Journal of Applied Structural Equation Modeling

eISSN: 2590-4221 *Journal of Applied Structural Equation Modeling: 5(1),40-59, Jan 2021*
DOI: 10.47263/JASEM.5(1)05

A MODIFIED UTAUT IN THE CONTEXT OF M-PAYMENT USAGE INTENTION IN MALAYSIA

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ABSTRACT

This study revises the existing UTAUT model and incorporates two additional variables, namely trust and convenience. In addition, the literature on the mediating effect of trust and performance expectancy in Malaysia in the context of m-payment usage intention is still limited. This study also attempts to fill the knowledge gap and examine the mediating effect of trust and performance expectancy. A total of 393 usable questionnaires were collected in Malaysia and analysed using IBM Amos version 23. The results show that convenience, trust, effort expectancy and performance expectancy are significant factors that influence the m-payment usage intention for Malaysian. Meanwhile, social influence is an insignificant factor. This study also revealed that both trust and performance expectancy play a significant role to mediate between effort expectancy and m-payment usage intention.

Keywords: *M-payment, UTAUT, Behaviorial Intention, Convenience, Social Influence, Trust, Performance Expectancy, Effort Expectancy*

INTRODUCTION

There have been numerous new technical developments and improvements over the last two decades. These technological advancements enable traditional business activities to conduct electronic transactions and related services on the Internet, namely electronic commerce (e-commerce). The promising future of e-commerce is further shaped by the growing number of resources and the role of artificial intelligence (A.I.) in big data analytics (Suresh & Rani, 2020). Not only does e-commerce change the way consumers find products and services but also change the way consumers pay for goods and services or transfer their money. Whilst the cash remains, the modern payment processing ecosystem experienced a seismic change from physical to digital payments in the last decade.

Mobile payment (m-payment) allows the process of payment transactions on mobile devices such as smartphones and tablets via wireless communication technologies (Choi, Park, Kim & Jung, 2020; Dahlberg, Mallat, Ondrus & Zmijewska, 2008). The proliferation of smartphones and Internet users worldwide has pushed the m-payment market to expand. According to Statista (2019), the global smartphone users increased significantly between 2016 and 2020 by 40 percent with 3.5 billion users in 2020, representing 45 percent of the world's population has a smartphone. With the world becoming ever more interconnected, smartphone users are expected to rise significantly in the coming years and accelerate m-payment. To gain from the trend, the global stores and companies are aggressively adopting m-payment apps like PayPal, Apple Pay, Samsung Pay, AliPay, and WeChat Pay to accept payments. It is projected that the proximity of m-payment transaction users worldwide will hit 1.31 billion by 2023, over the 950 million users in 2019 (Statista, 2020a). Malaysia had about 18.4 million smartphone users in 2019 and its growth is expected to remain steady at about 1 percent per annum in the coming years (Statista, 2020b). Besides, the rapidly growing mobile commerce (m-commerce) has significantly promoted m-payment in Malaysia (Yeow, Khalid & Nadarajah, 2017). M-commerce refers to e-commerce in mobile web browsers or smartphone shopping apps (Cheong & Mohammed-Baksh, 2019). M-payment is necessary for e-commerce and m-commerce to gain a competitive advantage (Abdullah, Bohari, Warokka & Abdussalam, 2011). The Malaysian government has been pushing for a cashless society as set out in Financial Sector Blueprint 2011-2020. Despite the 10-year plan that will culminate in 2020, m-payment usage in Malaysia was relatively low when compared to its mobile penetration rate (Ariffin & Lim, 2020).

Unified Theory of Acceptance and Use of Technology (UTAUT)

Usage intention is a prerequisite for new technology. Various researchers have attempted to explain the technology usage intention using the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB) and the Technology Acceptance Model (TAM) (Chang, Sun, Pan & Wang, 2015; Liébana-Cabanillas, Corral-Hermoso, Villarejo-Ramos & Higueras-Castillo, 2019; Mehrad & Mohammadi, 2016). More recently, the Unified Theory of Acceptance and Use of Technology (UTAUT) derived from TRA and TPB is adopted to model the acceptance of a technology (Abbas, Hassan, Asif, Ahmed & Hassan, 2018; de Luna, Liébana-Cabanillas & Sánchez-Fernández, 2018). UTAUT proposed two groups of predictors, namely, performance expectation, effort expectation, social influence and facilitation control are external factors, while age, gender, experience, and willingness are moderators that affect users' technology acceptance and use. UTAUT has been empirically tested to have the capability to explain 70 percent of the dependent variable (Venkatesh, Morris, Davis & Davis, 2003). Bhatiasevi (2016) pointed out that UTAUT is a more superior model to recognize the likelihood of success in new technology introduction and factors that influence users' use intention.

Previous studies have followed the original UTAUT model assume external factors have a direct impact on user's technology adoption and use. Although UTAUT is widely used to explore the information systems (IS) and information technology (IT) usage intention, Venkatesh et al. (2003) proposed a modification of the UTAUT model is necessary when examining certain IT applications. Similarly, Lee et al. (2017) suggested that it would be necessary to modify the UTAUT model over time. Bhatiasevi (2016) challenged the use of technology adoption models that ignores other constructs that can explain the technology acceptance. Owing to this, recent researchers have attempted to modify the existing UTAUT model to overcome this limitation by adding new constructs. These include Khalilzadeh, Ozturk and Bilgihan (2017) for NFC based mobile payment, Bhatiasevi (2016) for mobile banking, and Tarhini, El-Masri, Ali and Serrano (2016) for internet banking.

