory of Planned Behavior (TPB) in order to investigate factors that influence consumers' intention to adopt mobile banking globally. More precisely, none of the studies have structured TAM, DIT, and TPB to analyze the consumers' intention to adopt mobile banking in Cambodia.

Therefore, this study attempts to analyze factors influencing consumers' intention to adopt mobile banking in Cambodia by structuring two factors of TAM (perceived usefulness and perceived ease of use), two factors of DIT (perceived compatibility and observability), and trust into TPB. At the same time, this study analyzes a moderating effect of perceived behavioral control on the interaction between attitude and behavioral intention to adopt mobile banking.

More importantly, this study serves as a market research on mobile banking adoption intention by encouraging reluctant decision-makers to consider investing in mobile banking or upgrading their services to build customers' trust and attract nonadopters to use mobile banking. As a long-term impact, the increase of mobile banking adopters can also promote digital literacy in Cambodia. Likewise, this study contributes significantly to the original TPB in terms of model fitness since perceived behavioral control has been proposed as the moderator and the other variables of TAM and DIT and trust have been integrated into the existing model.

Literature Review

Definition of Mobile Banking

As self-service banking becomes advanced, it has been offered on smartphone platforms or portable card readers (Mehdiabadi et al., 2020). This service is called mobile banking, which has been defined as the followings:

Table 1: Definitions of Mobile Banking

Definitions	Sources
Mobile banking “enables customers to carry out their banking tasks via mobile devices”	(Oliveira et al., 2014, p.689)
Mobile banking “is a product or service offered by a bank or a microfinance institute (bank-led model) or MNO (non-bank-led model) for conducting financial and non-financial transactions using a mobile device, namely a mobile phone, smartphone, or tablet.”	(Shaikh & Karjaluo, 2015, p.5)
Mobile banking is “any form of banking transaction that is carried out through a mobile device, such as a mobile phone or a personal digital assistant”	(Koksal, 2016, p.1)

Therefore, this study operationalizes mobile banking as the fintech service offered via the app on smartphones or mobile devices.

Theoretical Background related to Mobile Banking Adoption

“The theory of Planned Behavior TPB focuses on one factor that determines a person’s behavioral intention and his or her attitude towards that behavior” (Apasrawirote & Yawised, 2022, p.41). TPB is beneficial not only in predicting the behavior in various disciplines but also in analyzing mobile banking adoption intention; for instance, TPB significantly explains microentrepreneurs’ intention to adopt mobile banking at 71.30% (Ruano-Arcos et al., 2020) and the intention of pro-poor innovators at the Bottom of the Payment (BOP) to adopt mobile banking at 27% (Hasan et al., 2020).

TPB can also be structured with the Technology Acceptance Model (TAM) in predicting mobile banking adoption intention. According to Hiew et al. (2022), TAM explains the causal effect of external variables on “people’s intention to use and actual adoption of technology innovation in the workplace indirectly via perceived usefulness and perceived ease of use” (p.80). TAM and TPB have been applied in the study of mobile banking adoption (Aboelimged & Gebba, 2013; Vuong et al., 2020).

Besides TPB and TAM, another theory explaining the adoption innovation is the Diffusion of Innovation Theory (DIT), which was proposed by Everett Rogers in 1962. DIT is very useful in studying technological innovations such as mobile banking in Saudi Arabia, and it attempts “to explain how, why and at what rate new ideas and technology spread” (Al-Jabri & Sohail, 2012, p.380). Since some innovations are successful while others fail, Rogers suggests the innovations should not only focus on adoption rates but also on the attribute of innovations. These five attributes include relative advantage, compatibility, complexity, trialability, and observability.

However, very few studies have structured DIT and TAM together with TPB in the study of mobile banking adoption. For example, Alam et al. (2018) found that perceived ease of use, relative advantage, compatibility, trialability, attitude, perceived behavioral control, social norms, and perceived risks significantly influence mobile banking adoption intention in Malaysia. Alam et al. (2018) suggest that another study can be conducted outside Malaysia since the perception and adoption levels may vary from one country to another. Therefore, the integration of the three models, namely DIT, TAM, and TPB is significant in the study of mobile banking adoption intention in Cambodia.

Hypothesis Development

Slightly different from (Alam et al., 2018), this study proposes the influence of perceived usefulness and perceived ease of use on attitude and the impact of subjective norm, attitude, perceived compatibility, observability, and trust on the behavioral intention. Moreover, the study assigns perceived behavioral control as the moderating effect between attitude and behavioral intention.

Attitude towards Mobile Banking Adoption Intention

Attitude is a set of emotions, beliefs, and behaviors toward a particular object (Cherry, 2021) and an individual opinion toward behavior (Tan et al., 2019). Attitude towards mobile banking can be measured in terms of positive views such as a good and wise idea (Akturan & Tezcan, 2012) and benefits (Foroughi et al., 2019). Attitude mediates

the relationship between perceived usefulness and behavioral intention (Shanmugam et al., 2014), as well as the relationship between perceived ease of use and behavioral intention (Shanmugam et al., 2014).

Perceived Usefulness and Attitude

Ummah et al. (2021) cited that perceived usefulness is “the advantage of consumer experience in software use” (p.30). Consumers view mobile banking as useful because it improves efficiency (Davis, 1989). Moreover, Aboelmaged & Gebba (2013) measure perceived usefulness based on the amount of time and cost saved when consumers use mobile banking and the extent to which consumers get accessed the information as needed when using mobile banking. Consumers are more likely to form a positive opinion towards mobile banking because of its usefulness (Aboelmaged & Gebba, 2013; Shanmugam et al., 2014). Thus, the study proposes the following hypothesis.

