

A Modified UTAUT Model M-Payment Use Intention: A Comparative Analysis Between Malaysians and Foreigners in Malaysia

Tang Kin Leong¹, Tan Pei Meng², Tan Kok Eng, Pik Hua@Rae Hooi³, Choong Wei Lim⁴ Faculty of Accountancy and Management, Universiti Tunku Abdul Rahman, Kuala Lumpur, Malaysia

Received: 11.01.2020, Revised: 15.04.2021, Accepted: 15.05.2021

Abstract

Compared to China, India and Indonesia, the current rate of use of mobile payment in Malaysia is relatively low. Mobile payment reduces transaction costs for financial institutions. It could also help governments improve transparency and security, improve accountability and tracking capabilities, and reduce theft and corruption. Given the benefits and success of m-payment in other countries, it is necessary to identify the different drivers of m-payment use intention of Malaysians and foreigners in Malaysia. It is hoped that the findings of this study will help the government and policymakers to promote the widespread use of m-payment. This study revised the UTAUT (Unified Theory of Acceptance and Use of Technology) model and added trust and convenience to the existing conceptual model. We compared the influence of different predictors on the m-payment use intention of Malaysians and foreigners in Malaysia. In addition, this study also explored the mediating role of trust and performance expectation. A total of 393 datasets were collected and were grouped into 3 different datasets, namely pooled sample, Malaysian sample, and foreigner sample, and these were analysed using Structural Equation Modeling (SEM) technique. The findings show that in the pooled sample, convenience, trust, effort expectancy, and performance expectancy were the significant predictors in determining m-payment use intention. Likewise, social influence was consistent with the pooled sample and did not affect Malaysians and foreigners' intention to use m-payment. The findings also indicate that convenience was not one of the factors affecting Malaysians in relation to m-payment use intention. This study also reveals that both trust and performance expectancy had a partial mediating effect between effort expectancy and m-payment use intention. The study's findings are useful to policymakers, industry, and m-payment developers because they provide insight into consumer expectations, m-payment strategies, and the strengths and weaknesses in infrastructure and application development that must be addressed.

Keywords: behaviour intention, effort expectancy, mobile payment, performance expectancy, trust

¹Corresponding author: kinleong.tang@gmail.com



Introduction

Malaysia's mobile phone penetration is expected to reach 96.89% in 2021 and 97.4% by 2025 (Statista, 2020). The high penetration of mobile phones and their applications in Malaysia has promoted the development of financial technology. Various financial institutions and service providers have launched mobile banking (m-banking) and mobile payment (m-payment) (Zhou, 2013) to the public. M-payment makes it very easy for consumers to conduct transactions (Andre et al., 2019). M-payment also brings convenience in paying for goods and services. However, consumers' use of m-payment in Malaysia is considered very low (Ooi & Tan, 2016); only 7% of online shopping transactions were completed by m-payment (E-commerce Payment Trends Report: Malaysia, 2019).

M-payment is expected to replace conventional payment in the payment industry (Lin et al., 2018). However, in Malaysia, bank transfer payment is still the dominant payment method, accounting for 46%, followed by credit card payment accounting for 29% (E-commerce Payment Trends Report: Malaysia, 2019). In comparison, the usage rate of m-payment in China, India. Indonesia higher, and was accounting for 35.2%, 29.5%, and 15.9%, respectively (Buchholz, 2019). Despite the fact that Malaysia had reached 78% of smartphone usage penetration, Communications (Malaysia and Multimedia Commission, 2018) it only

managed to achieve a 7% m-payment usage in 2019 (E-commerce Payment Trends Report: Malaysia, 2019).

The statistics above show that Malaysians' usage rate of m-payment is lagging far behind other developing countries. Furthermore, a single m-payment design for diverse user groups may be the key factor in low usage intentions. Given the limited studies on m-payment use intention of different groups of m-payment users, it is crucial to examine the different factors influencing the intention of Malaysians' and foreigners in Malaysia's to use m-payment.

The aims of this study are twofold. First, it attempts to identify and compare the different drivers affecting Malaysians' and foreigners' m-payment use intention. Second. it attempts to validate the mediating role of trust and performance expectancy in the conceptual model. Therefore, a full understanding of the different perceptions of Malaysians and foreigners in Malaysia about m-payment use intention is crucial to close the research gap. Ahmad (2014) found that although UTAUT could compensate for the shortcomings of other theories and models, researchers often do not fully use UTAUT to test users' intention to use the technology. We also considered that facilitating conditions and moderator of UTAUT may not apply to m-payment. Therefore, we attempted to revise the existing UTAUT to verify the conceptual model of this study.



Behavioural intention is crucial for businesses and marketers to develop and deliver relevant products and services to new consumers, and ultimately to retain existing consumers. Behavioural intention is also a significant predictor to determine an individual's use of have technology. Various studies conducted empirical studies on m-payment use intention, but the findings do not seem to be conclusive (Askool et al., 2019; Williams, 2018; Wu et al., 2019; Yuan et al., 2020). With the increase in consumers' acceptance and use of m-commerce, m-payment is facing challenges of trust, convenience and ease of use (Goi, 2016). Despite that, most studies neglect mediator factors such as trust and performance expectancy in the formation of technology use intention, especially in the formation of m-payment use intention. Notably, trust is critical in business transactions and affects consumers' m-payment use intention (Manaf & Ariyanti, 2016). Thus, it is crucial to study and understand trust perception among Malaysians and foreigners in Malaysia towards m-payment use intention.

The provision of m-payment is of great significance to e-commerce and m-commerce to gain competitive advantages (Yeow et al., 2017). Understanding consumers' intention to use m-payments will give policymakers a more in-depth insight on how to improve and develop more sustainable m-payment strategies. As for application developers, they can pay more attention to the needs of consumers and develop a more comprehensive mobile payment ecosystem. Lastly, the findings will add to the contribution of theoretical knowledge regarding m-payment and provide a comparative study to understand better the different perceptions among Malaysian and foreign consumers.

Literature Review

At present. there are two contemporary studies of m-payment. The first type of study focuses on mobile payment technologies. The second type of study involves examining m-payment from consumers' perspective (Dahlberg et al., 2008). Given the advantages of m-payment, this study takes the second approach. The rationale for researching consumers' perspectives on m-payment is that low user acceptance may impede widespread adoption of m-payments. M-payment is a payment method in which consumers use smartphones and other mobile devices to pay bills, goods, and services through m-payment apps (Zhou, 2013). In other words, it is a payment transaction that uses a mobile device to transfer money from the payer to the recipient (Heng et al., 2019). In this study, we define "m-payment" as an emerging application of financial technology, an alternative payment method for cash, debit or credit card and online fund transfer.

Underlying Theories and Models

The Technology of Acceptance Model (TAM) and Unified Technology Acceptance and Use of Technology (UTAUT) are both frequently adopted to explain the intention and use of technology. In addition, UTAUT is the extension of Technology Acceptance Model (TAM) and other models (Al-Mamary et al., 2016). With reference to TAM, the extent of actual use is determined by behavioural intention. Perceived usefulness is the predictor that directly affects attitude and behavioural intention. Notably, perceived ease of use affects only behavioural intention. In the context of technology usage study, "perceived usefulness" is defined as the belief that the use of a particular technology can improve performance. Meanwhile, perceived ease of use means that a given technology is easy to use. When consumers find that the given technology is easy to use and useful, they tend to form a supportive attitude and use the technology, thus influencing their intention and actual use. However, TAM has been criticised for not considering other significant predictors such as social influence and voluntary technology use. Therefore, Venkatesh et al., (2003) revised TAM and introduced UTAUT to overcome its weaknesses.

UTAUT has four key predictors to examine the behavioural intention and use of technology, namely performance expectancy, effort expectancy, social influence, and facilitating condition. Performance expectancy and effort expectancy in UTAUT are equivalent, respectively, to perceived usefulness and



perceived ease of use in TAM (Mensah & Adams, 2020). Meanwhile, facilitating conditions is the new predictor added into UTAUT. Facilitating conditions refer to a user's belief in the institutional setup and infrastructure support for the use of a particular technology. Social influence, based on UTAUT, refers to the user's belief that a particular person is important to him/her, thinks he/she should use the technology. In addition, UTAUT also includes four moderators. namely gender, age, experience and voluntary use. The attitude was dropped as a predictor of the model because the impact of attitude towards behavioural intention was significantly affected when performance expectancy and effort expectancy are present simultaneously (Ahmad, 2014).