Teo, Tan, Ooi, Hew and Yew (2015) argued that these external factors may significantly determine the acceptance of common IS and IT application acceptance, but still inadequate to predict the usage of m-payment. Back to the local scene, convenience is the backbone for m-payment and no literature has integrated convenience as part of the predictors. Meanwhile, trust is a sense of safety and guarantee provided by the service provider, which can lead to higher acceptance and use. In a financial transaction, these factors appear to be key factors in determining m-payment usage intention. In all these contexts, this study attempts to synthesis the existing UTAUT model and integrate new constructs to improve the explanatory power in m-payment usage intention for Malaysian. Besides, the benefits of this attempt also provide a reference for the future revision of UTAUT.

LITERATURE REVIEW

M-payment refers to payment or funds transfer transaction made on mobile devices, where consumers can pay bills, goods and services through mobile apps using mobile devices such as a smartphone (Zhou, 2013). According to Garrett et al. (2014), m-payment can be made via a mobile device using a mobile credit card or a mobile wallet application. Besides, m-payment also includes Internet payments using mobile devices and payment through a mobile network operator (Liu, 2015). M-payment can be further classified into third-party payment (TPC) company-led m-payment and bank-led m-payment (Liu et al., 2020). At present, there are two contemporary studies of m-payment; one is the study of mobile payment technologies; the other is on the consumers perspective (Dahlberg et al., 2008). Following Zhou (2013), this study refers to m-payment to which consumers pay bills, goods and services through mobile apps using mobile devices such as a smartphone.

Behavioral Intention

The Theory of Planned Behavior (TPB) delineates behavioral intention as the reflection of individual behavioral intention (Ajzen, 2014). Davis, Bagozzi, and Warshaw (1989) claimed that intentions vary between the time of intention measurement and behavioral performance. Their findings revealed that one would expect the intention-behavior correlation to decrease over time. Islam et al. (2013) found that behavioral intention can predict corresponding behavior in voluntary situations. Milano (2012) explained that technology use intention is about an individual may delay his/her decision, an intention to use technology, an intention to use technology in the near future, and the step to start using technology. More recently, Liébana-Cabanillas et al. (2018) suggested the behavioral intention is an indicator for evaluating the use of technology. It was evident that behavior intention will influence the actual use of m-payment (Oliveira et al., 2014), while Nie and Amarayoun (2019) concluded that usage intention is critical to the development of m-payment services.

Convenience

The seamless integration of mobile device, mobile application, mobile network providers and financial institutions enable consumers to make payment and transfer money quickly and conveniently. Convenience is one of the critical characteristics of mobile devices, compared with conventional payment methods, consumers can complete a transaction quickly. Kavak and Anwar (2019) described convenience as processes that cut down the transaction time. Meanwhile, Nie and Amarayoun (2019) referred to convenience as ease, comfort to use, as well as the realization of specific benefits. However, the impact of convenience is a driving factor on consumers m-payment usage intention has not been thoroughly studied (Boden et al., 2020).

In the context of m-payment, respondents' perception of m-payment is timesaving, easy to use, availability and flexibility (Abrahão et al., 2016; Nie & Amarayoun, 2019; Zhao, 2019). In Australia, Gao and Waechter (2017) surveyed the acceptance of m-payment among the consumers and found that convenience is a significant factor to influence m-payment usage intention. Similarly, Kaitawarn (2015) investigated NFC m-payment usage in Bangkok Transportation System (BTS) in Thailand and concluded that convenience is the primary driver in m-payment usage intention. The findings of Chamnankit (2019) is consistent with Sobti (2019) and Chen and Chowdhury (2018). Their findings have shown that convenience is the most critical factor influencing the m-payment usage intention. Hence, from the above discussions, we have drawn the following hypothesis:

H1: Convenience has a positive effect on m-payment usage intention.

Social Influence

Social influence in technology use intention refers to the degree to which users perceive themselves to be in lined with their opinion peers when using new technology (Venkatesh et al., 2003). Yang et al. (2017) and Khalilzadeh et al. (2017) considered the social influence in a collective environment is the perception of how other members in the consumers' social groups think and act. It is the perceived pressure from the opinion of peers felt by the users in their intention to use m-payment (Yang et al., 2017; Feng et al., 2019). A study conducted by Abrahão et al. (2016) have confirmed a positive correlation between social influence and m-payment usage intention. Their result is consistent with the findings of Bailey et al. (2019). On the contrary, a survey conducted by Oliveira et al. (2014) found that social influence has no significant impact on m-banking usage intention. Similarly, Khalilzadeh et al. (2017) found that social influence had an insignificant impact on the intention to use NFC-based m-payment in a restaurant. Recently, Pal et al. (2019) argued that the effect of social influence is mixed due to the individualistic or collectivist culture of the consumers. The following hypothesis is posited based on these arguments:

H2: Social influence has a positive effect on m-payment usage intention.

