

The Effect of Culture on Performance Expectancy, Intention, and Trust in Mobile Payment Adoption

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ABSTRACT

This study aims to investigate the role of culture at an individual level in the context of m-payment adoption. Specifically, it examines the effect of uncertainty avoidance and collectivism based on the Hofstede cultural dimensions on three important constructs in technology adoption as well as m-payment adoption, which are performance expectancy, behavioural intention, and consumer trust. The data was collected in Vietnam, which ranked first in m-payment development worldwide in 2019, to test the hypotheses. The findings confirmed the significant impact of cultural variables in the context of mobile payment adoption. The positive and significant impacts of performance expectancy on behavioural intention and consumer trust and consumer trust on behavioural intention are also confirmed, which are aligned to previous studies. This research contributes to the body of literature of not only m-payment adoption but also the impact of culture in m-payment adoption in particular and technology adoption in general.

KEYWORDS

Culture, Hofstede, Mobile Payment Adoption, Trust, UTAUT

1. INTRODUCTION

Mobile payment (m-payment) is conceptualised as a contemporary payment method that is processed via mobile devices such as smartphones or personal mobile devices (Xin, Techatassanasoontorn, & Tan, 2015). M-payment is considered as a subset of the broad area of electronic commerce (e-commerce) or mobile commerce (m-commerce) which performs electronic payments for consumers. With the advance of communication technology and digital personal devices, m-payment helps consumers to conduct payment transactions quickly, conveniently, and accurately without concerns about the

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location and time. M-payment global usage is predicted to grow 28% by 2022, and will possibly exceed the usage of cash and credit cards, therefore m-payment plays an important role in promoting the development towards the forthcoming cashless world (MerchantSavvy, 2019).

Despite the advance of mobile technologies, the popularity of mobile devices, and the benefits of m-payment such as usefulness, convenience, security, more effective administration of financial expenses, and improvement of the customer experience (Silva, 2018), the penetration and adoption of m-payment are still lower than expected (Patil, Rana, Dwivedi, & Abu-Hamour, 2018). This leads to a need to study the factors influencing m-payment adoption (Gao & Waechter, 2017; Qasim & Abu-Shanab, 2016; Yan & Yang, 2014). In addition, there is a substantial development of m-payment in many developing economies which drives a lot of economic activity while many developed countries are in the beginning stage (BBVA, 2015; Clark, 2017). Consequently, research on m-payment adoption in developing countries is significant for both practice and theory.

Culture plays a crucial role in consumer technology adoption because it may cause and explain a discrepancy in consumer behaviour in acceptance as well as intention to adopt a new system or technology (Choi, Lee, Sajjad, & Lee, 2014; Goodrich & de Mooij, 2011; Xu-Priour, Truong, & Klink, 2014). Many previous studies have suggested the significant impact of culture on technology adoption (Ebrahimi, Singh, & Tabrizi, 2010; Huang, 2017; Olasina & Mutula, 2015; Srite & Karahanna, 2006). Consequently, the influence of culture on e-commerce in general and in m-payment in particular has been highlighted and needs to be investigated further (Hallikainen & Laukkanen, 2018; Nguyen, Dick, & Pham, 2020; Xu-Priour, 2015).

In the context of technology adoption as well as m-payment adoption, performance expectancy (PE), behavioural intention (BI), and customer trust are recognised as vital drivers. PE and BI have been adopted widely and are considered as the best predictors in technology adoption based on the reviewing studies using the unified theory of acceptance and use of technology (UTAUT) as the theoretical background (Williams, Rana, & Dwivedi, 2015). The models of technology use and acceptance which was developed in developed countries need to be verified further in different contexts (Venkatesh, Thong, & Xu, 2012), such as non-Western context or developing countries (Al-Qeisi, Dennis, & Abbad, 2015; Baptista & Oliveira, 2015; Tarhini, El-Masri, Ali, Serrano, & People, 2016; Yoon, 2009). Consumer trust (CT) is important and necessary because it helps consumers feel confident and safe, thereby overcoming their concerns about risks and uncertainty when using a new technology (McKnight, Choudhury, & Kacmar, 2002). Many previous studies have empirically proven the significant role of CT in technology adoption and m-payment adoption (Li & Li, 2008; Pavlou & Gefen, 2004; Piao, Wang, & Yang, 2012; Xin et al., 2015; Zhou, 2014). Consequently, this study adopts PE, BI and CT as representative and reliable factors for models of technology use and acceptance in the context of m-payment adoption.