Ahmad (2014) claimed that although UTAUT can make up for the deficiency of other theories and models, only a few researchers made full use of the model to examine technology use intention. According to him, a modified version of UTAUT is usually deployed (Ahmad, 2014). In the same vein, this study excluded moderators such as facilitating conditions, gender, age, experience, and voluntary use. The rationale behind this exclusion is that facilitating conditions were the least significant predictors (Chong, 2013). This is due to the fact that most applications are designed for general users, the features are easy to use, and the knowledge required to use the application is compatible without special adaptation. At the same time, due to high technology literacy, issues such as the digital divide, age



and gender differences are no longer significant factors. Therefore, this study re-examined the existing UTAUT model and added trust and convenience as additional predictors of m-payment use intention.

Behavioural Intention

Behavioural intention is a predictor for evaluating the use of technology (Liébana-Cabanillas et al., 2018). The behavioural intention has been used to empirically predict the corresponding intention on the use of technology under voluntary situations (Islam et al., 2013). Davis, Bagozzi & Warshaw (1989) argued that there is a difference between the time of intention measurement and behavioural performance. According to them, one would expect the intentionbehaviour correlation to decrease over time. Meanwhile, Milano (2012) refers to technology use intention as situations where an individual may delay their decision, an intention to use technology, the intention of using technology in the near future, and the move to start using technology. It was evident that behavioural intention will influence the actual use of m-payment (Oliveira et al., 2014). Hence, Nie and Amarayoun (2019) argued that use intention is critical in determining the intention to use m-payment.

Convenience

Convenience is one of the critical characteristics of mobile phone usage (Irani, 2019; Karsen et al., 2019). It has become an evitable tool in human daily life including communication, entertainment, banking and payment activities (Osman & Leng, 2020). The seamless integration of mobile phones, mobile applications, mobile network providers and financial institutions enable consumers to quickly and conveniently make m-payment and transfer money. As compared to conventional payment methods, consumers can complete a transaction quickly. Kavak & Anwar (2019) defined "convenience" as time-saving processes and transactions. Meanwhile, Liu & Tai (2016) referred to convenience as the agility, accessibility, and availability of services with flexibility in time and place. However, the impact of convenience, a driving factor on consumers' m-payment use intention has not been thoroughly studied (Boden et al., 2020).

Respondents' perception of m-payment is time-saving, easy to use, availability and flexibility (Abrahão et al., 2016; Nie & Amarayoun, 2019; Zhao. 2019). Humbani & Wiese (2018) argued that the convenience single of a m-payment method encourages users toward m-payment use intention. Wong (2018) surveyed the acceptance of m-payment among Hong Kong consumers and confirmed that convenience had a positive impact on the intention to use m-payment. Chamnankit (2019) investigated Alipay m-payment use in Thailand's tourism industry and claimed that convenience is the primary driver in m-payment use intention. The findings of Chamnankit (2019) are consistent with those of Sobti (2019), Chen & Chowdhury (2018),

who found that convenience was the most critical factor in influencing m-payment intention. Feng et al., (2019), however, stated that convenience had no significant impact on m-payment intention.

On the other hand, there is limited research on the association between convenience and behavioural intention in the context of Malavsia. The majority of the studies investigated the impact of convenience on consumers' purchase decisions (Nizam et al., 2019) or performance expectancy (Yap & Ng, 2019). Hence, from the above discussion. further investigation is needed to determine whether the impact of convenience may differ between Malaysians and foreigners.

Here, we have drawn the following hypotheses:

- H1a: Convenience has a positive effect on m-payment use intention.
- H1b: Convenience has a positive effect on Malaysian's m-payment use intention.
- H1c: Convenience has a positive effect on foreigners' m-payment use intention.

Social Influence

Social influence is the users' perception that their peers think they should use a technology (Venkatesh et al., 2003). In the m-payment context, social influence is the perceived pressure from the opinion of peers felt by the user in their intention towards



m-payment (Feng et al., 2019). Yang et al., (2017) & Khalilzadeh et al., (2017) believed that social influence in a collective environment is the perception of how other members of consumers' social groups think and act. As regards technology use intention, this study expects that social influence is positively associated with the intention to use m-payment. Therefore, social influence exerts pressure on an individual's intention to use m-payment (Yang et al., 2017). A research carried out by Abrahão et al., (2016) in southeastern Brazil reported a positive correlation between social influence and m-payment use intention. This finding is in line with the findings of Bailey et al., (2019) in the United States and (Oliveira et al., 2016) in Portugal. However, Oliveira et al., (2014) found that the extent of social influence on behaviour was not significant. Oliveira et al., (2014) explained that users always want to maintain the confidentiality of personal and financial transaction and the security of financial data, so they will not show off or leave an impression on use. Meanwhile, the findings of Teo, Tan, Ooi & Lin (2015), Teo, Tan, Ooi & Hew (2015) also discovered that the social influence of young undergraduate students in Malaysia had no significant effect on the use of m-payment.

Thus, the following hypotheses are proposed based on these inconclusive findings:

H2a: Social influence has a positive effect on m-payment use intention.



- H2b: Social influence has a positive effect on Malaysians' m-payment use intention.
- H2c: Social influence has a positive effect on foreigners' m-payment use intention.

Trust

In the research on information systems usage, trust has always been a key factor influencing users' intention to use (Chong et al., 2012; Maureen Nelloh et al., 2019). Raza et al., (2019) defined trust as an individual's ability to succeed in a given technological environment. Meanwhile, the trust established by Sinha & Mukherjee (2016) is the combination of trust over the other individual and trust in the transaction's successful control system Trust is the fundamental requirement of m-payment use intention (Tossy, 2014). This is because trust is crucial in reducing uncertainty, which is always a concern among users (Lu et al., 2011). In addition, Nguyen & Lu (2018) claimed that trust is essential at the initial stage of introducing new technology. When consumers lack trust, they will be affected by uncertainty, which will affect consumers' intentions and decisions. According to Humbani and Wiese (2018), the success of m-payment depends on consumers' trust in new payment methods. Therefore, to facilitate this study, trust refers to trust in m-payment service providers, banks and other users, and the m-payment application (Wang et al., 2018). Tossy (2014) found in a study in Dar es Salaam city, Tanzania, that trust is by far the most substantial factor in influencing users' intention to use m-payment, coupled with social influence and performance expectancy. Similarly, trust does have a major impact on Malaysians' intention to use m-payment in the case of young undergraduate students (Teo et al., 2015).

Hence, the following hypotheses are provided:

- H3a: Trust has a positive effect on m-payment use intention.
- H3b: Trust has a positive effect on Malaysians' m-payment use intention.
- H3c: Trust has a positive effect on foreigners' m-payment use intention.

Performance Expectancy

Performance Expectancy is often referred to as perceived usefulness (Mensah & Adams, 2020; Rampersad al., 2012). Therefore, perceived et usefulness and performance expectancy interchangeable. are In UTAUT. Venkatesh et al., (2012) established that effort expectancy is anchored on the expectancy theory. Performance expectancy refers to the perceived performance benefits gained by users from the adopted technology (Hasan et al., 2019; Hung et al., 2019). In this study, performance expectancy is defined as the magnitude to which m-payment can enhance payment performance. Zalessky & Hasan (2018) asserted that performance expectancy is the key predictor of behavioural intention. Oliveira et al., (2016) and Madan & Yadav (2016) confirmed that performance expectancy significantly predicted the m-payment adoption in Portugal and Delhi National Capital Region in India. A related study by Teo et al., (2015) on 319 university students of one of Malaysia's largest private universities revealed that performance expectancy also had a significant influence on m-payment usage. However, another study by Teo et al., (2015) found inconsistent results, where performance expectancy had no substantial effect on young Malaysian university students' intention to use m-payment. These findings do not seem to be conclusive; therefore, verification of the role of performance expectancy on m-payment intention among Malaysians and foreigners is crucial.