Trust

Sinha and Mukherjee (2016) defined trust is the combination of trust in the other party and trust in the successful control mechanism of the transaction, while Raza et al. (2019) defined trust as the ability of an individual to succeed in a given technological environment. In the context of the use intention of an information system, trust is a critical factor as it affects users' usage intention (Chong et al., 2012; Maureen Nelloh et al., 2019). Tossy (2014) postulated trust is the fundamental requirement of m-payment usage intention, followed by social influence and performance expectancy. This is because trust is crucial in reducing uncertainty which is a concern expressed by Lu et al. (2011). Meanwhile, Nguyen and Lu (2018) claimed that trust is very important in the initial stage of introducing new technology. When consumers lack trust, they will be affected by uncertainty, which will affect consumers decision m-payment usage intention. Another study by Humbani and Wiese (2018) suggested the success of m-payment depends on consumers' trust in new payment methods. Following Wang et al. (2018), trust in this study refers to trust in m-payment service provider, banks and other users, and trust in the m-payment application. Hence, this study proposed:

H3: Trust has a positive effect on m-payment usage intention.

Performance Expectancy

Based on the UTAUT, Venkatesh et al. (2012) identified perceived usefulness same as effort expectancy based on the expectancy theory cited in Rampersad et al. (2012). Therefore, the meaning of both perceived usefulness and performance expectancy is interchangeable. Performance expectancy is referred to as the users' perceived performance gain from the adopted technology (Hasan et al., 2019; Hung et al., 2019). Performance expectancy in m-payment context relates to the extent to which m-payment can enhance the payment performance of consumers (Cai et al., 2019). In other words, performance expectancy is the degree to which m-payment helps consumers to make payment (Madan & Yadav, 2016; Doa et al., 2019; Moorthy et al., 2019). Morosan and DeFranco (2016) found that performance expectancy has significantly predicted intention in the NCF m-payment system while Zalessky and Hasan (2018) asserted that performance expectancy was the strongest determinant of behavioral intention in their study. To validate the effect of performance expectancy in m-payment usage intention in Malaysia context, this study posited:

H4: Performance expectancy has a positive effect on m-payment usage intention.

Effort Expectancy

The term effort expectancy and perceived ease of use are interchangeable (Lai, 2017). Effort expectancy is perceived easiness of use with specific information system and technology (Doa et al., 2019; Raza et al., 2019). Baptista and Oliveira (2016) conducted a meta-analysis of 57 articles, and the results suggest that effort expectancy is positively correlated to m-banking intention. In the context of m-payment, Morosan and DeFranco (2016) found a positive relationship between effort expectancy and NFC m-payment intention. The relationship between effort expectancy and m-payment intention is assured by the recent findings of Alalwan et al. (2018) and Feng et al. (2019). In Malaysia, Fadzil (2018) stated the positive impact of effort expectancy on mobile application intention. On the contrary, Tossy (2014) found that effort expectancy does not affect Tanzanian's m-payment usage intention. Similarly, Slade et al. (2015) acknowledged the effort expectancy has no impact on the m-payment intention of non-users. Their finding is consistent with the study of Oliveira et al. (2014) on m-banking in Portugal, the country with the highest mobile phone penetration in the European Union (EU). To verify the effect of effort expectancy on m-payment usage intention, the following hypothesis is posited:

H5: Effort expectancy has a positive effect on m-payment usage intention.

Trust as mediator

Gu et al. (2009) surveyed 910 respondents and found that users' effort expectancy had no significant impact on trust. They argued that where m-banking services are provided by the existing bank, its users will perceive m-banking is trustworthy. As such, users are willing to trust the service providers if they gain more knowledge about m-banking rather than ease of use. Similarly, Yan and Yang (2015) proposed that when m-payment is easy to use and has good interface design and navigation features, it reflects the ability and benevolence of service providers, thus affecting the trust of users. Hence, the hypothesis is proposed as:

H6: Effort expectancy has a positive effect on influence on trust.

Giovannini and Ferreira (2015) examined the mediating role of trust between effort expectancy and mobile commerce (m-commerce) intention. The result revealed that there is a partial mediating effect on the relationship. The result appears to be a positive association between effort expectancy and trust and trust positive correlate with m-commerce intention. Furthermore, the effort expectancy is positively correlated with then m-commerce intention. Yan and Yang (2015) surveyed 193 university students in cities in central China. They found that the effort expectancy is a significant factor that impacts the trust which in turn positively impacts the m-payment usage intention. This is because the ability of m-payment service providers to provide easy to use m-payment would affect the evaluation by users (Yan & Yang, 2015). Likewise, when users lose trust in m-payment service providers, users will not have positive expectations for m-payment. Hence, this study posits the following hypothesis:

H7: Trust mediates the relationship between effort expectancy and m-payment usage intention.

Performance Expectancy as the mediator

The empirical studies have discovered the effort expectation has a strong effect on behaviour intention (Boonsiritomachai & Pitchayadejanant, 2017; Sobti, 2019). Abrahão et al. (2016) affirmed that effort expectancy is associate with m-payment usage intention. Similarly, a study by Alalwan et al. (2018) on the use of internet banking by Jordanian customers found that effort expectancy has a key predictor impact on performance expectancy. In the context of m-payment, Andre et al. (2019) indicated that effort expectancy provides ease of use of the m-payment system may reduce the consumers' effort when making payment. When consumers have high effort expectancy (easy to use), they will consider that m-payment exhibits higher performance expectancy and more useful (Hung et al., 2019). Hence, the following is the proposed hypothesis:

H8: Effort expectancy has a positive effect on performance expectation.