In alignment with previous studies (e.g. Baptista & Oliveira, 2015; Srite & Karahanna, 2006; Yoon, 2009), this research aims to investigate the impact of culture variables at an individual level in the context of m-payment adoption. In particular, based on the literature review and suitability with m-payment adoption, this study examines the impact of uncertainty avoidance on the important variables in technology adoption as well as m-payment adoption which are PE, CT, BI, and the effect of collectivism on CT. In addition, it aims to verify the important factors of consumer acceptance of technology models which were developed and tested in developed countries when applying these to a developing country.

The data was collected in Vietnam to test the model and hypotheses. Vietnam is a developing country which has a significant potential market for m-payment development (Fintechnews, 2018b) with a large volume of young people who are partial to new technologies (Fintechnews, 2015; Ho, 2018), with a high percentage of the population using smartphones (Statista, 2018), and with fast development of the e-commerce market (Fintechnews, 2018a). The growth rate of m-payment adoption in Vietnam ranked highest worldwide in 2019 (PwC, 2019). As a result, the research on the impact of culture variables in the context of m-payment adoption not only can help Vietnam to improve

its m-payment market, but also contribute to the literature on m-payment adoption and culture in m-payment adoption as well as technology adoption.

This paper is divided as follows: the next section explores the conceptual background related to m-payment adoption by consumers, trust, and culture in technology adoption. The third section will present the research model and hypotheses. Then the research methodology, data analysis and results, discussion of the findings, implications and limitations will be presented in turn.

2. CONCEPTUAL BACKGROUND

In this section, the theoretical basis of this research is presented along with a literature review of consumer technology adoption.

2.1. Consumer Acceptance Technology Theories

There are a number of behavioural models to explain technology acceptance/adoption of consumers. UTAUT is one of most prominent models which have been adopted widely in research on technology adoption (Venkatesh, Thong, & Xu, 2016). UTAUT posits that BI is a key dependent variable which significantly impact on consumer use behaviour of technology.

UTAUT was formulated and proposed by Venkatesh, Morris, Davis, and Davis (2003) unifying eight prominent models which were the Theory of Reasoned Action (Fishbein & Ajzen, 1975), the Technology Acceptance Model (TAM) (Davis, Bagozzi, & Warshaw, 1989), the Motivational Model (Keller, 1987), the Theory of Planned Behaviour (TPB) (Ajzen, 1985), the combined TAM and TPB (Taylor & Todd, 1995), the Model of PC Utilization (Thompson, Higgins, & Howell, 1991), Diffusion of Innovation theory (Rogers, 1962), and Social Cognitive Theory (Bandura, 2001). Therefore, UTAUT covers most of the needed variables to provide an understanding of technology acceptance and adoption of a new system (Qasim & Abu-Shanab, 2016). An analysis by Venkatesh et al. (2003) showed that UTAUT has an adjusted R^2 of 69 per cent, which improves on the eight previous models. Since its appearance, much research in technology adoption has adopted UTAUT successfully as a theoretical lens (Williams et al., 2015). PE was conceptualised from perceived usefulness in TAM. In the context of m-payment, PE can be defined as the degree to which an individual believes that using the m-payment system will help him or her to attain gains in payment performance (adapted from Venkatesh et al., 2003, p. 447). The review of Williams et al. (2015) found out that PE and BI are the most adopted and best predictors in research in technology adoption that was using UTAUT as a theoretical background.

Accordingly, PE and BI are key constructs which play important roles in technology adoption studies in general. Consequently, this research employs these to verify the effectiveness of consumer acceptance models developed in advanced countries in a new context which is m-payment adoption in a developing country. In addition, PE and BI also are adopted as dependent variables for the purpose of examining the impact of culture variables on m-payment adoption.