From what has been discussed above, we posit the following hypotheses:

- H4a: Performance expectancy has a positive effect on m-payment use intention.
- H4b: Performance expectancy has a positive effect on Malaysians' m-payment use intention.
- H4c: Performance expectancy has a positive effect on foreigners' m-payment use intention.

Effort Expectancy

Effort expectation has a strong influence on behavioural intention (Boonsiritomachai & Pitchayadejanant, 2017; Sobti, 2019). Raza et al., (2019) defined "effort expectancy" as the ease of use of technology. In other words,



effort expectancy, when applied to m-payment, refers to effort-free usage (Su et al., 2018). Effort expectancy and perceived ease of use are interchangeable (Lai, 2017). Therefore, effort expectancy also refers to the simplicity and the easiness of learning and using a system (Teo et al., 2015). Baptista & Oliveira (2016) conducted a meta-analysis of 57 articles, and the results suggested that effort expectancy positively correlated with m-banking intention. Morosan & DeFranco (2016) reported a positive relationship between effort expectancy and NFC m-payment intention in the context of m-payment. Besides, the results obtained by Feng et al., (2019) & Alalwan et al., (2018) also validated the association between effort expectancy and m-payment use intention empirically. These results are in line with Oliveira et al.,'s (2014) research on m-banking in Portugal, which has the largest population of mobile phone users in the European Union (EU). Similarly, in Malaysia, Fadzil (2018) and Teo et al., (2015) supported the significant impact of effort expectancy on mobile application use intention. On the contrary, Slade et al., (2015) obtained different results, in which effort expectancy did not affect the non-users' m-payment intention. Likewise, Tossy (2014) also found that effort expectancy did not affect Tanzanians' m-payment use intention.

Hence, we posited the following hypotheses to verify the impact of effort expectancy on m-payment use intention:



- H5a: Effort expectancy has a positive effect on m-payment use intention.
- HSb: Effort expectancy has a positive effect on Malaysians' m-payment use intention.
- H5c: Effort expectancy has a positive effect on foreigners' m-payment use intention.

Trust as the Mediator

Yan & Yang (2015) believed 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. Similarly, Gu et al., (2009) argued that when an m-banking system is easy to use, its users will perceive that m-banking is trustworthy. They surveyed 910 respondents, but the results suggested that users' effort expectancy had no substantial impact on trust. Gu et al., (2009) explained that the reason might be due to lack of product knowledge and understanding instead of ease of use. In the context of m-banking, where existing banks provide m-banking services, trust has always been established already. This also applies to m-payment as most m-payment providers are wellestablished financial institutions. Therefore, effort expectancy influences users' trust in the service.

Hence, this study proposed the following hypotheses:

- H6a: Effort expectancy has a positive effect on trust.
- H6b: Effort expectancy has a positive effect on Malaysians' trust.

H6c: Effort expectancy has a positive effect on foreigners' trust.

Giovannini & Ferreira (2015)examined the mediating effect of trust between effort expectancy and mobile commerce (m-commerce) intention. The result revealed that there is a partial mediating effect on the relationship. result indicated The that effort expectancy is correlated with trust, and trust is positively correlated with m-commerce intention. Furthermore, effort expectancy is positively correlated with m-commerce intention. This study is in line with Yan & Yang's (2015) results. They surveyed 193 university students in cities in central China, and the result shows that effort expectancy significantly influences trust; subsequently, trust influences the m-payment use intention. Yan & Yang (2015) explained that the ability of m-payment service providers to provide easy access to use m-payment would affect user evaluation and benevolence. Likewise, if users do not trust m-payment providers, they would not have positive expectations of using m-payment.

Hence, this study posited the following hypotheses:

- H7a: Trust mediates the relationship between effort expectancy and m-payment use intention.
- H7b: Trust mediates the relationship between effort expectancy and Malaysians' m-payment use intention.
- H7c: Trust mediates the relationship between effort expectancy and

foreigners' m-payment use intention.

Performance Expectancy as the Mediator

The research by Alalwan et al., (2018) on the use of internet banking by Jordanian customers showed that effort expectancy had a substantial effect on performance expectancy. Similarly, Abrahão et al., (2016) confirmed that effort expectancy is associated with m-payment use intention. With regard to m-payment, Andre et al., (2019) argued that effort expectancy (or ease of use) might reduce the effort of users when making payments. When consumers have high effort expectancy (easy to use), they would believe that m-payment is of higher performance expectancy (more useful) (Hung et al., 2019). Various studies also supported this rationale.

Hence, the following are the proposed hypotheses:

- H8a: Effort expectancy has a positive effect on performance expectation.
- H8b: Effort expectancy has a positive effect on Malaysians' performance expectation.
- H8c: Effort expectancy has a positive effect on foreigners' performance expectation.

The finding of Al-Qeisi et al., (2014) revealed that performance expectancy mediates the relationship between effort expectancy and use intention. Similarly, Tan & Lau (2016), Shaw & Kesharwani (2019) also supported this finding. Tan & Lau (2016) further explained that when a user perceived that the



technology is easy to learn and use (effort expectancy), he/she would have high-performance expectancy. Tan & Lau (2016) added that effort expectancy has an indirect effect on use intention via performance expectancy. Besides, Yan & Yang (2015) argued that the ease of use (or performance expectancy) of m-payment would dramatically reduce the effort taken by users to learn how to use m-payment. They would then utilise m-payment methods for their primary transaction activities.

Hence, the following hypotheses were proposed:

- H9a: Performance expectancy mediates the relationship between effort expectancy and m-payment use intention.
- H9b: Performance expectancy mediates the relationship between effort expectancy and Malaysians' m-payment use intention.
- H9c: Performance expectancy mediates the relationship between effort expectancy and foreigners' m-payment use intention.

Methodology

The measurement was adopted and modified from previous literature to suit the need of this study. The target population was mobile device users who had never used m-payment. Due to the large population and as there was no sampling frame, convenience sampling was used. This sampling technique also allows researchers to collect data from large populations. According to Saunders, Lewis & Thornhill (2016), a sample size of 384 is required if the



target population exceeds 1,000,000. The survey was distributed online, and participants were invited to respond through Facebook. Malaysians and foreigners residing in Malaysia were among those who took part in this study. Meanwhile, invitations were sent to Facebook groups such as Expatriates in Malaysia, Expats – Malaysia, Malaysia Expatriate Community, and others to obtain a representative sample of foreigners. After the data screening and removal of outliers, a total of 393 valid cases were used for data analysis. For further examination, the data collected was grouped into a pooled sample; one sample consisted of Malaysians and another sample comprised foreigners.

Table 1

| Participant characteristics | Pooled Sample | (N=393) | Malaysian (N=222) | Sample | Foreigner (N=171) | Sample |
|--------------------------------|------------------|----------|----------------------|----------|----------------------|-------------|
| | Freq. | Per cent | Freq. | Per cent | Freq. | Per cent |
| Gender | | | | | | |
| Male | 222 | 56.5 | 136 | 61.3 | 86 | 49.7 |
| Female | 171 | 43.5 | 86 | 38.7 | 85 | 50.3 |
| Age | | | | | | |
| 19 - 25 years | 8 | 2.04 | 3 | 1.4 | 5 | 2.9 |
| 26 - 35 years | 197 | 50.13 | 138 | 62.2 | 59 | 34.5 |
| 36 - 45 years | 129 | 32.82 | 60 | 27.0 | 69 | 40.4 |
| Above 46 years | 59 | 15.01 | 21 | 9.4 | 38 | 22.2 |
| Education Level | | | | | | |
| Secondary school | 22 | 5.6 | 13 | 5.9 | 9 | 5.3 |
| Diploma | 23 | 5.9 | 18 | 8.1 | 5 | 2.9 |
| Undergraduate | 240 | 61.1 | 139 | 62.6 | 101 | 59.1 |
| Postgraduate | 89 | 22.6 | 43 | 19.4 | 46 | 26.9 |
| Others | 19 | 4.8 | 9 | 4.1 | 10 | 5.8 |
| Employment Status | | | | | | |
| Student | 160 | 40.7 | 108 | 48.6 | 52 | 30.4 |
| Employed | 197 | 50.1 | 91 | 41.0 | 106 | 62.0 |
| Self-employed | 19 | 4.8 | 13 | 5.9 | 6 | 3.5 |
| Unemployed | 10 | 2.5 | 9 | 4.1 | 1 | 0.6 |
| Retired | 7 | 1.8 | 1 | 0.5 | 6 | 3.5 |