Al-Qeisi et al. (2014) supported the performance expectancy to play a mediating role in the effect of effort expectancy and usage intention. Yan and Yang (2015) argued that the ease of use on m-payment greatly reduces the effort of users to learn to use m-payment and focuses their intention on the primary transaction activities. Tan and Lau (2016) discovered that when users perceived the effort expectancy (ease of use) of technology is high, they would have high-performance expectancy. Their findings implied that added effort expectancy has a significant indirect effect on usage intention through performance expectancy. Besides, Shaw and Kesharwani (2019) posited that effort expectancy has a positive influence on performance expectancy. Thus, the following hypothesis is constructed:

H9: Performance expectancy mediates the relationship between effort expectancy and m-payment usage intention.

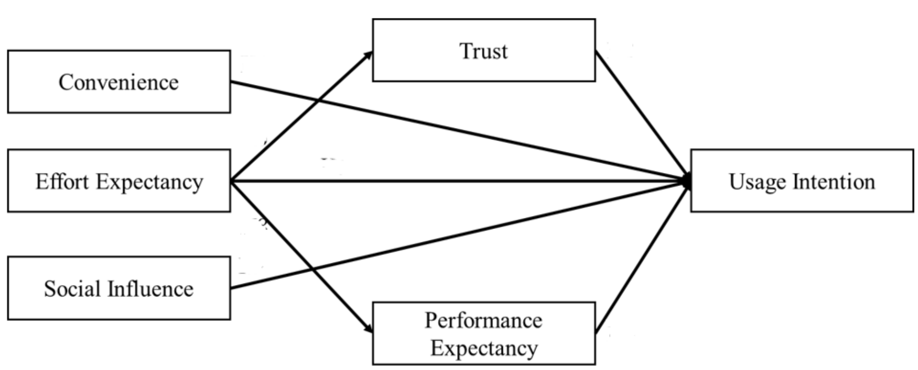

Figure 1: Conceptual Framework

METHODS

This study focuses on the consumers' m-payment usage intention in the banking industry. According to 2019 Malaysia Population Statistics, the Klang Valley and Selangor have a population of 1,780,700 and 6,528,400 respectively, accounting for 25.5% of the population. Therefore, this study adopted a quantitative research method and collected data by distributing questionnaire online. Respondents are individual consumers aged 18 and above living in the Klang Valley and Selangor.

The sample of this study is targeted at those mobile device users who have never used m-payment. Since the sampling frame is unavailable, a convenience sampling technique is used. Convenience sampling also benefit the researcher to obtain information from the large populations. According to the suggestion by Saunders et al. (2016), a minimum sample size of 384 is required if the targeted population exceeds 1,000,000. This sample size was calculated with a margin of error of 5% and a confidence level of 95%. Therefore, the survey was conducted using an online Google form, and participants were invited to answer the survey through social media such as Facebook and Facebook Groups.

The online survey consists of several sections, namely screening, demographic profile, and factors that capturing respondents' opinion on factors related to this study. The face validity of each construct in the survey was verified by academicians majoring in marketing. The surveys were then sent to some targeted respondents for pre-testing. The question of the survey was little changed during pre-testing, with some words were replaced to cater to Malaysian consumers. The internal consistency of each construct was tested with a pilot test of 30 sample respondents. The results show that all constructs are above 0.7 have a high Cronbach's Alpha value. After data screening, univariate and multivariate outliers were eliminated, a total of 393 valid responses were obtained.

In this study, structural equation modelling (SEM) analysis was performed on the collected data using IBM SPSS 26 and IBM AMOS version 23 to examine the complex relationships among these constructs. Based on the total 393 responses, common method bias testing and the goodness-of-fit of the model were tested by confirmatory factor analysis (CFA). A common method bias can be addressed using common laten factor. The square root value of unstandardised coefficient of this test was 0.000, which is below the threshold value of 0.50, indicating that there is no common method bias in the model. In addition, Podsakoff et al. (2003) suggested that convergent validity and discriminant validity be tested in CFA as a new approach to address common method bias. According to Kock (2015), the loading value exceeding the threshold value of 0.5 is the acceptable convergent validity, while for a given construct (i.e., latent variable), the square root of average variance extracted (AVE) greater than any correlation is considered to be the acceptable discriminant validity. There are various fit indices, including CMIN/DF, GFI, NFI, CFI and RMSEA. After the model fitting valuation, the construct reliability (CR) for convergent validity and average variance extracted (AVE) for discriminant validity were determined. Lastly, the structural model of this study was assessed.

RESULTS AND FINDINGS

Table 1 reported the demographic information of participants of this study. Half of the respondents were aged between 26 to 35 years old and employed cohort. In addition, most of the respondents completed an undergraduate or postgraduate degree. The findings indicate the study's sample is mainly young Malaysian educated with earnings strength.