2.2. Consumer Trust

In this study, CT is defined as customers' beliefs and willingness to rely on m-payment for transactions (adapted from Alhulail, 2018; McKnight et al., 2002; Xin et al., 2015). A lack of CT is a serious barrier to any e-commerce activity (McKnight et al., 2002) as well as mobile commerce services (Chen & Dhillon, 2003; Joubert & Belle, 2009). As a result, CT plays an important role in m-payment adoption, and therefore, has received the attention of researchers. Many previous studies have recognised the significant impact of CT in m-payment adoption (Andreev, Pliskin, & Rafaeli, 2012; Hillman & Neustaedter, 2017; Patil et al., 2018; Qasim & Abu-Shanab, 2016; Xin et al., 2015; Yan & Yang, 2014). Consequently, this research adopts CT as one of the important factors in m-payment adoption and investigates the impact of culture on it.

2.3. Culture Values and Consumer Behaviour

Culture is defined as the “collective programming of the mind which distinguishes the members of one group or category of people from those of another” (Hofstede, 1993, p. 4). Researchers have highlighted the importance of culture in research on technology adoption and have suggested adding cultural factors in technology acceptance models because culture significantly influences the way consumers use information systems (Im, Hong, & Kang, 2011; Park, Yang, & Lehto, 2007). Obviously, different cultures lead to different attitudes, preferences, and values of consumers in e-commerce activity as well as m-payment (Hallikainen & Laukkanen, 2018; Nguyen et al., 2020; Xu-Priour, 2015; Yoon, 2009). Many studies have confirmed the significant impact of culture at individual level on technology adoption (Baptista & Oliveira, 2015; Srite & Karahanna, 2006; Yoon, 2009). Consequently, this study adopts culture as individual variables to examine the impact of these on m-payment adoption.

Hofstede’s cultural framework is one of the most important and influential cultural studies (Baptista & Oliveira, 2015). Hofstede analysed the cultural characteristics around the world and suggested six dimensions of culture including: power distance, long/short term orientation, masculinity/femininity, indulgence/restraint, individualism/collectivism, and uncertainty avoidance. The meanings of each dimension are in Table 1.

The significant impact of Hofstede cultural dimensions has been empirically identified in many studies in technology adoption (Ebrahimi et al., 2010; Huang, 2017; Olasina & Mutula, 2015; Pavlou & Chai, 2002; Srite & Karahanna, 2006). However, Hofstede (2011) pointed out that choosing dimensions of Hofstede cultural framework depends on the level of aggregation, i.e. the concordance of the research context.

The context of m-payment adoption is an utilitarian and voluntary application. Accordingly, the effect of power distance which refers to the relationship between supervisors and subordinates in organisations does not seem to be an influence on technology adoption in the case of m-payment adoption as there is no superior/subordinate relationship involved in the m-payment service. The long term orientation dimension which refers to how every society maintains their traditions (Hofstede-insights, 2018), also may not reflect clearly in the context of m-payment, because the payment method could be the habit of citizens rather than an important tradition in culture (Bloomberg, 2019).

The review of Mandler, Seifert, Wellbrock, Knuth, and Kunz (2018) based on the data from 43 countries across six continents revealed that indulgence/restraint, and masculine/feminine as well as gender have no significant impact on both the adoption and actual usage of m-payment. Consequently,

Table 1. Hofstede’s cultural dimensions

Dimensions	Meanings
Power Distance	“the extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed inequality” (Hofstede, 2001, p. 98)
Individualism/Collectivism	“the degree to which a society emphasizes the role of the individual” (Yoon, 2009, p. 294)
Masculinity/Femininity	“the degree to which a society emphasizes traditional masculine values (such as competitiveness, achievement, and ambition), as opposed to others (such as nurturing, helping others, and valuing quality of life)” (Yoon, 2009, p. 294)
Long Term Orientation	“fostering of virtues oriented towards future rewards” (Yoon, 2009, p. 294)
Uncertainty Avoidance	“the extent to which the members of a culture feel threatened by uncertain or unknown situations” (Hofstede, 2001, p. 161)
Indulgence/Restraint	“the extent to which people try to control their desires and impulses” (Hofstede-insights, 2018)

the indulgence/restraint dimension meaning that “the extent to which people try to control their desires and impulses” (Hofstede-insights, 2018), may be more suitable for the adoption of hedonic applications such as social sites or shopping, rather than an utilitarian application like m-payment. The masculine/feminine dimension which refers what motivates people, masculine values (such as award or achievement) or feminine values (such as nurturing or helping others) also does not fit the context of m-payment applications which just aim to conduct payment transaction for consumers without a clear achievement or nurturing in the society.