Sociodemographic Characteristics of Participants (N=393)

Journal of Wealth Management & Financial Planning

Descriptive Statistics

Data Analysis and Hypothesis Testing

SPSS and Structural Equation Modeling (SEM) technique were used to analyse the data for descriptive and inferential analysis. Based on the pooled sample, half of the respondents were aged between 26 to 35 years (50.13%) and were employed (50.1%) (refer to Table 1). In addition, a majority



of the respondents had completed or were then pursuing undergraduate or postgraduate degrees, comprising 61.1% and 22.6%, respectively. It can be seen that for both the Malaysian sample and foreigner sample, the respondents were mostly from the younger generation. Overall, the respondents were highly educated, and most foreigners were selfemployed.

| Construct | | Ν | Mean | Std. Deviation |
|------------------------|---------------|-----|--------|----------------|
| Performance Expectancy | Pooled sample | 393 | 3.8658 | 0.97085 |
| | Malaysian | 222 | 3.8776 | 0.95631 |
| | Foreigner | 171 | 3.9284 | 0.98872 |
| Effort Expectancy | Pooled sample | 393 | 3.9847 | 0.98850 |
| | Malaysian | 222 | 3.8998 | 0.93984 |
| | Foreigner | 171 | 4.0950 | 1.04077 |
| Social Influence | Pooled sample | 393 | 3.2120 | 1.00720 |
| | Malaysian | 222 | 3.3438 | 0.80558 |
| | Foreigner | 171 | 3.0409 | 1.20142 |
| Trust | Pooled sample | 393 | 3.4830 | 0.86858 |
| | Malaysian | 222 | 3.3793 | 0.78868 |
| | Foreigner | 171 | 3.6175 | 0.94802 |
| Convenience | Pooled sample | 393 | 3.9237 | 0.95058 |
| | Malaysian | 222 | 3.9065 | 0.93783 |
| | Foreigner | 171 | 3.9459 | 0.96919 |
| Behavioural Intention | Pooled sample | 393 | 4.0059 | 0.94714 |
| | Malaysian | 222 | 3.9505 | 0.94337 |
| | Foreigner | 171 | 4.0780 | 0.94994 |

The dataset was analysed using the structural equation modelling technique. First, a Confirmatory Factor Analysis (CFA) of the goodness-of-fit was performed on 393 data sets (pooled data) and multigroup sample (refer to Table 3). The Construct Reliability (CR) for convergent validity and Average Variance Extracted (AVE) were calculated for discriminant validity

Journal of Wealth Management & Financial Planning



Table 3Goodness-of-Fit Statistics for the CFA Model

| Construct | χ²/df | GFI | CFI | TLI | NFI | RMSEA |
|------------------------------------|-------|-------|--------|-------------|--------|--------|
| Criterion for goodness of fit | <5 | ≥ 0.9 | >=0.90 | ≥ 0.90 | ≥ 0.90 | ≤ 0.08 |
| Model performance of pooled sample | 2.351 | 0.898 | 0.973 | 0.969 | 0.955 | 0.059 |
| Model performance of multigroup | 2.075 | 0.834 | 0.786 | 0.956 | 0.944 | 0.052 |

(refer to Table 4). Lastly, the structural model of this study was assessed.

Table 3 shows the major goodnessof-fit requirement for SEM analysis. The measurement model of the pooled sample was tested, and most of the fit indices met the requirements of 0.9 or above. Except for the GFI, the threshold value was close to 0.9, but the value was within the acceptable range (Baumgartner & Homburg, 2015). Meanwhile, the RMSEA value was 0.059, indicating high goodness of fit. Therefore, we concluded that the measurement model had high goodness of fit for the data.

Table 4 shows the result of the confirmatory factor analysis (CFA). Referring to Table 4, except for item TR5 (loading = 0.669), the factor loadings of other items were above the value of 0.8. Chin (1998), however, proposed that the threshold for factor loading should be at least 0.6. Therefore, a factor loading of 0.669 on TR5 was acceptable. Construct validity was checked by measuring the convergent and discriminant validity. As shown in Table 4, the statistical results indicate that Cronbacks alpha (α) of the latent constructs was higher than 0.9, and the

Composite Reliability (CR) value was greater than the threshold value of 0.7, as well as the Average Variance Extracted (AVE) threshold value of 0.5. Therefore, all the predictors in this study had high reliability and convergent validity. For discriminant validity, the Maximum Share Variance (MSV) value was less than AVE, while the square root of AVE of each construct of the pooled sample was higher than its corresponding correlation coefficients. This indicates that there was no discriminant validity issue in this study.

For the overall model fit, the proposed structural model was tested. The results showed $\chi^2/df=2.878$, GFI=0.874, CFI=0.962, TLI=0.956, NFI=0.944 and lastly RMSEA=0.069. This indicated that the model fit the data well. Table 6(a) shows the result of the structural model's regression coefficient of the pooled sample. The results obtained showed that hypotheses H1a, H3a, H4a, and H5a were significant, that is, convenience, performance expectancy, effort performance expectancy and trust accord with expectations and were significantly correlated with m-payment use intention. It also indicated that the strongest predictor of m-payment use



Factor Loading, Average Variance Extracted and Construct Reliability of Pooled Sample

| Construct | Items/ Indicators | Cronbachs Alpha | Factor Loading | CR | AVE |
|------------------------|----------------------|--------------------|-------------------|-------|-------|
| Performance Expectancy | PE1 PE2 | 0.946 | 0.930 0.847 | 0.945 | 0.813 |
| | PE3 | | 0.930 | | |
| | PE4 | | 0.897 | | |
| Effort Expectancy | EE1 | 0.956 | 0.915 | 0.956 | 0.846 |
| | EE2 | | 0.913 | | |
| | EE3 | | 0.936 | | |
| | EE4 | | 0.915 | | |
| Social Influence | SI1 | 0.961 | 0.936 | 0.962 | 0.893 |
| | SI2 | | 0.973 | | |
| | SI3 | | 0.925 | | |
| Trust | TR1 | 0.929 | 0.848 | 0.932 | 0.735 |
| | TR2 | | 0.876 | | |
| | TR3 | | 0.948 | | |
| | TR4 | | 0.916 | | |
| | TR5 | | 0.669 | | |
| Convenience | CV1 | 0.955 | 0.893 | 0.955 | 0.841 |
| | CV2 | | 0.887 | | |
| | CV3 | | 0.939 | | |
| | CV4 | | 0.948 | | |
| Use Intention | BI1 | 0.921 | 0.950 | 0.924 | 0.803 |
| | BI2 | | 0.846 | | |
| | BI3 | | 0.889 | | |

Note. CR: composite reliability. AV: average variance extracted.

Table 5a

Average Variance Extracted and Squared Correlation Coefficient - Pooled Sample

| Construct | CR | AVE | MSV | PE | EE | SI | TR | CV | BI |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Performance Expectancy (PE) | 0.945 | 0.813 | 0.751 | 0.902 | | | | | |
| Effort Expectancy (EE) | 0.956 | 0.846 | 0.701 | 0.801 | 0.920 | | | | |
| Social Influence (SI) | 0.962 | 0.893 | 0.011 | 0.135 | 0.019 | 0.945 | | | |
| Trust (TR) | 0.932 | 0.735 | 0.453 | 0.607 | 0.626 | 0.037 | 0.857 | | |
| Convenience (CV) | 0.955 | 0.841 | 0.746 | 0.864 | 0.836 | 0.107 | 0.584 | 0.917 | |
| Use Intention (BI) | 0.924 | 0.802 | 0.753 | 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 the AVE of each construct.



Table 5b

Average Variance Extracted and Squared Correlation Coefficient - Malaysian Sample

| Construct | CR | AVE | MSV | PE | EE | SI | TR | CV | BI |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Performance Expectancy (PE) | 0.870 | 0.771 | 0.748 | 0.878 | | | | | |
| Effort Expectancy (EE) | 0.949 | 0.822 | 0.724 | 0.814 | 0.907 | | | | |
| Social Influence (SI) | 0.928 | 0.811 | 0.113 | 0.368 | 0.295 | 0.901 | | | |
| Trust (TR) | 0.912 | 0.679 | 0.501 | 0.637 | 0.645 | 0.336 | 0.824 | | |
| Convenience (CV) | 0.959 | 0.853 | 0.748 | 0.865 | 0.851 | 0.318 | 0.630 | 0.924 | |
| Use Intention (BI) | 0.908 | 0.768 | 0.738 | 0.859 | 0.839 | 0.305 | 0.708 | 0.813 | 0.876 |

Note. CR: composite reliability. AV: average variance extracted. Bold values indicate the square root of the AVE of each construct.