Table 1: Demographic characteristics of participants (N=393).

Participants characteristics	Frequency	Percentage
Gender		
Male	222	56.5
Female	171	43.5
Age		
18 years old and below	8	2.04
26 – 35 years old	197	50.13
36 – 45 years old	129	32.82
Above 46 years old	59	15.01
Education level		
Primary/Secondary school	22	5.6
Diploma	23	5.9
Undergraduate	240	61.1
Postgraduate	89	22.6
Others	19	4.8
Employment status		
Student	160	40.7
Employed	197	50.1
Self-employed	19	4.8
Unemployed	10	2.5
Retired	7	1.8

The descriptive statistics are shown in Table 2. The results show that the mean values of all the constructs are not widely deviated from their standard value.

Table 2: Descriptive Statistics

Construct	N	Mean	Std. Deviation
Performance Expectancy	393	3.8658	0.97085
Effort Expectancy	393	3.9847	0.98850
Social Influence	393	3.2120	1.00720
Trust	393	3.4830	0.86858
Convenience	393	3.9237	0.95058
Behavioural Intention	393	4.0059	0.94714

The measurement model was tested in Figure 1 and the major goodness-of-fit requirements for SEM analysis are shown in Table 3 below. From Table 3, all the incremental fit values exceed 0.9 (the threshold value), except for the GFI. Despite the GFI is more than 0.8, it is acceptable as suggested by Baumgartner and Homburg (2015). Meanwhile, the RMSEA value is 0.059, which has great goodness of fit. These results suggest the measurement model has high goodness of fit to the data.

Construct validity is tested by measuring convergent and discriminant validity. As shown in Table 4, the statistical results indicate that the composite reliability (CR) values are above the threshold value of 0.7, and average variance extracted (AVE) values are above the threshold value of 0.5. Therefore, all the predictors in this study are highly reliable and results of convergent validity suggest the latent constructs are well explained by observed variables as they are correlated well with each other within the parent construct. The factor loading of all items in Table 5 is above the value of 0.8, except item TR5 (loading = 0.669). While CR and AVE are in the acceptable range, Chin (1998) suggested that the threshold of factor loading should be at least 0.6, suggesting no validity concern here.

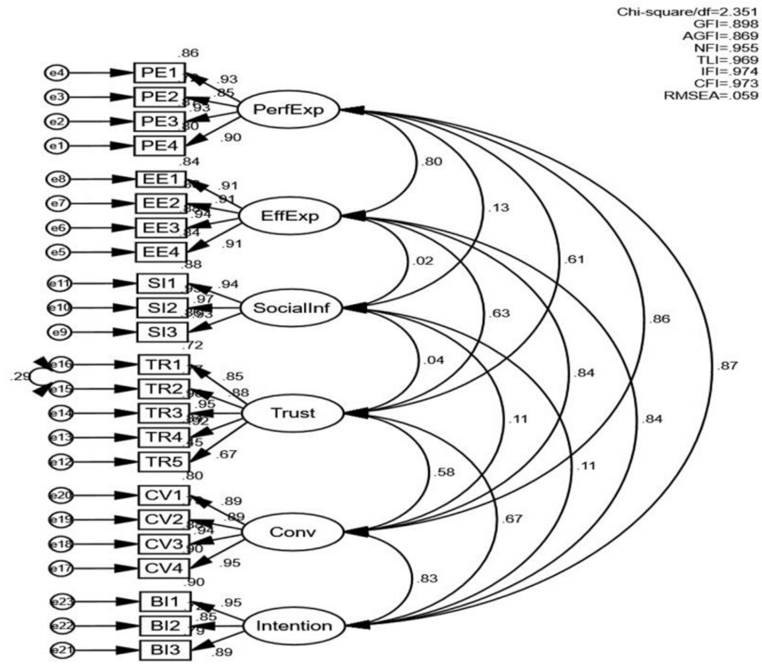

Figure 2: The final measurement model

Table 3: Goodness-of-fit statistics for the CFA model

Model tested	x^2/df	GFI	CFI	TLI	NFI	RMSEA
Criterion for goodness of fit	< 3	≥ 0.9	>=0.90	≥ 0.90	≥ 0.90	≤ 0.08
Model performance	2.878	0.874	0.973	0.969	0.955	0.059

Table 4: Factor Loading, Average variance Extracted and Construct Reliability of Study Instrument

Construct	Items/Indicators	Factor Loading	CR	AVE
Performance Expectancy	PE1	0.930	0.945	0.813
	PE2	0.847		
	PE3	0.930		
	PE4	0.897		
Effort Expectancy	EE1	0.915	0.956	0.846
	EE2	0.913		
	EE3	0.936		
	EE4	0.915		
Social Influence	SI1	0.936	0.962	0.893
	SI2	0.973		
	SI3	0.925		
Trust	TR1	0.848	0.932	0.735
	TR2	0.876		
	TR3	0.948		
	TR4	0.916		
	TR5	0.669		
Convenience	CV1	0.893	0.955	0.841
	CV2	0.887		
	CV3	0.939		
	CV4	0.948		
Usage Intention	BI1	0.950	0.924	0.803
	BI2	0.846		
	BI3	0.889		

For further analysis of discriminant validity, the maximum shared variance (MSV) value should less than the AVE. An examination in Table 5 discloses the MSV of each construct are less than their AVE values (see Table 4). In addition, the square root of AVE for each construct is greater than its inter-construct correlations. These results ascertain no discriminant validity issues in this study.