H1 Perceived usefulness has a significant positive effect on an attitude towards mobile banking adoption.

Perceived Ease of Use and Attitude

Davis (1989) refers to perceived ease of use as free of effort while (Schierz et al. (2010), Daştan & Gürler (2016), and Wardani (2021) view the ease of use of mobile banking as easy, flexible, user-friendly. Furthermore, perceived ease of use has been found to have a positive impact on attitude toward m-banking (Wardani, 2021). Therefore, the study proposes the following hypothesis.

H2 Perceived ease of use has a significant positive effect on an attitude towards mobile banking adoption.

Behavioral Intention to Adopt Mobile Banking

Yulihastri et al. (2011) refer to behavioral intention as a degree to which individuals are willing to perform a certain behavior. Wong et al. (2020) cited that “it establishes a linkage between the person and the adopted product or service” (p.93). For instance, Puriwat & Tripopsakul (2017) measure the consumers’ behavioral intention based on their willingness to use mobile banking in performing a financial transaction. Furthermore, behavioral intention is the outcome of the attitude in TAM (Davis et al., 1989; Ajzen, 1985), of subjective norm and perceived behavioral control in TPB (Ajzen, 1985), of compatibility (Alam et al., 2018), of observability (Lin et al., 2020), and of trust (Gefen et al., 2003).

Attitude and Behavioral Intention

Attitude is one of the main predictors toward behavioral intention in TPB (Ajzen, 1985), and it links to an individual’s willingness to adopt a mobile app for a commercial transaction (Indarsin & Ali, 2017). Previous studies have proved that there is a positive relationship between attitude and behavioral intention to adopt mobile banking (Shanmugam et al., 2014; Alam et al., 2018). Thus, this study proposes the following hypothesis.

H3 Attitude has a significant positive effect on the intention to adopt mobile banking.

Subjective Norm and Behavioral Intention

Ham et al. (2015) define a subjective norm as “the belief that an important person approves and supports a particular behavior” (p.740); moreover, Ham et al. (2015) refer to the subjective norm as social pressure, namely family, friends, colleagues, and others who are important to them. In Cambodia, social pressure plays an important role in adopting a new system, especially mobile banking. For instance, a family member can only transfer money from one member to another through the same brand of mobile banking; however, he or she has to pay an extra fee charge if he or she transfers via a different brand of mobile banking. Therefore, the intention to adopt mobile banking can be influenced by the subjective norm (Aboelmaged & Gebba, 2013; Alam et al., 2018). Hence, this study proposes the following hypothesis.

H4 Subjective norm has a significant positive effect on the intention to adopt mobile banking.

Perceived Compatibility and Behavioral Intention

Al-Jabri & Sohail (2012) cited that “the degree to which a service is perceived as consistent with the existing values, habits, and present and past experiences of the users is called compatibility” (p.381). In other words, it is “the degree to which mobile banking services are in line with consumer’s lifestyle and current needs” (Mutahar et al., 2017, p.770). This may exist in the case of mobile banking adoption in Cambodia as well since the lifestyle of the Cambodian people has changed due to the rise in a living standard and the Covid-19 pandemic. Likewise, previous studies found that compatibility had a significant positive effect on the intention to adopt mobile banking (Alam et al., 2018). Thus, the study proposes the following hypothesis.

H5 Perceived compatibility has a significant positive effect on the intention to adopt mobile banking.

Observability and Intention to Adopt Mobile Banking

As cited in (Al-Jabri & Sohail, 2012), observability is “the extent to which an innovation is visible to members of a social system, and the benefits can be easily observed and communicated” (p.381). The observability of mobile banking can be measured by looking at its service accessibility, queuing, and transaction (Al-Jabri & Sohail, 2012). This can be the case in Cambodia since users can always see their balance immediately after performing financial transactions via mobile banking. Moreover, their intention to adopt mobile banking can also be influenced by the presence of sellers or suppliers, namely shop vendors, business retailers, and supermarkets. Previous studies also proved the relationship between observability and intention (Iskandar et al., 2020). Thus, the study proposes the following hypothesis.

H6 Observability has a significant positive effect on the intention to adopt mobile banking.

Trust and Behavioral Intention

Customers view trust as worry-free and secure (To & Trinh, 2021); and it is a key factor to reduce the element of risk (Walugembe et al., 2015). Even though trust is not a new concept, it is still useful in the study of innovation adoption, such as mobile banking in Cambodia. Trust in mobile banking can be measured in terms of its reliability, security, and data protection. Furthermore, previous studies found that trust had a positive effect on behavioral intention to adopt mobile banking (Saparudin et al., 2020). Therefore, the study proposes the following hypothesis.