Table 5c

Average Variance Extracted and Squared Correlation Coefficient - Foreign Sample

| Construct | CR | AVE | MSV | PE | EE | SI | TR | CV | BI |
|--------------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| Performance Expectancy (PE) | 0.896 | 0.812 | 0.781 | 0.901 | | | | | |
| Effort Expectancy (EE) | 0.965 | 0.874 | 0.686 | 0.785 | 0.935 | | | | |
| Social Influence (SI) | 0.981 | 0.946 | 0.028 | -0.039 | -0.167 | 0.973 | | | |
| Trust (TR) | 0.949 | 0.789 | 0.403 | 0.577 | 0.593 | -0.145 | 0.888 | | |
| Convenience (CV) | 0.951 | 0.828 | 0.745 | 0.863 | 0.828 | -0.066 | 0.546 | 0.910 | |
| Use Intention (BI) | 0.944 | 0.849 | 0.781 | 0.884 | 0.827 | -0.024 | 0.635 | 0.855 | 0.922 |

Note. CR: composite reliability. AV: average variance extracted. Bold values indicate the square root of the AVE of each construct.

Table 6(a)

Results of SEM on Effect of Predictors on M-Payment Use Intention - Pooled Sample

| Construct | В | SE | Beta | CR | р |
|-----------------------------|-------|-------|-------|-------|-------|
| H1a: Convenience | 0.136 | 0.058 | 0.134 | 2.327 | 0.020 |
| H2a: Social Influence | 0.027 | 0.026 | 0.028 | 1.047 | 0.295 |
| H3a: Trust | 0.183 | 0.040 | 0.162 | 4.530 | 0.000 |
| H4a: Performance Expectancy | 0.394 | 0.049 | 0.418 | 7.993 | 0.000 |
| H5a: Effort Expectancy | 0.295 | 0.079 | 0.298 | 3.707 | 0.000 |

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



Table 6(b)

Results of SEM on Effect of Predictors on M-Payment Use Intention - Malaysian

| Construct | В | SE | Beta | CR | р |
|-----------------------------|--------|-------|--------|--------|-------|
| H1b: Convenience | 0.050 | 0.088 | 0.049 | 0.568 | 0.570 |
| H2b: Social Influence | -0.042 | 0.052 | -0.031 | -0.800 | 0.424 |
| H3b: Trust | 0.256 | 0.068 | 0.200 | 3.751 | 0.000 |
| H4b: Performance Expectancy | 0.405 | 0.077 | 0.418 | 5.285 | 0.000 |
| H5b: Effort Expectancy | 0.346 | 0.127 | 0.342 | 2.728 | 0.006 |

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

Table 6(c)

Results of SEM on Effect of Predictors on M-Payment Use Intention - Foreigner

| Construct | В | SE | Beta | CR | р |
|-----------------------------|-------|-------|-------|-------|-------|
| H1b: Convenience | 0.235 | 0.073 | 0.236 | 3.224 | 0.001 |
| H2b: Social Influence | 0.054 | 0.028 | 0.070 | 1.947 | 0.051 |
| H3b: Trust | 0.144 | 0.046 | 0.144 | 3.156 | 0.002 |
| H4b: Performance Expectancy | 0.400 | 0.059 | 0.441 | 6.754 | 0.000 |
| H5b: Effort Expectancy | 0.221 | 0.095 | 0.229 | 2.337 | 0.019 |

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

intention was performance expectancy (β =0.418, p<0.001), 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 H2a on the impact of social influence (β =0.028, p>0.05) on m-payment use intention was not significant.

Compared to the Malaysian sample, the regression coefficient of the structural model showed that convenience (H1b, β=0.049, p=0.570) and social influence (H2b, β =-0.031, p=0.424) did not positively affect Malaysians' m-payment use intention (refer to Table 6(b)). Other hypotheses such as H1b. H3b. H4b and H5b were significant. Similarly, for the foreigner sample, H1c, H3c, H4c and H5c were found significant. Meanwhile, social influence (H2c, β =0.070, p=0.051) of the

foreigner sample was also found to have no impact on foreigners' intention to use m-payment (Refer to Table 6(c)).

Referring to Table 7 and Table 8, the results show that for the pooled sample, Malaysian sample, and foreigner sample, the relationship between effort expectancy and trust and effort expectancy and performance expectancy were both significant. Therefore, we concluded that hypotheses H6a, H6b, H6c, H8a, H8b, and H8c were supported.

This study further analysed the mediating effect of three different samples on trust and performance expectancy. As shown in Table 9, the pooled sample of effort expectancy (β =0.681, p<0.001) had a direct effect on m-payment use intention. We



Results of SEM on Effect of Effort Expectancy on Trust – (a)Pooled Sample, (b) Malaysian and (c) Foreigner

| Construct | В | SE | Beta | CR | р |
|------------------------|-------|-------|-------|--------|-------|
| H6a: Effort Expectancy | 0.562 | 0.042 | 0.642 | 13.307 | 0.000 |
| H6b: Effort Expectancy | 0.531 | 0.053 | 0.670 | 10.099 | 0.000 |
| H6c: Effort Expectancy | 0.583 | 0.069 | 0.604 | 8.398 | 0.000 |

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

Table 8

Results of SEM on Effect of Effort Expectancy on Performance Expectancy – (a) Pooled Sample, (b) Malaysian, and (c) Foreigner

| Construct | В | SE | Beta | CR | р |
|------------------------|-------|-------|-------|--------|-------|
| H8a: Effort Expectancy | 0.866 | 0.042 | 0.827 | 20.816 | 0.000 |
| H8b: Effort Expectancy | 0.883 | 0.053 | 0.604 | 16.524 | 0.000 |
| H8c: Effort Expectancy | 0.857 | 0.067 | 0.804 | 12.868 | 0.000 |

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

Table 9

Result of Mediation Effect of Trust and Performance Expectancy on Relationship between Effort Expectancy and M-Payment Use Intention

| Construct | | Beta | р |
|-------------------------|--|-------|-------|
| Pooled sample | | | |
| Trust | | | |
| | Direct Model | | |
| | Effort expectancy \rightarrow Use Intention | 0.836 | 0.000 |
| | Mediation Model | | |
| | Effort expectancy \rightarrow Trust | 0.626 | 0.000 |
| | Trust \rightarrow Use Intention | 0.245 | 0.000 |
| | Effort expectancy \rightarrow Use Intention | 0.681 | 0.000 |
| Performance Expectancy: | | | |
| | Direct Model | | |
| | Effort expectancy \rightarrow Use Intention | 0.831 | 0.000 |
| | Mediation Model | | |
| | Effort expectancy \rightarrow Performance expectancy | 0.800 | 0.000 |
| | Performance expectancy \rightarrow Use Intention | 0.551 | 0.000 |
| | Effort expectancy \rightarrow Use Intention | 0.396 | 0.000 |