Table 5: Squared Correlation Coefficient for Study Instruments

	MSV	MaxR(H)	PE	EE	SI	TR	CV	BI
PE	0.753	0.951	**0.902**					
EE	0.701	0.957	0.801***	**0.920**				
SI	0.018	0.968	0.135*	0.019	**0.945**			
TR	0.454	0.954	0.607***	0.626***	0.037	**0.857**		
CV	0.747	0.960	0.864***	0.836***	0.107*	0.584***	**0.917**	
BI	0.753	0.939	0.868***	0.837***	0.106*	0.673***	0.829***	**0.896**

Note: CR: composite reliability. AV: average variance extracted. Bold values indicate the square root of AVE of each construct. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$

The results of the SEM in Table 6 reveal that hypotheses H1, H3, H4 and H5 are significant, suggesting convenience, trust, performance expectancy, and effort expectancy are significantly correlated with m-payment usage intention. It also indicates that performance expectancy (β=0.418, p<0.001) is the strongest predictor of m-payment usage intention, followed by effort expectancy (β=0.298, p<0.001), trust (β=0.162, p<0.001) and convenience (β=0.134, p<0.05). The hypothesis H2, which is the influence of social influence (β=0.028, p>0.05) on the m-payment usage intention is not statistically significant for Malaysian users.

Table 6: Results of SEM on Effect of Predictors on M-payment Usage Intention

Construct	B	SE	Beta	CR	*p*	Lower	Upper
H1: Convenience → Usage Intention	0.136	0.058	0.134	2.327	0.020	-0.013	0.278
H2: Social Influence → Usage Intention	0.027	0.026	0.028	1.047	0.295	-0.026	0.084
H3: Trust → Usage Intention	0.183	0.040	0.162	4.530	0.000	0.110	0.264
H4: Performance Expectancy → Usage Intention	0.394	0.049	0.418	7.993	0.000	0.148	0.459
H5: Effort Expectancy → Usage Intention	0.295	0.079	0.298	3.707	0.000	0.148	0.459

Note: β: Standardised Regression Weight; SE: Standardised Error, CR: Critical Ratio

The results of SEM in Table 7 find that effort expectancy has a significant positive relationship with trust (β=0.642, p<0.001) and performance expectancy (β=0.827, p<0.001). These results supported the hypotheses H6 and H8. The result showed that there was a significant positive relationship between effort expectancy and trust, which was in line with findings of Yan and Yang (2015) and Gu et al., (2009). This implies that users will establish trust when the m-payment application is easy to use, have clear instruction, and require less skilful (i.e., effort expectancy of using m-payment). Similarly, there is a significant positive relationship between effort expectancy performance expectancy, which is consistent with Andre et al. (2019) and Hung et al. (2019) studies. This finding suggests that when m-payment is easier to use, users will find them more useful, can complete payment transaction more quickly, and achieve their expected performance.

Table 7: Results of SEM on Effect of Effort Expectancy and Performance Expectancy

Construct	B	SE	Beta	CR	p	Lower	Upper
H6: Effort Expectancy → Trust	0.562	0.042	0.642	13.307	0.000	0.469	0.680
H8: Effort Expectancy → Performance Expectancy	0.866	0.042	0.827	20.816	0.000	0.778	0.971

Note: β: Standardised Regression Weight; SE: Standardised Error, CR: Critical Ratio

Findings in Table 7 raise the need to further investigate the mediating effect of trust and performance expectancy. As reported in Table 7, effort expectancy (β=0.836, p<0.001) directly affect m-payment usage intention. Both the influence of trust on m-payment usage intention and the effect of performance expectancy on m-payment usage intention is significant. The findings suggest that trust and performance expectancy play a partial mediation effect on m-payment usage intention.

Table 8: Result of Mediation Effect of Trust and Performance Expectancy on Relationship between Effort Expectancy and M-payment Usage Intention

Indirect Path	Unstandardized Estimate	Standardized Estimate	P-Value	Lower	Upper
Effort Expectation → Trust → Usage Intention	0.103	0.104***	0.001	0.067	0.146
Effort Expectation → Performance Expectation → Usage Intention	0.342	0.345**	0.001	0.242	0.438

*Note: Significance of Estimates: *** $p < 0.001$; ** $p < 0.010$; * $p < 0.050$; † $p < 0.100$*

Effort expectancy has a significant positive relationship with trust (β=0.642, p<0.001) and performance expectancy (β=0.827, p<0.001). Therefore, we concluded that hypotheses H6 and H8 are supported. This study further investigates the mediating effect of trust and performance expectancy. As can be seen from table 8, both relationships have significant indirect effects, and neither of the two relationships contains 0 between lower bound and upper bound values (Memon et al., 2018). Therefore, it affirmed that trust and performance expectancy play a mediation effect on m-payment usage intention.