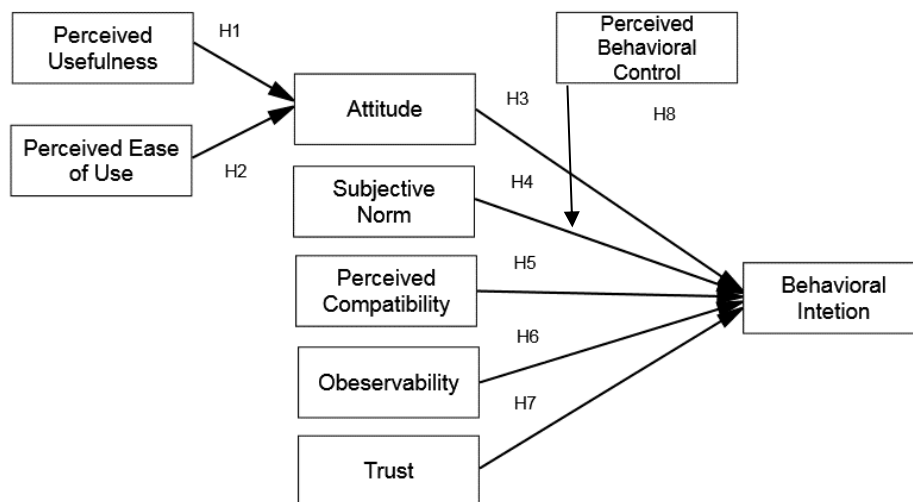
H7 Perceived trust has a significant positive effect on the intention to adopt mobile banking.

Perceived Behavioral Control as a Moderator

Ham et al. (2015) define perceived behavioral control (PBC) as “the perception of one’s own abilities and sense to control over the situation” (p.740). Moreover, Aboelmaged & Gebba (2013) measure PBC based on users’ ability and knowledge to control over mobile banking adoption. The role of PBC in TPB, whether it is the main predictor of behavioral intention or a moderator between attitude and behavioral intention, has been continuously debated. Many of the later empirical studies proved that PBC, together with attitude and subjective norm are the predictors of behavioral intention. However, some evidences showed that PBC is the moderator (Earle et al., 2020; Barbera & Ajzen, 2020). Therefore, this study proposes the following hypothesis.

H8 Perceived behavioral control significantly moderates the relationship between attitude and intention to adopt mobile banking.

Figure 1: Conceptual Model on the Study of Mobile Banking Adoption



Methodology

Research Design

Since the study attempts to predict the users' behavioral intention to adopt mobile banking, a correlational research design of a quantitative method was employed with a self-administered survey.

Sample and Sampling Design

The study determined 385 sample size since the number of mobile banking adopters in Phnom Penh City is unknown (Cochran, 1977). The following figure shows the sample size calculation, which is based on the reliability level of 95% and the acceptable sampling error of 5% (Chaokromthong et al., 2021).

Figure 2: Sample Size Determination

$$n = \frac{z^2}{4e^2}$$

Note: n is the sample size; z is the reliability level of 95% equaling to 1.96; e is the acceptable sampling error equaling to 0.05

As stated in the Conventional Rules, the 385 sample size is suitable for running a multiple regression analysis in this study; for example, Pedhazur & Schmelkin (1991) recommended $N \geq 30k$ for the sample size of multiple regression, where k is the number of predictors, which is equivalent to 240 sample size for eight predictors. Moreover, Tabachnick & Fidell (2013) raise a case-to-IV ratio of 40 to 1 is reasonable for a practical use of statistical regression, which is equivalent to a 320 sample size.

As part of the sampling procedure, the study used multi-stage random by employing both probability and non-probability. The study used a purposive sampling of the non-probability by selecting sample members, who conformed to the criterion, namely the adopters who use mobile banking frequently (Schindler, 2019). After that, the study employed stratified sampling of the probability sampling by dividing the population into subgroups such as gender, age, educational background, occupational status, and income level. Finally, the study used simple random sampling to ensure that every mobile banking user on social media such as Facebook messenger, and telegram messenger, had an equal chance to participate in the survey link (Schindler, 2019).

Research Tools

The questionnaire was designed into three main categories, namely focusing on demographic factors in section one, measuring constructs with a rating 7-Likert scale in section two, and seeking comments in section three. The construct measurements of all variables in section two were adapted from Aboelmaged & Gebba (2013) for perceived usefulness, from Daştan and Gürler (2016) for perceived ease of use, from Foroughi et al. (2019) for attitude, from Venkatesh & Davis (2000) for subjective norm, from Shih & Fang (2004) for perceived behavioral control, from Püschel et al. (2010)

and Yu (2014) for perceived compatibility, from Al-Jabri & Sohail (2012) for observability, and from Gefen et al. (2003) for perceived trust.

The Control of Common Method Bias (CMB)

To minimize CMB, the study employed procedures and statistical controls by following the suggestion of Podsakoff et al. (2003). First of all, the questionnaire was designed into separated sections to test the difference between independent variables and a dependent variable. Moreover, the items of each construct had been adapted from the previous studies to maintain the content validity. Likewise, the seven-point Likert scale was used instead of the five-point in order to reduce rater errors, such as error of central tendency, leniency, and strictness (Schindler, 2019). Moreover, the respondents were requested to provide answers based on their opinions to avoid bias in their moods. Furthermore, the questionnaire was consulted with an expert to verify the unclear instruction, difficulties with transitions, and question order problems. In this sense, the questionnaire was designed in two languages (Khmer and English). Finally, the pilot test of the questionnaire with 40 target respondents showed that each variable had a high reliability as its Cronbach's alpha went above 0.7 (Nunnally, 1994). After checking the reliability of each individual variable, the study also conducted the confirmatory factor analysis (CFA) through AMOS. As a result, a valid and reliable questionnaire was developed before actual data collection.