Result of Mediation Effect of Trust and Performance Expectancy on Relationship between Effort Expectancy and M-Payment Use Intention

| Construct | Beta | р |
|--|-------|-------|
| Malaysian Sample | | |
| Trust: | | |
| Effort expectancy . Lies Intention | 0.662 | 0.000 |
| Enort expectancy \rightarrow ose intention | 0.002 | 0.000 |
| Mediation Model | | |
| Effort expectancy \rightarrow Trust | 0.645 | 0.000 |
| Trust \rightarrow Use Intention | 0.282 | 0.000 |
| Effort expectancy \rightarrow Use Intention | 0.655 | 0.000 |
| Performance Expectancy: | | |
| Direct Model | | |
| Effort expectancy \rightarrow Use Intention | 0.413 | 0.000 |
| Mediation Model | | |
| Effort expectancy \rightarrow Performance expectancy | 0.813 | 0.000 |
| Performance expectancy \rightarrow Use Intention | 0.523 | 0.000 |
| Effort expectancy \rightarrow Use Intention | 0.413 | 0.000 |
| Foreigner Sample | | |
| Trust: | | |
| Direct Model | | |
| Effort expectancy \rightarrow Use Intention | 0.682 | 0.000 |
| Mediation Model | | |
| Effort expectancy \rightarrow Trust | 0.593 | 0.000 |
| Trust \rightarrow Use Intention | 0.223 | 0.000 |
| Effort expectancy \rightarrow Use Intention | 0.696 | 0.000 |
| Performance Expectancy: | | |
| Direct Model | | |
| Effort expectancy \rightarrow Use Intention | 0.343 | 0.000 |
| Mediation Model | | |
| Effort expectancy \rightarrow Performance expectancy | 0.784 | 0.000 |
| Performance expectancy \rightarrow Use Intention | 0.610 | 0.000 |
| Effort expectancy \rightarrow Use Intention | 0.350 | 0.000 |

Journal of Wealth Management & Financial Planning



further examined the relationship between effort expectancy and trust, and between trust, and m-payment use intention. The results showed that effort expectation had a significant positive relationship with trust (β =0.626, p<0.001), and trust had a significant positive relationship with use intention $(\beta=0.245, p<0.001)$. This suggested that in the pooled sample, trust played a partial mediation role in the relationship. mediating Similarly, the effect of performance expectancy showed that effort expectancy had a direct impact on m-payment use intention (β=0.396, p<0.001). Meanwhile, the relationship between effort expectancy and performance expectancy (β =0.800, p<0.001), and performance expectancy and m-payment use intention (β =0.551, p<0.001) were both significant. Thus, performance expectancy in the pooled sample acted as a partial mediator.

When evaluating the Malaysian sample and foreigner sample, compared with the pooled sample, trust and performance expectancy played а mediation role in both samples. As seen in Table 9 of the Malaysian sample, the relationship between effort expectancy and trust (β=0.645, p<0.001), trust and m-payment use intention (β =0.282, p<0.001) and effort expectancy and m-payment use intention (β=0.655, p<0.001) were significant. It also suggested that performance expectancy acted as a mediator and had an indirect effect. The results showed that the relationship between effort expectancy and m-payment use intention (β =0.813, p<0.001), performance expectancy, and m-payment use intention (β=0.523, p<0.001), and effort expectancy and m-payment use intention (β**=0.413**, p<0.001) also significant. were Performance expectancy played mediating role in this relationship and had an indirect effect. Similar to the foreigner sample, the relationship between effort expectancy and trust (β=0.593, p<0.001), trust and m-payment use intention (β=0223., p<0.001), and effort expectancy and m-payment use intention (β=0.696, p<0.001). Meanwhile, the relationship expectancy between effort and m-payment use intention (β =0.784, p<0.001), performance expectancy and intention (β =0.610, m-payment use p<0.001), and effort expectancy and m-payment use intention (β =0.350, p<0.001) were significant. Therefore, we can conclude that trust and performance expectancy play a mediating role and have an indirect effect on foreigners' sample.

Finally, a multigroup analysis was conducted to investigate the significant differences between the Malaysian sample and the foreigner sample. The AMOS plugin provided by Gaskin was used for multigroup analysis. Referring to Table 10, the chi-square difference test p-value (p-value=1.00) was not significant. This indicated that there was no difference between the two samples. As can be seen from Table 11, there were differences between Malaysians and foreigners in the relationship between convenience and behavioural intention, as well as social influence and behavioural intention.



Figure 1

HI (P=.*, M=NS, F=**) H3 Convenience Trust **. M=***. F=**) H6 (P=***, M=***, F=***) H5 (P=***, M=**, F=** Usage Intention Effort Expectancy H8 ** M-*** E-** Performance Social Influence Expectancy H4 H2 (P=*** M=*** F=***) (P=.NS, M=NS, F=NS) ***p < 0.001, **p < 0.01, *p < 0.05, NS = Not Significant P = Pooled Sample, M = Malaysian, F = Foreigner

Structural model (Pooled, Malaysia and foreigner sample)

Table 10

Multigroup Analysis of Global Test

| | χ^2 | DF |
|---------------|----------|------|
| Unconstrained | 1022.139 | 438 |
| Constrained | 1022.139 | 438 |
| Difference | 0.000 | 0 |
| P-value | | 1.00 |

Discussion

the pooled From sample, the Malaysian sample, and the foreigner sample, it can be concluded that increased social influence does not affect m-payment use intention (hypotheses H3a, H3b, and H3c). Social influence refers to the pressure on a user caused by the opinion of peers in influencing his or her behaviour in a particular way. According to Teo et al., (2015), Malaysia is a collective society; the influence of social influence is posited as a strong influence. The findings of this research, however, are inconsistent with previous studies conducted by Abrahão et al.,

(2016), Khalilzadeh et al., (2017) & Yang et al., (2012). Nevertheless. Sobti (2019) surveyed 880 Indian users' m-payment use intention, and the results showed that social influence did not influence their m-payment use intention. This can be interpreted as users paying more attention to m-payment's trust, effort expectancy, and performance expectancy of m-payment instead of acting collectively as part of their social group. Alalwan et al., (2018) added that inconsistent results found in the study of technology use intentions might be due to the various factors such as technology (mandatory or voluntary), country



Multigroup Analysis of Local Tests

| Path Name | Malaysia Beta | Foreigner Beta | Difference in Betas | P-Value for Difference | Interpretation |
|---|------------------|-------------------|------------------------|------------------------------|--|
| Effort Expectancy →Trust | 0.670*** | 0.604*** | 0.066 | 1.000 | There is no difference |
| Effort Expectancy →Performance Expectancy | 0.846*** | 0.804*** | 0.042 | 1.000 | There is no difference |
| Effort Expectancy → Behavioural Intention | 0.342** | 0.229* | 0.113 | 1.000 | There is no difference |
| Convenience → Behavioural Intention | 0.049 | 0.236** | -0.187 | 1.000 | The positive relationship between behavioural intention and convenience is only significant for the foreigner. |
| Social Influence → Behavioural Intention | -0.031 | 0.070† | -0.102 | 1.000 | The positive relationship between behavioural intention and social influence is only significant for the foreigner. |
| Performance Expectancy → Behavioural Intention | 0.418*** | 0.441*** | -0.024 | 1.000 | There is no difference |
| Trust → Behavioural Intention | 0.200*** | 0.144** | 0.056 | 1.000 | There is no difference |

Significance indicator: † p < 0.100, * p < 0.050, ** p < 0.010, *** p < 0.001

development (developing or developed country), nature of technology (personal or common technology) and individual perception, skills, and experience. In addition, Teo et al., (2015) explained that mobility was the more important factor for the respondents in their study in making an independent decision whether to use m-payment. Social peers did not influence their decisions.

Not surprisingly, users would start using m-payment because of its highperformance expectancy, minimum effort to learn and use it, convenience, and when the m-payment service could be trusted. This study empirically proves that the main factors influencing users' intention to use m-payment are performance expectancy and effort Meanwhile, expectancy. trust and convenience are secondary factors for the pooled sample. Performance expectancy, effort expectancy, and convenience have a significant effect on the users' m-payment use intention due to changes in urban lifestyle and demand for fast and convenient services (Kumar & Palanisamy, 2019). This study also reveals that the weight of the trust factor on the m-payment use intention is lower than performance expectancy and effort expectancy. This could be due to the fact that trust was already in existence among users as the m-payment service is usually provided by well-established banks or third-party service providers (Ntaukira et al., 2019).

In relation to the Malaysian sample, it was a surprise to find that convenience does not significantly affect



Malaysians' m-payment use intention. The finding is inconsistent with other studies conducted by Kaitawarn (2015), Humbani & Wiese (2018). On the other hand, foreigners weighed performance expectancy (β =0.441) as the key factor in m-payment use intention, followed by convenience (β =0.236), effort expectancy (β =0.229) and trust (β =0.144). This is different from the Malaysian sample, in which weighed performance Malaysians expectancy (β =0.418) as the critical factor followed by effort expectancy (β=0.342) and trust (β=0.200).