As a result, the authors do not adopt four dimensions namely power distance, masculine/feminine, indulgence/restraint and long term orientation as cultural variables in this study. Instead, based on the literature review and the suitability with the context of research, the authors adopt uncertainty avoidance (UA) and collectivism as cultural variables and propose explanations and arguments in the next section.

3. THE PROPOSED MODEL AND HYPOTHESES

The proposed model aims to (1) investigate the effect of cultural variables including UA and collectivism on the important factors in technology adoption for m-payment adoption which are PE, CT and BI; (2) confirm the relationship between these important variables of consumer acceptance technology models developed in advanced countries in the context of m-payment adoption in a developing country.

Previous studies found the important impact of PE on CT in the adoption of e-commerce (Li & Yeh, 2010), m-commerce (Lin, Wang, Wang, & Lu, 2014), and m-payment (Yan & Pan, 2014; Yan & Yang, 2014). In addition, existing literature has also recognised the direct effect of PE on the adoption of e-commerce (Gefen, Karahanna, & Straub, 2003; Van der Heijden, Verhagen, & Creemers, 2003), mobile banking (Luo, Li, Zhang, & Shim, 2010), and m-payment (Kim, Mirusmonov, & Lee, 2010; Srivastava, Chandra, & Theng, 2010). As a result, the authors argue that if consumers perceive the performance of m-payment, they may be more likely to trust m-payment and intend to adopt m-payment. This leads to the following hypothesis:

H1: PE positively influences CT in m-payment adoption.

H2: PE positively influences BI in m-payment adoption.

CT is a key driver to BI to adopt technology such as mobile business (Guangming & Yuzhong, 2011), m-commerce (Hollingsworth & Dembla, 2013), m-payment (Andreev et al., 2012; Hillman & Neustaedter, 2017). As a result, the authors argue that if consumers trust m-payment, they may be more likely to intend to adopt m-payment. This leads to the following hypothesis:

H3: CT positively influences BI in m-payment adoption.

Prior research has found contradictory outcomes about the impact of UA on technology adoption. Some researchers have argued that cultures with high levels of UA usually feel scared of uncertain and ambiguous situations (Bagchi, Cerveney, Hart, & Peterson, 2003). As a result, they will try to avoid them, leading to less trust as well as a low rate of technology adoption because a new technology such as m-payment may be highly risky and uncertain (Xin et al., 2015). In contrast, other researchers have found a positively significant impact of UA on BI of technology adoption because the concerns about the risks are offset by the effectiveness that a new technology has brought to process and outcome, leading to more willingness to use this (Ebrahimi et al., 2010; Perez-Alvarez, 2014). Data in this research was

collected from experienced m-payment consumers in Vietnam. Vietnam is a low UA society, therefore avoiding uncertainty is a low preference, and innovation (such as m-payment) are not seen as threats for Vietnam m-payment consumers in general (Hofstede-insights, 2018). In addition, experienced m-payment consumers participated in this survey may be aware of the performance and usefulness of m-payment. Consequently, m-payment may not be considered as a highly risky technology anymore once experienced m-payment consumers keep using it. Accordingly, the perception of performance and usefulness of m-payment can offset its potential risks, therefore they are more prone to adopt m-payment (Ebrahimi et al., 2010; Perez-Alvarez, 2014). As a result, the authors proposed the following hypothesis:

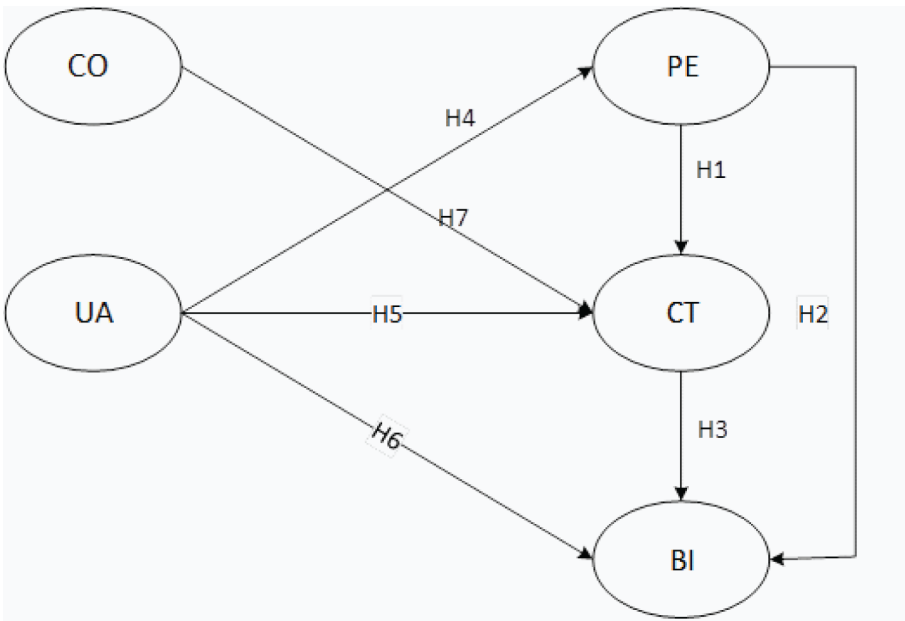
- H4:** UA positively influences PE in m-payment adoption.
- H5:** UA positively influences CT in m-payment adoption.
- H6:** UA positively influences BI in m-payment adoption.

People with individualist tendencies usually focus on themselves rather than with the group, while individuals with collectivist values focus more on the cohesiveness of the group, therefore they may be more interested in other's opinions about a new technology (Hofstede, 1984; Zakour, 2004). In collectivistic countries like Vietnam (Hofstede-insights, 2018), citizens may be more likely to trust a new technology like m-payment when others also use it (Arpaci & Baloglu, 2016; Baptista & Oliveira, 2015; Hofstede, 1984). This leads to the following hypothesis:

- H7:** Collectivism (CO) positively influences CT in m-payment adoption.

The proposed model and hypotheses are presented in figure 1.

Figure 1. The proposed model and hypotheses



4. RESEARCH METHODOLOGY

In this section, the research methodology including the design of measurement items, data collection and demographic data are discussed.

4.1. Measurement Items

The items were adapted from previous studies (Table 2). Each item was measured with a seven-point Likert scale, ranging from “strongly disagree” (1) to “strongly agree” (7). The items then were translated to Vietnamese and revised based on the pilot test. Respondents answered the survey by choosing the extent that they agreed or disagreed with the items.

4.2. Data Collection

The data collection was conducted in Vietnam, targeting the adult population that have used m-payment in the last three months before the survey. The survey was published online using Qualtrics tools, and under the approval of RMIT Ethics Committee (No. 0000021957). The results of the pilot test (31 respondents) was used to revise the wording of the questionnaires in Vietnamese and were excluded from the final data analysis. In order to start the survey, respondents needed to confirm two criteria which were: (1) they are over 18 years old, and (2) have used m-payment in last 3 months. A respondent only can complete the survey once. The authors used a social network (Facebook) to approach potential respondents for the survey. This approach was chosen because it makes participants feel safe and confident about the online survey and avoided appearing as a vector

Table 2. The measurement items

Construct and items	References
Performance Expectancy (PE) PE1. Using mobile payment has been useful in my daily life. PE2. Using mobile payment has increased my chances of completing financial transactions that are important to me. PE3. Using mobile payment has helped me pay things more quickly. PE4. Using mobile payment has increased my payment productivity.	(Venkatesh et al., 2003; Venkatesh et al., 2012)
Collectivism (CO) CO1. Being accepted as a member of a group is more important than having autonomy and independence. CO2. Group success is more important than individual success CO3. Being loyal to a group is more important than individual gain CO4. Individual rewards are not as important as group welfare	(Baptista & Oliveira, 2015; Srite & Karahanna, 2006; Yoon, 2009)
Uncertainty avoidance (UA) UA1. Rules and regulations are important because they inform workers what the organization expects of them UA2. Order and structure are very important in a work environment UA3. When starting a new job, I fear doing it. UA4. I fear uncertainty about the future.	(Baptista & Oliveira, 2015; Srite & Karahanna, 2006; Yoon, 2009)
Behavioural Intention (BI) BI1. I intend to continue using mobile payment in the future. BI2. I will always try to use mobile payment in my daily life. BI3. I plan to continue to use mobile payment frequently.	(Venkatesh et al., 2003; Venkatesh et al., 2012)
Consumer Trust (CT) CT1: Mobile payment always provides accurate financial services. CT2: Mobile payment always provides reliable financial services. CT3: Mobile payment always provides safe financial services CT4: Overall, I trust mobile payment	(Lu, Yang, Chau, & Cao, 2011; Qasim & Abu-Shanab, 2016)