Procedures of Data Collection

The questionnaire, designed in Microsoft Form, was disseminated to target mobile banking adopters through e-mail, Facebook, and other social media. Due to the Covid-19 pandemic, the data were collected every evening from 8:00 pm to 11:00 pm from Thursday to Sunday every week via online communication. A short conversation on mobile banking adoption was introduced with the respondents via Facebook messenger and Telegram messenger before asking them to fill in the survey; each respondent responded promptly with care during the survey process. The data were collected from the first week of August to the fourth week of October, 2021.

Data Analysis

The data were cleaned by checking the missing value, outlier, and dimensionality prior to conducting a statistical analysis (Corrales et al., 2018); moreover, the study conducted confirmatory factor analysis by using AMOS to check dimensionality prior to analyzing Cronbach's alpha, construct reliabilities, average variance extracted, and squared inter-construct correlation. Later, the study illustrated the model fit indices before running the structure equation model in AMOS's path diagram. Finally, the study ran a moderating effect of perceived behavioral control by using a hierarchical linear regression (HLG) in SPSS.

Results

Demographic Factors

The result of the demographic factors showed that most of mobile banking users were women, accounting for 51.40%. These male and female adopters were between 18 to over 50 years old and most of their age gap was between 18 to 25, making up 47.80%.

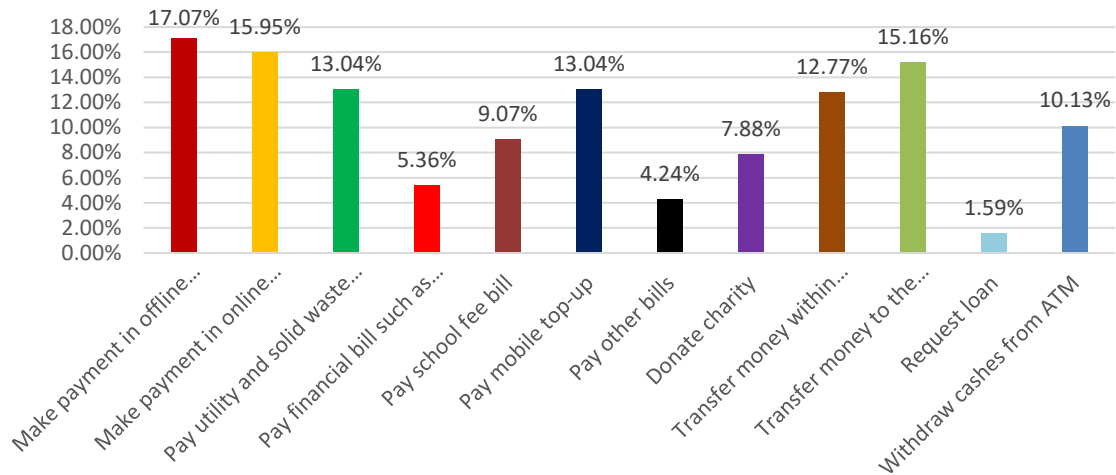
The majority of them held bachelor's degree and employees, consisting of 60.50% and 75.10%, respectively. For the income level, the adopters' income ranged from below 190 USD up to over 2000 USD and most of them had income ranging between 190 USD to 499 USD, comprising 42.30%. Furthermore, the study confirmed selecting the right target respondents since the majority of the adopters used mobile banking every day, accounting for 63.40%.

Table 2: Demographic Factors of the Respondents

Item	Categories (N = 385)	Frequency	Percentage
Gender	Female	198	51.40%
	Male	187	48.60%
Age Gap	18 to 25 years old	184	47.80%
	26 to 29 years old	42	10.90%
	30 to 39 years old	89	23.10%
	40 to 49 years old	62	16.10%
	Equal or Over 50 years old	8	2.10%
	Highest qualification	High school Bac II	12
Associate's degree		1	0.30%
Bachelor's degree		233	60.50%
Master's degree		125	32.50%
Doctorate's degree		14	3.60%
Occupation	Employee	289	75.10%
	Government officer	41	10.60%
	Business owner	17	4.40%
	Self-employed	19	4.90%
	Currently unemployed	19	4.90%
Income Level	Below \$190	24	6.20%
	\$190 - \$499	163	42.30%
	\$500 - \$999	109	28.30%
	\$1000 - \$1499	38	9.90%
	\$1500 - \$1999	18	4.70%
	Equal or Over \$2000	33	8.60%
Usage Frequency	Everyday	224	63.40%
	Twice a week	61	15.80%
	At least once a week	47	12.20%
	Twice a month	33	8.60%

The study also found that ABA Mobile and ACLEDA Mobile were the top brand of mobile banking, which were adopted at 37.06% and 32.64%, respectively; moreover, a majority of adopters used at least two brands of mobile banking. Likewise, the study revealed that a large majority of the participants used mobile banking for more than one purposes as shown in the following figure.

Figure 3: Purposes of using mobile banking



Confirmatory Factor Analysis (CFA)

Model Fitness Indices

Confirmatory factor analysis (CFA) confirmed that the proposed conceptual model on the study of mobile banking adoption met the goodness of model fitness indices, recommended by Schermelleh-Engel et al. (2003), namely $CMIN/DF=1.858 \leq 2$ (good fit), $RMSEA=0.047 \leq 0.05$ (good fit), $NFI=0.953 \geq 0.95$ (good fit), $CFI=0.977 \geq 0.97$ (good fit), $GFI=0.935 \geq 0.90$ (acceptable fit), and $AGFI=0.902 \geq 0.90$ (good fit).