Conclusions and Recommendations

In comparison to other nearby developing countries, although m-payment had been introduced in Malaysia for many years, the usage rate remains relatively low. This study attempts to revise the existing UTAUT to investigate the factors influencing Malaysians' and foreigners' use intention of m-payment in Malaysia. This study does not only enhance the theoretical model but also improves the consumers' cognitive understanding of m-payment use intention between Malaysians and foreigners in Malaysia. The findings concluded that convenience. trust. performance expectancy and effort expectancy are the predictors that significantly influence m-payment use intention in all three samples. This is consistent with previous studies.

On the contrary, social influence does not have a significant impact on all three samples. Interestingly, convenience is not significant in



relation to the Malaysian sample. In conclusion, foreigners are more inclined to use m-payment if it is convenient, trusted entities are the ones providing the service, it is easy to use and can meet their performance the other hand, expectations. On Malaysians concerned are more with performance expectancy, effort expectancy and trust. Notably, the impact of social influence on the intention to use m-payment is getting less important due to the formation of mobile communities. In addition, policymakers and marketers need to understand the dynamics of behavioural beliefs and changes and generate more in-depth insight into how to facilitate the use of m-payment.

In this study, we studied general forms of m-payment, while future research shall focus on other successful types of mobile payment, such as contactless NFC or QR code payment methods. In this study, important predictors of UTAUT were retained, and trust and convenience predictors were added to the conceptual framework. There are undeniably other important predictors such as perceived risk, perceived and individual value. innovativeness. Therefore, future studies should include these predictors to gain more insight into m-payment use intention in Malaysia. In addition, the population of this study is based on a single country, and the cross-sectional approach is adopted. The future study shall consider a longitudinal study to

seek a random sample of participation involving several countries instead of foreigners in Malaysia ■

Reference

- Abrahão, R. de S., Moriguchi, S. N., & Andrade, D. F. (2016). Intention of adoption of mobile payment: An analysis in the light of the Unified Theory of Acceptance and Use of Technology (UTAUT). RAI Revista de Administração e Inovação 13, 3, 221-230. https://doi.org/10.1016/j. rai.2016.06.003
- Ahmad, M. I. (2014). Unified Theory of Acceptance and Use of Technology (UTAUT) a decade of validation and development. *Proceedings of the 4th International Conference on ICT in Our Lives.*
- Al-Mamary, Y. H., Al-nashmi, M., Hassan, Y. A. G., & Shamsuddin, A. (2016). A critical review of models and theories in field of individual acceptance of technology. *International Journal of Hybrid Information Technology*, 9(6), 143–158. https://doi.org/10.14257/ ijhit.2016.96.13
- Al-Qeisi, K., Dennis, C., Alamanos, E., & Jayawardhena, C. (2014). Website design quality and usage behavior: Unified Theory of Acceptance and Use of Technology. *Journal of Business Research*, 67(11), 2282– 2290.https://doi.org/10.1016/j. jbusres.2014.06.016

- Alalwan, A. A., Dwivedi, Y. K., Rana, N. P., & Algharabat, R. (2018). Examining factors influencing customers' intentions Iordanian and adoption of internet banking: Extending UTAUT2 with risk. Journal of Retailing and Consumer Services, 40, 125-138. https://doi. org/10.1016/j.jretconser.2017.08.026
- Andre, G. V., Baptista, P. T., & Setiowati, R. (2019). The determinants factors of mobile payment adoption in DKI Jakarta. *Journal of Research in Marketing*, 10(3), 823–831.
- Askool, S., Pan, Y., Jacobs, A., & Tan, C. (2019). Understanding proximity mobilepayment adoption through Technology Acceptance Model and Organisational Semiotics: An exploratory study. The 24th UK Academy for Information Systems International Conference (UKAIS).
- Bailey, A. A., Pentina, I., Mishra, A. S., Anthony, A., Pentina, I., & Mishra, A. S. (2020). Exploring factors influencing US millennial consumers ' use of tap-and-go payment technology. *The International Review of Retail, Distribution and Consumer Research,* 30(2), 143–163. https://doi.org/10.10 80/09593969.2019.1667854
- Baptista, G., & Oliveira, T. (2016). A weight and a meta-analysis on mobile banking acceptance research. *In Computers in Human Behavior.* https://doi.org/10.1016/j. chb.2016.05.074



- Baumgartner, H., & Homburg, C. (1996). Applications of structural equation modeling in marketing and consumer research: A review. *International Journal of Research in Marketing*, 13(2), 139–161.
- Boden, J., Maier, E., & Wilken, R. (2020). The effect of credit card versus mobile payment on convenience and consumers' willingness to pay. *Journal of Retailing and Consumer Services, 52.* https://doi.org/10.1016/j. jretconser.2019.101910
- Buchholz, K. (2019). China's mobile payment adoption beats all others. https://www.statista. com/chart/17909/pos-mobilepayment-user-penetration-rates/
- Chamnankit, B. (2019). Alipay A mobile payment platform and its impact on Thailand's tourism industry. http://ethesisarchive. library.tu.ac.th/thesis/2018 6002040076 10494 10003.pdf
- Chen, S. (2018). Analysis on the usage intention of mobilepayment. https:// www.diva-portal.org/smash/get/ diva2:1318496/FULLTEXT01.pdf
- Chin, W. W. (1998). Issues and opinion on structural equation modeling. *MIS Quaterly*, 19–24.



- Chong, A. Y. L., Chan, F. T. S., & Ooi, K. B. (2012). Predicting consumer decisions to adopt mobile commerce: Cross country empirical examination between China and Malaysia. *Decision Support Systems*, 53(1), 34–43. https://doi. org/10.1016/j.dss.2011.12.001
- Davis, F. D., Bagozzi, R., & Warshaw, P. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982–1003.
- *E-commerce payments trends: Malaysia.* (2019). https://www.jpmorgan.com/ merchant-services/insights/reports/ malaysia
- Fadzil, F. (2017). A study on factors affecting the behavioral intention to use mobile apps in Malaysia. *SSRN Electronic Journal*. https://doi. org/10.2139/ssrn.3090753
- Feng, Z., Tham, J., & Azam, S. M. F. (2019). Determinants of users' willingness to use mobile payment: an empirical study in Tongren University, China. *European Journal of Management and Marketing Studies*, 4(4), 16–38. https:// doi.org/10.5281/zenodo.3560323
- Giovannini, C. J., Ferreira, J. B., da Silva, J. F., & Ferreira, D. B. (2015). The effects oftrust transference, mobileattributes and enjoyment on mobile trust. *Brazillian Administration Review*, 12(1), 88–108.
- Goi, C.-L. (2016). M-Commerce: Perception of consumers in

Malaysia. *The Journal of Internet Banking and Commerce*. http:// www.icommercecentral.com/openaccess/mcommerce-perceptionof-consumers-in-malaysia. php?aid=80469

- Gu, J. C., Lee, S. C., & Suh, Y. H. (2009). Determinants of behavioral intention to mobile banking. *Expert Systems with Applications*, 36(9), 11605-11616. https://doi. org/10.1016/j.eswa.2009.03.024
- Hasan, R., Liu, Y., Kitchen, P. J., & Rahman, M. (2019). Exploring consumer mobile payment adoption in the bottom-of-the-pyramid context: A qualitative study. *Strategic Change, 28*(5), 345–353. https://doi. org/10.1002/jsc.2289
- Heng, B. L. J., Teng, P. K., & Abdullah, S. I. N. W. (2019). Consumer satisfaction of Alipay as the market leader of mobile payment in China. *Malaysian Journal of Consumer and Family Economics, 23*, 68–84.
- Holm Ørjan Elverum, Liu, S., & Ding, G.-H. (2018). A study of mobile payment behavior in four countries. 13(3), 349–384. https://doi.org/10.6702/ ijbi.201809_13(3).0004
- Humbani, M., & Wiese, M. (2017). A cashless society for all: Determining consumers' readiness to adopt mobile payment services. *Journal of African Business*, 19(3). https://doi.or g/10.1080/15228916.2017.1396792