for viruses or scams. In addition, given the situation that m-payment is voluntary and popular to Vietnamese citizens, participants can feel comfortable to answer the online survey from the trusted source (the social accounts of the authors) when they know that their answers are anonymous, and no private information will be collected. After 2 months, a total of 222 valid answers was collected. Table 3 shows the detailed descriptive statistics of the respondents' characteristics.

The data was further examined for common method bias based on Harman's test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The result showed that the biggest factor explains only 32.166% of the variance in the measure. This is much smaller than the cut-off value of 50% which is the indication the presence of the common method bias, therefore common method bias is not a concern in this study.

5. DATA ANALYSIS AND RESULTS

This study used SPSS and AMOS to analyse the collected data including 222 samples based on Structural Equation Modelling (SEM) which is a multivariate statistical analysis technique for evaluating and analysing the structural relationship between the latent variables and their measured variables with empirical data. The data was analysed with two steps: the reliability and validity assessment of the measurement model, and the structural model assessment and hypotheses testing. These two phases are presented following.

5.1. Measurement Model

The measurement model was assessed regarding construct validity, indicator validity, convergence validity and discriminant validity. Table 4 lists the necessary quality criteria for assessing measurement model which are the average variance extracted (AVE), composite reliability (CR), Cronbach's alpha values and factor loading. For the construct reliability, all the constructs have CR and Cronbach's alpha greater than 0.7, which implies that the construct reliability meets the requirement (Straub, 1989). For indicator reliability, Churchill (1979) pointed out that items should have loading over 0.7 and loading lower than 0.4 should be eliminated. The convergence validity was tested via AVE, and all the factors have AVE greater than 0.5 which is the minimum acceptable value (Henseler, Ringle, & Sinkovics, 2009). Discriminant validity was tested by the rule that the square root of the AVE of a construct is greater than the correlation between it and other constructs (Fornell & Larcker, 1981). Items UA3 and UA4 were dropped to ensure indicator reliability and discriminant validity. The square root of the AVE is shown on the diagonal of the matrix in bold in table 5 and all the constructs meet the requirement, suggesting discriminant validity.

The requirements of the model fit measurement are satisfied based on the criteria of Hu and Bentler (1999) and are shown in table 6.

5.2. Structural Model and Hypotheses Testing

This study uses SEM and AMOS to test structural model and hypotheses. The outcome is shown in the figure 2 below, which reveals that hypotheses 1, 2, 3, 4, 5, 6, 7 are supported with the significance is $p < 0.05$, $p < 0.01$, $p < 0.001$. The model explains a 51% of variation in PE, a 29% of variation of CT, and a 57% variation of BI in the context of m-payment adoption.

6. DISCUSSION

This section discusses the findings, the contributions and the implications, the limitation and future research for this study.

Table 3. Descriptive statistics of the respondents' characteristics

Measure		Frequency	Percent
Gender	Male	63	28.4
	Female	159	71.6
Education	High School	6	2.7
	College degree / Vocational school	5	2.3
	Bachelor degree	130	58.6
	Master degree	68	30.6
	PhD Degree	13	5.9
Occupation	Employee (Office workers – white-collar worker)	68	30.6
	Worker (Manual labourer – blue-collar worker)	4	1.8
	Tradesperson (electrician, plumber, carpenter, mechanic)	1	.5
	Civil servant (public servant, government employee)	38	17.1
	Self-employed	10	4.5
	Professional (scientists, accountants, doctors, academic, lawyers, engineers, teachers)	35	15.8
	Student	52	23.4
	Others	14	6.3
Age	18-25	82	36.9
	26-35	75	33.8
	36-over 55	65	29.3
Income per month	To 5.000.000 VND	63	28.4
	5.000.000 – 10.000.000 VND	80	36.0
	10.000.000 – 18.000.000 VND	52	23.4
	32.000.000 – 52.000.000 VND	20	9.0
	52.000.000 – 80.000.000 VND	6	2.7
	Over 80.000.000 VND	1	.5
Experience in using smartphones	Less than 3 months	1	.5
	From 3 to under 12 months	2	.9
	From 1 to under 2 years	4	1.8
	From 2 to under 3 years	5	2.3
	3 years and above	210	94.6
Experience in using m-payment	Less than 3 months	28	12.6
	From 3 to under 12 months	35	15.8
	From 1 to under 2 years	51	23.0
	From 2 to under 3 years	36	16.2
	3 years and above	72	32.4