Factor Loadings

The result of CFA also showed that the factor loadings of all items were highly adequate, above 0.50 as suggested by (Hair et al., 2006). Therefore, all of the constructs confirmed the convergent validity test so that those factor loadings could be used to estimate construct reliabilities (CR) and average variance extracted (AVE).

Cronbach’s Alpha and Construct Reliabilities

Table 3: Cronbach’s Alpha and Construct Reliabilities (CR)

Variable Names	Items	Cronbach’s alpha	CR
Perceived Usefulness (PU)	2	0.696	0.703
Perceived Ease of Use (PEO)	2	0.794	0.802
Attitude (ATT)	2	0.842	0.843
Subjective Norm (SN)	2	0.829	0.830
Perceived Behavioral Control (PBC)	3	0.914	0.917
Perceived Compatibility (COM)	3	0.914	0.918
Observability (OB)	2	0.867	0.867
Trust (T)	2	0.822	0.822
Behavioral Intention (BI)	3	0.840	0.841

The table above showed that each variable had a high Cronbach’s alpha after running CFA. Perceived usefulness had the lowest Cronbach’s alpha of 0.696, which was still acceptable, whereas perceived behavioral control and perceived compatibility had the highest Cronbach’s alpha of 0.914. This showed that all factors were reliable for the study except perceived usefulness, which is almost equal to 0.70 (Nunnally, 1994). Moreover, each construct consisted of composite reliability, reaching a high-reliability value of 0.7 (Hair et al., 2006). After CFA, the above table showed that all variables had high construct reliability.

Discriminant Validity of Constructs

The following table illustrates the result of variance extracted (VE), which is then calculated into average variance extracted (AVE). The VE for perceived usefulness, perceived ease of use, attitude, subjective norm, perceived behavioral control, perceived compatibility, observability, trust, and behavioral intention are 0.542, 0.671, 0.729, 0.710, 0.787, 0.789, 0.766, 0.697 and 0.638, respectively.

Table 4: Final CFA of All Variables

Variables	Items	Factor Loadings	Loading Squared	Sum of Loadings, Squared	Sum Delta	Construct Reliabilities	Variance Extracted																																																																																												
Perceived Usefulness	PU1	0.771	0.594	2.164	0.916	0.703	0.542																																																																																												
	PU2	0.7	0.49					Perceived Ease of Use	PEO3	0.748	0.56	2.667	0.657	0.802	0.671	PEO4	0.885	0.783	Attitude	ATT2	0.868	0.753	2.914	0.543	0.843	0.729	ATT3	0.839	0.704	Subjective Norm	SN1	0.831	0.691	2.839	0.58	0.83	0.71	SN3	0.854	0.729	Perceived Behavioral Control	PBC2	0.836	0.699	7.065	0.64	0.917	0.787	PBC3	0.935	0.874	PBC5	0.887	0.787	Perceived Compatibility	COM1	0.918	0.843	7.07	0.634	0.918	0.789	COM2	0.934	0.872	COM3	0.807	0.651	Observability	OB2	0.887	0.787	3.063	0.468	0.867	0.766	OB3	0.863	0.745	Trust	T1	0.842	0.709	2.789	0.605	0.822	0.697	T3	0.828	0.686	Behavioral Intention	BI1	0.826	0.682	5.741	1.085	0.841	0.638	BI2
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Subjective Norm	SN1	0.831	0.691	2.839	0.58	0.83	0.71																																																																																												
	SN3	0.854	0.729					Perceived Behavioral Control	PBC2	0.836	0.699	7.065	0.64	0.917	0.787	PBC3	0.935	0.874		PBC5	0.887	0.787					Perceived Compatibility	COM1	0.918	0.843	7.07	0.634	0.918	0.789	COM2	0.934	0.872		COM3	0.807	0.651					Observability	OB2	0.887	0.787	3.063	0.468	0.867	0.766	OB3	0.863	0.745	Trust	T1	0.842	0.709	2.789	0.605	0.822	0.697	T3	0.828	0.686	Behavioral Intention	BI1	0.826	0.682	5.741	1.085	0.841	0.638	BI2	0.798	0.637		BI3	0.772	0.596																	
Perceived Behavioral Control	PBC2	0.836	0.699	7.065	0.64	0.917	0.787																																																																																												
	PBC3	0.935	0.874																																																																																																
	PBC5	0.887	0.787					Perceived Compatibility	COM1	0.918	0.843	7.07	0.634	0.918	0.789	COM2	0.934	0.872	COM3	0.807	0.651	Observability	OB2	0.887	0.787	3.063	0.468	0.867	0.766	OB3	0.863	0.745	Trust	T1	0.842	0.709	2.789	0.605	0.822	0.697	T3	0.828	0.686	Behavioral Intention	BI1	0.826	0.682	5.741	1.085	0.841	0.638	BI2	0.798	0.637	BI3	0.772	0.596																																										
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Hair et al. (2006) suggest that a good discriminant validity existed as average variance extracted (AVE) was greater than the squared inter-construct correlation (SIC). “If AVE is less than SIC, the problem of multicollinearity would exist” (Fornell & Larcker, 1981). “The values of AVE above 0.7 are considered very good, whereas the level of 0.5 is acceptable” (Fornell & Larcker, 1981).