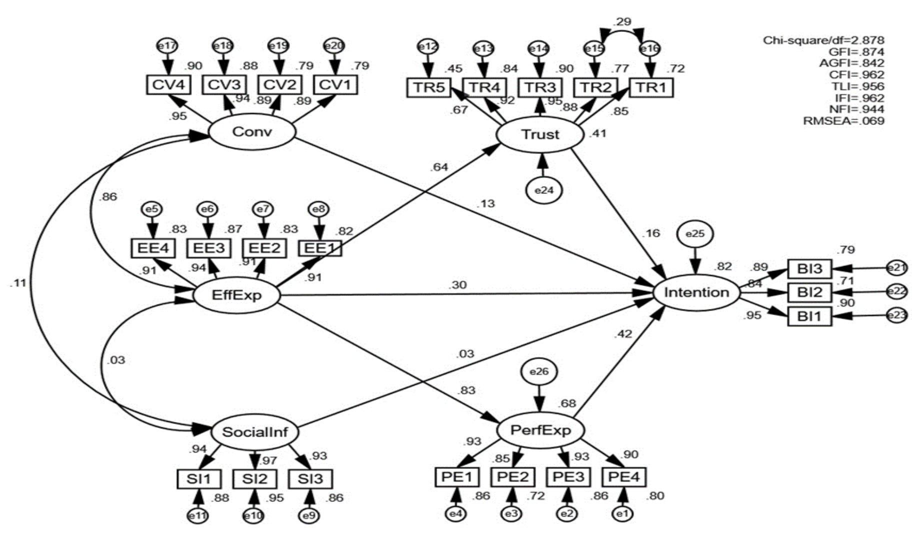

Figure 3: Structural model

DISCUSSION

Unsurprisingly, users started using m-payment because of its performance expectancy is high, ease of use (effort expectancy), convenience and the fact that the service provider is a trusted entity. However, the results in this study showed that all hypotheses are significant, except for hypothesis H2. Social influence is the pressure on a user by the opinion of peers to influence his or her behavior in a particular way. The finding shows that social influence did not affect a user's m-payment usage intention. The finding is inconsistent with the prior studies (Yang et al., 2012; Abrahão et al., 2016; Khalilzadeh et al., 2017). Nevertheless, Sobti (2019) in his recent survey of 880 Indian users' m-payment usage intention shows that social influence does not influence their m-payment usage intention. It can be explained that users are more concerned about the performance, easiness in performing transaction and convenience. Furthermore, Alalwan et al. (2018) suggested any inconsistent results might due to the technology (mandatory or voluntary), country development (developing or developed country), nature of technology (personal or common social able technology) and individual perception, skills and experience aspect that is examined. Another possible reason is that the decision to use m-payments in the financial transaction was driven by privacy concerns and was based more on personal needs than on the influence of friends and family (Teo, Tan, Ooi, & Lin, 2015).

Convenience was the least important factor in this study. M-payment conveniently facilitates all type of online payment transactions. Various studies have found that there is a positive relationship between the convenience of m-payment and intention to use it (see, for example, Humbani & Wiese, 2018; Kaitawarn, 2015). Thanks to the Internet, m-payment can link a user's credit/debit card or FPX online banking to reload credit into the m-payment apps anytime and anywhere. Seamless m-payments technology also allows users to use m-payment apps for various payment transaction such as bills, utilities, and fund transfers. Therefore, the function and inclusion of m-payment meet the needs of various payment and financial transactions are considered convenient, leading to the m-payment usage intention.

Financial transaction conducted through m-payment is skeptical to safety and payment security (Teo, Tan, Ooi, & Lin, 2015). Therefore, trust is one of the key factors in determining intention to use technology, especially when it comes to monetary transactions. Studies have found that trust is the most influential factor in determining m-payment usage intention (Ooi & Tan, 2016; Yan & Yang, 2015). A recent study conducted by Fan et al. (2018) examined university students' m-payment usage intention from the University of Minnesota and Beijing Foreign Studies University found that trust had a positive impact on m-payment usage intention on both groups of samples. However, this study found that trust was the third important factor after the performance expectancy and effort expectancy. The findings suggest the Malaysian users are more concern about the advantage and ease of use of m-payment than the trust factor. This can be explained that in Malaysia, the major m-payment services providers are a non-bank service provider but are governed by Bank Negara Malaysia (BNM) and Financial Service Act (FSA) 2013. Therefore, trust can be easily built on this ground.

Performance expectancy is highly associated with behavioral intention to use mobile technology (Abdullah Omran et al., 2017). Behavior intention is high when a new technology is believed to be useful and able to assist consumers to achieve their goals and increase productivity. For example, Leong et al. (2013) claim that users will accept and use technology when it can provide them with relevant and useful features. The results of this study affirmed that performance expectancy is the key factor in affecting users' intention to use m-payment. In addition, the relationship between performance expectancy and usage intention of this study is consistent with previous studies by Feng et al. (2019) and Ibrahim et al. (2019), Wu et al. (2017) and Teo, Tan, Ooi, and Lin (2015) on the m-payment usage intention.