Table 4. Validity criteria and factor loadings

Construct	Cronbach's alpha	Composite reliability	AVE	Items	Loading
Performance Expectancy (PE)	0.885	0.889	0.668	PE1	0.772
				PE2	0.808
				PE3	0.891
				PE4	0.795
Collectivism (CO)	0.868	0.872	0.635	IC1	0.633
				IC2	0.786
				IC3	0.898
				IC4	0.845
Uncertainty Avoidance (UA)	0.834	0.838	0.722	UA1	0.885
				UA2	0.813
Customer trust (CT)	0.900	0.907	0.709	CT1	0.789
				CT2	0.943
				CT3	0.841
				CT4	0.784
Intention to adopt m-payment (BI)	0.820	0.823	0.609	BI1	0.722
				BI2	0.800
				BI3	0.814

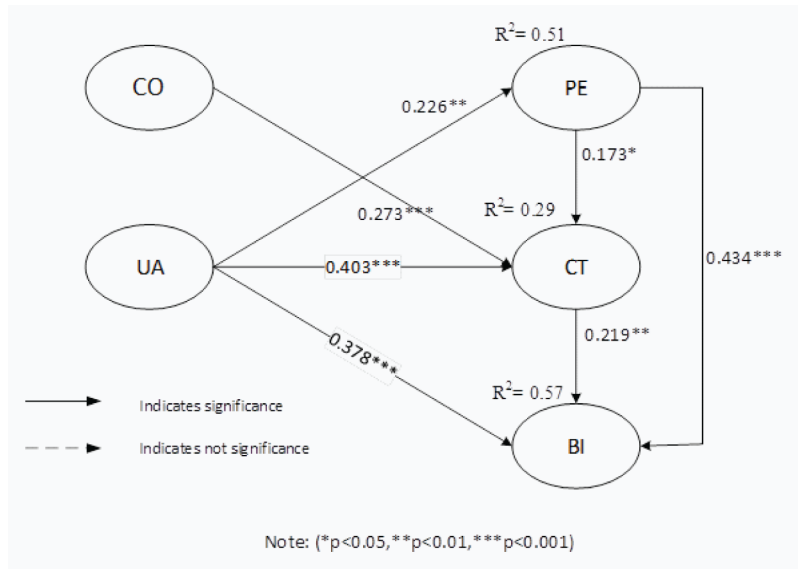
Table 5. Discriminant validity

	AVE	CO	UA	BI	CT	PE
CO	0.635	0.797				
UA	0.722	0.289	0.850			
BI	0.609	0.204	0.584	0.780		
CT	0.709	0.379	0.499	0.528	0.842	
PE	0.668	0.100	0.226	0.578	0.281	0.817

Table 6. Model fit measures

Measure	Estimate	Threshold	Interpretation
CMIN/DF	2.126	Between 1 and 3	Excellent
CFI	0.946	>0.95	Acceptable
SRMR	0.059	<0.08	Excellent
RMSEA	0.071	<0.06	Acceptable