The following table revealed that each AVE value is more than the (SIC). Thus, discriminant validity theory was accepted, or multicollinearity was absent. In other words, each construct could be considered distinctively from one to another (Fornell & Larcker, 1981).

Table 5: Compare between SIC and AVE

	PU	PEO	ATT	SN	PBC	COM	OB	T	BI
PU	1								
PEO	-0.149	1							
ATT	-0.046	-0.108	1						
SN	-0.363	-0.264	-0.407	1					
PBC	-0.286	-0.281	-0.26	-0.419	1				
COM	-0.251	-0.305	-0.267	-0.398	-0.188	1			
OB	-0.33	-0.206	-0.242	-0.457	-0.277	-0.3	1		
T	-0.306	-0.194	-0.371	-0.354	-0.369	-0.353	-0.287	1	
BI	-0.106	-0.051	-0.008	-0.265	-0.185	-0.158	-0.171	-0.313	1

Path Analysis

The result of a regression analysis of path one showed that perceived usefulness (PU) and perceived ease of use (PEO) had a significant positive effect on the attitude with standardized regression weight of PU ($\beta=0.500$) at the level significance of (0.000) and standardized regression weight of PEO ($\beta=0.454$) at the level significance of (0.000).

The results of a regression analysis of path two showed that attitude, subjective norm, perceived compatibility, and observability had a significant positive effect on behavioral intention with standardized regression weight of ATT ($\beta=0.481$) at level significance (0.000), SN ($\beta=0.179$) at level (0.002), COM ($\beta=0.210$) at level (0.000), and OB ($\beta=0.207$) at level (0.002). However, trust did not have a significant impact on behavioral intention with a standardized regression weight ($\beta=-0.059$) at level (0.362).

Finally, the moderating effect of perceived behavioral control on the interaction between attitude and behavioral intention was statistically significant. The interaction term (PBC_ATT) significantly interacted between attitude and behavioral intention with ($\beta = 1.917$) at the significant level of ($p = 0.007 < 0.05$). Through the hierarchical linear regression (HLG), $R^2=0.009$ changed from the first block ($R^2=0.547$) to the second block ($R^2=0.556$). Therefore, the finding of the study illustrated that the influence of attitude on behavioral intention depended on perceived behavioral control.

Summary of Hypothesis Testing

The following table showed that H1, H2, H3, H4, H5, H6, and H8 were all supported at the significance level of (0.000), (0.000), (0.000), (0.002), (0.000), (0.002), and (0.007) respectively. However, H7 was rejected at the significance level of (0.362).

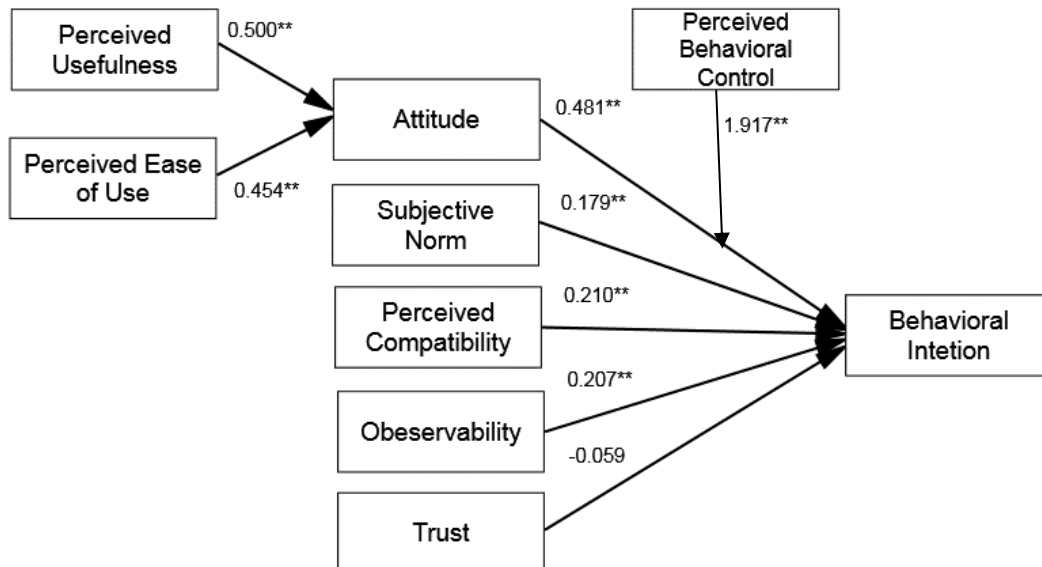
Table 6: Summary of Hypothesis Testing

Hypotheses	Significance Value	Statistical Significance
H1 Perceived usefulness has significant positive effect on attitude to adopt mobile banking.	0.000**	Supported
H2 Perceived ease of use has significant positive effect on attitude to adopt mobile banking.	0.000**	Supported
H3 Attitude has significant positive effect on the intention to adopt mobile banking.	0.000**	Supported
H4 Subjective norm has significant positive effect on the intention to adopt mobile banking.	0.002**	Supported
H5 Perceived compatibility has significant positive effect on intention to adopt mobile banking	0.000**	Supported
H6 Observability has a significant positive effect on intention to adopt mobile banking.	0.002**	Supported
H7 Trust has a significant positive effect on intention to adopt mobile banking.	0.362	Rejected
H8 Perceived Behavioral Control significantly moderates the interaction between the attitudes and the intention to adopt mobile banking.	0.007**	Supported

Discussion

The following figure shows the result of the proposed conceptual model on mobile banking adoption in Cambodia.