There is a direct and significant relationship between effort expectancy and m-payment usage intention. This result is consistent with previous studies by Feng et al. (2019), Teo, Tan, Ooi, and Lin, 2015, Tan et al. (2014) and Nasrul and Mohamed (2018). Teo, Tan, Ooi, and Lin (2015) claim that when users use new technology without much effort and knowledge, users will tend to use it. At the same time, with the ease of use of m-payment, users increasingly believe that using the m-payment can save their effort in the financial transaction, thus leading to the intention to use it. A recent study on the users' acceptance of electronic payment systems among users at Malaysia government agencies has supported this argument (Nasrul & Mohamed, 2018).

In the early stages of the technology adoption life cycle, innovators and early adopters recognize that compatibility and ease of use are rational reasons to try or intend to use technology. M-payment effort expectancy is reflected to be ease of use, good navigation and well interface design, thus influencing the trust of users. Similarly, when m-payments are easy to use, there is less effort to understand, monitor and control financial transaction, thus establish trust, and users are more likely embrace m-payment usage intention (Yang et al., 2015). This result is consistent with the findings by Yan and Yang (2015), that is, in Central China city, effort expectancy has a significant impact on students' trust and later poses intention to use m-payment. The result also implies that trust plays a mediating role in this relationship, and the ease of use of m-payment resulting in trust and leads to m-payment usage intention (Yang et al., 2015).

A study conducted by Hew et al. (2015) suggested that there is a relationship between effort expectancy and performance expectancy. Tan et al. (2014) argued that effort expectancy influences the formation of performance expectation. A study conducted by Teo, Tan, Ooi, Hew, et al. (2015) on 400 university students from one of the universities in Malaysia found effort expectancy is associated with performance expectancy in m-payment usage intention. When users perceive the ease of use of m-payments, their usefulness will be affected. Performance expectancy mediates the relationship between effort expectancy and m-payment usage intention was supported by Teo, Tan, Ooi, Hew, et al. (2015). Therefore, the greater the ease of use of m-payments, the greater the benefit users will get from system performance, thus increasing the possibility of using m-payments.

In summary, trust and convenience are secondary factors for Malaysian users. Performance expectancy, effort expectancy and convenience are significantly impacting the users m-payment usage mainly due to the change of urban lifestyle and the demand for fast and convenient services (Kumar & Arun Palanisamy, 2019). This study also reveals that the weight of the trust factor on the m-payment usage intention was lower than performance expectancy and effort expectancy. In can be explained that trust is earned over the period, while the m-payment service providers are usually provided by well-established banks or third-party service providers (Ntaukira et al., 2019).

CONCLUSION

This study concludes that performance expectancy convenience, trust and effort expectancy are significant factors that influence m-payment usage intention for Malaysian users. However, social influence did not significantly affect a user's intention to use m-payment in Malaysia. The insignificant effect of social influence is not consistent with the prior studies such as Abrahão et al. (2016) and Khalilzadeh et al. (2017), but similar to the recent findings of Sobti (2019) who had surveyed 880 users in India. In a nutshell, Malaysian are more inclined to m-payment usage intention when they find it convenient, the service provider is a trusted entity, easy to use, and expectation on performance are met, but not so much influenced by the opinion of peers. To sum up, performance expectancy is the key factors affecting users' intention to use m-payment in Malaysia following by effort expectancy. Meanwhile, trust and convenience are less important factors. These findings are consistent with the change of urban lifestyle and the demand for fast and convenient services (Kumar & Arun Palanisamy, 2019). The empirical findings in this study also reveal that the weight of the trust factor on the m-payment usage intention is lower than performance expectancy and effort expectancy. A possible explanation is that trust is gained over time, while the m-payment service providers in Malaysia are usually provided by well-established banks which are met with high expectation on performance and ease of use.

A better understanding of m-payment usage intention in Malaysian is critical to policymaker and service providers. For policymakers, understanding consumers' m-payment usage intention enable stakeholders to improve country infrastructure and better digital financial system ecosystems to support the country's digital economy development. The findings of this study provide valuable information such as consumers' expectations. The insights also useful to m-payment service providers to strengthen and overcome the weaknesses of their current m-payment platforms and applications. The study found that performance expectancy and effort expectancy were the most important factors in determining the m-payment usage intention, followed by trust and convenience. In addition, Malaysians also reported a lower level of anxiety when using technology. Therefore, it is necessary to develop user-friendly and better ecosystem m-payment apps. Developers or m-payment service providers also encourage to create awareness and promote and publicize the advantages, easiness, and convenience of m-payment to increase m-payment usage intention.

In this study, the existing UTAUT model was modified to fill the theoretical gaps in the literature. Similar studies mostly focus on the reuse of the existing model to verify the impact on the m-payment usage intention. Besides, this study explores the mediating role of performance expectancy and trust in consumers' use of new technologies and involved in financial transactions. The results enrich the m-payment literature show that trust and performance expectancy play a significant indirect mediating role.

LIMITATION AND FUTURE RESEARCH

In this study, we studied all forms of m-payment, while future research shall focus on the successful mobile payment types, such as contactless NFC or QR code payment methods. In this study, important predictors of TAM and UTAUT were retained, and trust and convenience predictors were added to the conceptual research framework. There are undeniably important predictors of perceived risk, perceived value, and individual innovativeness. Nor should researchers neglect demographic predictors such as culturally different and geographical differences (urban and rural) in Malaysia. Therefore, future study should include these predictors to gain insight into m-payment usage intentions in Malaysia.

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