Figure 2. Structural model results



6.1. Findings

The first finding is the positively significant effect of UA on CT, PE and BI. This finding about UA is in contrast to some previous studies (e.g. Bagchi et al., 2003; Bagchi, Hart, & Peterson, 2004; Olasina & Mutula, 2015; Xin et al., 2015) which suggested that UA negatively impacts technology adoption because new technologies can be more risky than the traditional methods. In particular, this study found a positively significant impact of UA on PE, CT and BI in m-payment adoption. This is because m-payment consumers participated in this survey may consider m-payment as a useful and safe payment method rather than a risky method because they have had experience in using m-payment for a while. According to the demographic data of the survey, only 12.6% of the participants has m-payment experience less than 3 months which was the smallest grouping, and people who have over 3 years in m-payment experience accounted for 32.4% which is the biggest group of participants. The remaining respondents has from experience in m-payment from over 3 months to less than 3 years. Obviously, most of the respondents are experienced m-payment consumers, therefore, they can clearly perceive the performance/effectiveness and reliability of m-payment so that they have made decision to continually use it. Consequently, their concerns about the latent risks of a new technology as m-payment are offset by the effectiveness and reliability that it brought after a period of using and experiencing m-payment, i.e. they may consider m-payment as a safe, effective and convenient payment method, leading to a positive impact of UA on m-payment adoption. This finding is consistent with some earlier studies in technology adoption (e.g. Ebrahimi et al., 2010; Perez-Alvarez, 2014).

The second finding is the positively significant impact of CO on CT in m-payment adoption. This is aligned with previous studies in technology adoption (e.g. Arpacı & Baloglu, 2016; Baptista & Oliveira, 2015; Hofstede, 1984). Citizens in Vietnam which is a collectivistic country (Hofstede-insights, 2018), are more likely to trust m-payment when others also use it because they appreciate other's opinions about a new technology (Hofstede, 1984; Zakour, 2004).

The finding also confirmed the relationships between PE, CT and BI, which is aligned with previous studies in technology adoption presented in the literature review section. More specifically, PE has a positively significant impact on CT and BI, and CT has a positively significant impact on BI in the context of m-payment adoption.

6.2. Contributions and Implications

The results of this study have important implications for research and practice. This study used the approach of Srite and Karahanna (2006), Yoon (2009), and Baptista and Oliveira (2015) to investigate the effects of national culture as individual variables on consumer behaviour. In particular, the authors examined the effect of cultural traits based on Hofstede's cultural dimensions which are UA and CO at an individual level on m-payment adoption. The outcome showed that cultural variables including UA and CO have a positive and significant impact in the context of m-payment adoption. In particular, UA positively and significantly influences PE, BI and CT, CO positively and significantly influences CT. The finding suggests that the usefulness and reliability of a new technology such as m-payment can be an offset for the concern about uncertainty in a low UA society. CO also plays an important role in establishing trust in a collectivist country. Consequently, in practice, m-payment providers and governmental authorities need to consider carefully the cultural characteristics of citizens when promoting m-payment. For example, m-payment providers need to focus on providing reliable, fast and convenient m-payment services to consumers to convince them adopt m-payment, and governmental authorities can enact policies to encourage the community to use m-payment, leading to a wider m-payment adoption. In theory, the importance of culture also calls for a need to further investigate the impact of cultural variables (such as Hofstede's cultural dimensions) at an individual level on technology adoption.

This research also confirmed the impact of PE and BI in the consumer acceptance models (UTAUT) developed and tested in developed countries in a new context which is m-payment adoption in a developing country. The importance of CT is also confirmed as a key driver to BI and PE, BI and CT play important roles in technology adoption in general and in m-payment adoption in both developed and developing countries. These findings contribute to the literature of m-payment adoptions, and trust and culture in m-payment adoption in general and in developing countries in particular.

6.3. Limitations and Future Research

This research used the social connections of the authors to approach potential respondents, therefore the sample including 222 observations used in the survey is limited by the social connections of the authors. Future research can extend the scope of sample with a larger and broader population. Future research also can extend this study by investigating the relationship of cultural variables with other important factors in technology acceptance models such as social influence, habit.

7. CONCLUSION

M-payment is a contemporary payment method which has been being adopted widely in the world. This study empirically tested the effect of culture at an individual level on the adoption of m-payment. The interesting outcome revealed that Uncertainty Avoidance has a positive impact on Performance Expectancy, Behavioural Intention and Customer Trust in a low Uncertainty Avoidance society, while Collectivism has a positive impact on Customer Trust in a collectivist society. The finding also verified the importance of three constructs commonly found in the literature which are Performance Expectancy, Behavioural Intention and Customer Trust. This study benefits both research and practice. This contributes to not only the literature of m-payment adoption, but also to the understanding of culture and trust in m-payment adoption as well as technology adoption. Practitioners such as m-payment providers and policy makers can use the result to consider suitable methods to promote m-payment.

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