Figure 4: Results of the conceptual model on mobile banking adoption



The Proposed Conceptual Model

This study reveals that the proposed model is statistically significant since it meets the goodness of fit indices, which is in line with (Alam et al., 2018); however, there are some differences between the two studies. For instance, Alam et al. (2018) found that “a total of 72.2 percent variance is explained in mobile banking adoption intention” (p.394), whereas this study found a lower variance of 62.6 percent. Moreover, the current study structures perceived usefulness and perceived ease of use as the predictors of attitude, while Alam et al. (2018) assign the two variables as the predictors of behavioral intention. Another difference is that this study structures observability as the predictor of behavioral intention and assigns perceived behavioral control as the moderator which interacts between attitude and behavioral intention, whereas Alam et al. (2018) structure trialability and perceived behavioral control as the predictors of behavioral intention. Therefore, the proposed conceptual model is likely a pure one in the study of mobile banking in Cambodia, especially in ASEAN.

Factors Influencing Mobile Banking Adoption Intention

Perceived Usefulness and Perceived Ease of Use

Perceived usefulness has a significant positive impact on the attitude towards mobile banking adoption with ($\beta=0.500$). This, later on, influences users' intention to adopt mobile banking. Thus, this study reveals that the adopters form a positive opinion towards mobile banking because it improves their work and life efficiency and allow them to access to the financial information. The result is more likely true in this case since most of the adopters are the employees. The finding of this study is consistent with (Aboelmaged & Gebba, 2013).

Perceived ease of use has a significant positive impact on attitude towards mobile banking adoption with ($\beta=0.454$). In this sense, this study reveals that the adopters form a positive opinion of mobile banking as it is easy to use and user-friendly which influences their intention to use mobile banking later. The finding of this study is in line with (Raza et al., 2017; Prastiawan et al., 2021). However, this finding is slightly different from (Aboelmaged & Gebba, 2013) since they assign PEO as the mediator between PU and ATT.

Attitude toward Mobile Banking Adoption

Attitude has a positive significant impact on the behavioral intention with ($\beta=0.481$). This means that the adopters are willing to use mobile banking because they have formed a positive opinion of mobile banking, such as good and beneficial. It is hard to reject this finding, especially in adopting a particular system like mobile banking since this finding is consistent with (Alam et al., 2018; Vuong et al., 2020).

Subjective Norm

Subjective norm has a significant positive impact on behavioral intention with ($\beta=0.179$). The finding of this study is in line with (Ajzen, 1985; Venkatesh & Davis, 2000; Alam et al., 2018; Vuong et al., 2020). However, this finding is inconsistent with (Shih & Fang, 2004). The influence of subjective norm is not supported because the

users are familiar with Internet banking adoption in Taiwan (Shih & Fang, 2004). This study illustrates that subjective norm, such as closed friends and colleagues, also plays important role in pushing users' intention to adopt mobile banking.

Perceived Compatibility

Perceived compatibility has a significant positive impact on the behavioral intention with ($\beta=0.210$). The finding of this study backs up the study of (Kanchanatane et al., 2014; Aydin & Burnaz, 2016). However, the findings of this study is opposite to (Sang et al., 2010) because the Internet adoption at that time was comparatively low. On the other hand, this finding is slightly different from (Al-Jabri & Sohail, 2012). Therefore, this study indicates that the adopters in Cambodia intend to use mobile banking because it fits well with their styles and habits. This is more likely true since most of the mobile banking adopters are young adults and adults who are employed.

Observability

Observability has a significant positive impact on the behavioral intention with ($\beta=0.207$). The finding of this study is consistent with (Iskandar et al., 2020). However, it is slightly different from (Al-Jabri & Sohail, 2012) as they found that observability has a direct effect on consumers' satisfaction to adopt mobile banking. It is hard to reject this relationship as there is a lack of study that employ observability in the study of mobile banking. It is considered pure finding that the adopters are willing to use mobile banking because they can see the immediate and accurate results of their mobile banking transactions.

Trust

Trust does not have a significant positive impact on the behavioral intention with ($\beta=-0.059$). It is a surprised finding in this study since trust is not the predictor of mobile banking adoption intention. In addition, it reduces users' intention to adopt mobile banking due to its negative sign. Nonetheless, this finding contradicts with (Saparudin et al., 2020). More or less, this finding supports the study of (Koenig-Lewis et al., 2010). In Cambodia, trust is not the predictor of mobile banking adoption intention.

Perceived Behavioral Control

Perceived behavioral control significantly interacts between attitude and behavioral intention with ($\beta = 1.917$) at the significant level of ($p = 0.007 < 0.05$). In other words, the influence of attitude on behavioral intention to adopt mobile banking depended on perceived behavioral control. The finding of this study is consistent with (Earle et al., 2020; Barbera & Ajzen, 2020).

Implications

The findings of this study contribute significantly to the existing model of TAM, DIT, and TPB on the study of mobile banking in Cambodia, especially the practical issues of perceived behavioral control and trust in the proposed conceptual model.

First of all, two variables of TAM, namely perceived usefulness and perceived ease of use are still the main predictors of attitude towards mobile banking adoption. If the study employs TAM alone, there should be at least four items in each predictor; however, if the study uses SEM in integrating TAM and DIT into TPB, two items of perceived usefulness (PU1 & PU2) and two items of perceived ease of use (PEO3 & PEO4) should be adopted in designing a research instrument.

Secondly, two variables of TPB, namely attitude and subjective norm, are still the main predictors of behavioral intention in the proposed conceptual model. Therefore, the study recommends adapting two items of attitude (ATT2 & ATT3) and two items of subjective norm (SN1 & SN3) when designing the research tool.

Thirdly, two variables of DIT, namely perceived compatibility and observability, become the main predictors of behavioral intention in the proposed conceptual model. As a result, the study recommends replicating these items for designing the questionnaire, namely perceived compatibility (COM1, COM2 & COM3) and observability (OB2 & OB3).

Fourthly, the study suggests adapting two items of trust (T1 & T3) to design the questionnaire. Even though trust is not the main predictor of behavioral intention in the proposed conceptual model, it can be the predictor of attitude in the original TPB. Therefore, the study recommends removing trust from the proposed conceptual model if more external variables are structuring into TPB.

Finally, the study suggests adapting three items of perceived behavioral control (PBC2, PBC3 & PBC5) and three items of behavioral intention (BI1, BI2 & BI3) in order to design the questionnaire. Furthermore, the study recommends structuring perceived behavioral control as the moderator, which interacts between attitude and behavioral intention when using a particular new system, especially mobile banking.

Practical Implications for Asian Business

Conceptual Model Implications

The proposed conceptual model, which structures two variables of TAM, two variables of DIT, and Trust into TPB, becomes pure empirical study of mobile banking adoption in Cambodia. This model serves as a knowledge-based system adoption for future studies in the field of finance and banking either in Cambodia or ASEAN.

Managerial Implications

Several banks and financial institutions have not yet developed payment infrastructure and digital transformation (ECSN, 2021). This study suggests the decision-makers in the banking and financial sectors that they should reconsider investing in mobile banking and upgrading mobile banking service.

The reasons behind this suggestion are that mobile banking adopters whose age gap between 18 to 49 years old and salary between 190 USD to 1499 USD comprises cumulative percentage of 97.9 and of 80.5, respectively. At the same time, the adopters

use mobile banking every day at 63 percent and twice a week at 15.8 percent. Moreover, they use mobile banking with several purposes, namely for paying offline/online shopping, transferring money to the account of others, paying bill, paying mobile top-up, and withdrawing cash from ATMs.

Besides these demographic reasons, the study also suggests mobile app developers to make the contents or features of mobile banking user-friendly. Furthermore, the financial institutions or banks, should pay close attention to building customers' trust by constantly updating their mobile banking services; so that they can solve the security issues quickly. In addition, they should make the customers' financial transactions observable, namely secured, immediate, and accurate effects of each transaction.

More importantly, the financial institutions or banks should strengthen their customer services to increase customers' satisfaction and solve customers' complaints quickly and effectively. For instance, when customers call for help in the case of transferring money to the wrong account via mobile banking, the customer service center has to disseminate this issue immediately to the relevant authority for quick solution.

At the same time, the financial institutions or banks should build partners with offline-and-online stores, shop vendors, supermarkets, and large shopping malls by initiating sale discounts when the customers perform financial transactions via mobile banking. The sale promotion or sale discount can be done regularly, weekly, monthly, or seasonally.

In addition, the financial institutions or banks should build partners with SMEs and large institutions. The reason is that a large majority of the mobile banking adopters are employees at the company/organization/school. The first step is to collaborate with these SMEs and large institutions on the opening of payroll accounts. Then the financial institutions or banks should guide these employees the way to connect their payroll accounts to mobile banking and the way to use it.

Likewise, the financial institutions or banks should segment mobile banking adopters based on gender and income level. They should focus on the needs and wants of both male and female adopters with the average income per month ranging from 190 USD to 1499 USD. As this target group has been attracted, they can also introduce or refer their close friends, family, or colleagues to adopt mobile banking as well. This is the evidence of subjective norm in predicting behavioral intention to adopt mobile banking.

Another pop-up idea from the adopters' comments is that adopting mobile banking across the border would be wise. The study suggests that the financial institutions or banks to look for partner banks overseas, especially in the ASEAN region since ASEAN Economic Community has been launched since 2015.

Finally, inter-bank partnership through the Bakong payment system, the latest generation of mobile payments and banking platform initiated by NBC, is unavoidable. The study suggests the financial institutions or banks which have already developed their mobile banking app to connect to the Bakong app in order to transfer money from one bank to another since there are 28 mobile banking brands partnering with Bakong App as of December 21, 2021.

Regulator Implications

Trust is still a significant concern in this study since it does not predict behavioral intention to adopt mobile banking. Promoting trust needs key stakeholders' involvement, especially the NBC, which is the regulator. According to the public announcement on the Technology Risk Management Guidelines, issued on July 22, 2019, by the National Bank of Cambodia, banks and financial institutions shall solve technical issues no later than two hours. However, the issue of the ABA mobile and the Bankong App has been solved for more than 10 hours after a technical breakdown. Although this issue has been solved, it still affects customers' trust in mobile banking adoption. Therefore, NBC should implement its measurement more effectively than the current solution.

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