- Hung, D. N., Tham, J., Azam, S. M. F., & Khatibi, A. A. (2019). An empirical analysis of perceived transaction convenience, performance expectancy, effort expectancy and behavior intention to mobile payment of Cambodian users. *International Journal of Marketing Studies*, 11(4), 77–90. https://doi.org/10.5539/ijms. v11n4p77
- Irani, A. N. (2019). An empirical analysis of the international mobile payment startups. https://www.politesi.polimi. it/bitstream/10589/145886/5/2019_ 04_Navab_Irani.pdf
- Islam, M. Z., Low, P. K. C., & Hasan, I. (2013). Intention to use advanced mobile phone services (AMPS). *Management Decision*, 51(4), 824–838. https://doi. org/10.1108/00251741311326590
- Kaitawarn, C. (2015). Factor influencing the acceptance and use of m-payment in Thailand : A case study of AIS mPAY Rabbit. *Review* of Integrative Business & Economics Research, 4(3), 222-230.
- Karsen, M., Chandra, Y. U., & Juwitasary, H. (2019). Technological factors of mobile payment: A systematic literature review. *Procedia Computer Science*, 157, 489-498. https://doi. org/10.1016/j.procs.2019.09.004
- Kavak, W., & Anwar, K. (2019). Technological innovation in mobile payment solutions. http://kth.divaportal.org/smash/get/diva2:1372142/ FULLTEXT01.pdf



- Khalilzadeh, J., Ozturk, A. B., & Bilgihan, A. (2017). Security-related factors in extended UTAUT model for NFC based mobile payment in the restaurant industry. *Computers in Human Behavior, 70,* 460–474. https:// doi.org/10.1016/j.chb.2017.01.001
- Kumar, A. S., & Palanisamy, Y. A. (2019). Examining the consumers' preference towards adopting the mobile payment system. *International Journal of Electronic Finance*, 9(4), 268–285. https://doi. org/10.1504/IJEE.2019.104071
- Lai, P. (2017). The literature review of technology adoption models and theories for the novelty technology. *Journal of Information Systems and Technology Management*, 14(1), 21–38. https://doi.org/10.4301/S1807-17752017000100002
- Liébana-Cabanillas, F., Marinkovic, V., Ramos de Luna, I., & Kalinic, Z. (2018). Predicting the determinants of mobile payment acceptance: A hybrid SEM-neural network approach. *Technological Forecasting and Social Change*, *129*, 117-130. https://doi.org/10.1016/j. techfore.2017.12.015
- Liu, G.-S., & Tai, P. T. (2016). A study of factors affecting the intention to use mobile payment services in Vietnam. *Economics World*, 4(6), 249– 273. https://doi.org/10.17265/2328-7144/2016.06.001



- Lu, Y., Yang, S., Chau, P. Y. K., & Cao, Y. (2011). Dynamics between the trust transfer process and intention to use mobile payment services: A cross-environment perspective. *Information & Management, 48*(8), 393-403. https://doi.org/10.1016/j. im.2011.09.006
- Madan, K., & Yadav, R. (2016). Behavioural intention to adopt mobile wallet: A developing country perspective. *Journal of Indian Business Research*, 8(3). https://doi. org/10.1108/JIBR-10-2015-0112
- Malaysia Commission Communications and Multimedia. (2018). *Hand Phone Users Survey 2018*.
- Manaf, N. R., & Ariyanti, M. (2017). Exploring key factors on technology acceptance of mobile payment users in Indonesia using modified Unified Theory of Acceptance and Use of Technology (UTAUT) Model use case: ABC Easy Tap. International Journal of Management and Applied Science, 3(1), 40–44.
- Maureen Nelloh, L. A., Santoso, A. S., & Slamet, M. W. (2019). Will users keep using mobile payment? It depends on trust and cognitive perspectives. *Procedia Computer Science*, 161, 1156–1164. https://doi.org/10.1016/j.procs.2019.11.228
- Mensah, I. K., & Adams, S. (2020). A comparative analysis of the impact of political trust on the adoption of E-Government services. *International Journal of Public Administration*,

43(8), 682-696. https://doi.org/10.10 80/01900692.2019.1645687

- Morosan, C., & DeFranco, A. (2016). It's about time: Revisiting UTAUT2 to examine consumers' intentions to use NFC mobile payments in hotels. *International Journal of Hospitality Management, 53,* 17–29. https://doi. org/10.1016/j.ijhm.2015.11.003
- Nguyen, H. Q., & Lu, Y. (2018). Adoption and diffusion of in-store mobile payment: Lessons from China. https:// www.diva-portal.org/smash/get/ diva2:1222699/FULLTEXT01.pdf
- Nie, J., & Amarayoun, W. (2019). The factors influence the intention use of mobile payment in Thailand e-commerce. 2018 5th International Conference on Information Science and Control Engineering, ICISCE 2018, 561-568. https://doi.org/10.1109/ ICISCE.2018.00122
- Nizam, F., Hwang, H. J., & Valaei, N. (2018). Measuring the effectiveness of E-Wallet in Malaysia. In 3rd IEEE/ACIS International Conference on Big Data, Cloud Computing, and Data Science Engineering. Springer International Publishing. https://doi. org/10.1007/978-3-319-96803-2_5
- Ntaukira, J., Khomba, J. K., & Maliwichi, P. (2019). Investigating factors that determine continuous intention behaviour to use mobile payment services in Malawi. https://wwww. easychair.org/publications/preprint_ download/291N

- Oliveira, T., Faria, M., Thomas, M. A., & Popovič, A. (2014). Extending the understanding of mobile banking adoption: When UTAUT meets TTF and ITM. *International Journal* of Information Management, 34(S), 689-703. https://doi.org/10.1016/j. ijinfomgt.2014.06.004
- Oliveira, T., Thomas, M., Baptista, G., & Campos, F. (2016). Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *Computers in Human Behavior, 61*, 404-414. https://doi.org/10.1016/j. chb.2016.03.030
- Ooi, K. B., & Tan, G. W. H. (2016). Mobile technology acceptance model: An investigation using mobile users to explore smartphone credit card. *Expert Systems with Applications, 59*, 33-46. https://doi.org/10.1016/j. eswa.2016.04.015
- Osman, S., & Leng, T. P. (2020). Factors influencing behavioural intention for mobile banking adoption among students of Universiti Putra Malaysia. *Malaysian Journal of Consumer and Family Economics, 24*, 79–100.
- Rampersad, G., Plewa, C., & Troshani, I. (2012). Investigating the use of information technology in managing innovation: A case study from a university technology transfer office. *Journal of Engineering* and Technology Management, 29(1), 3–21. https://doi.org/10.1016/j. jengtecman.2011.09.002



- Raza, A., Shaikh, H., Qureshi, M. S., Qayyum, N. U., & Shah, A. (2018, November). A conceptual framework for measuring acceptance of contactless payment methods. 2018 IEEE 5th International Conference on Engineering Technologies and Applied Sciences (ICETAS). https://doi. org/10.1109/ICETAS.2018.8629179
- Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research methods for business students* (7th ed.). Pearson Education Limited.
- Shaw, B., & Kesharwani, A. (2019). Moderating effect of smartphone addiction on mobile wallet payment adoption. *Journal of Internet Commerce*, 18(3), 291–309. https:// doi.org/10.1080/15332861.2019.16 20045
- Sinha, I., & Mukherjee, S. (2016). Acceptance of technology, related factors in use of off branch e-banking: an Indian case study. *The Journal* of High Technology Management Research, 27(1), 88–100. https://doi. org/10.1016/j.hitech.2016.04.008
- Slade, E. L., Dwivedi, Y. K., Piercy, N. C., & Williams, M. D. (2015). Modeling consumers' adoption intentions of remote mobile payments in the United Kingdom: extending UTAUT with innovativeness, risk, and trust. *Psychology & Marketing, 32*(8), 860–873. https://doi.org/10.1002/ mar.20823



- Sobti. N. (2019). Impact of demonetization on diffusion of mobile payment service in India: Antecedents of behavioral intention and adoption using extended UTAUT model. Journal of Advances in Management Research, 16(4). https://doi.org/10.1108/JAMR-09-2018-0086
- Statista. (2020). Malaysia smartphone penetration 2019-2023. https://www. statista.com/statistics/625418/ smartphone-user-penetration-inmalaysia/
- Tan, E., & Lau, J. L. (2016). Behavioural intention to adopt mobile banking among the millennial generation. *Young Consumers*, 17(1), 18–31. https://doi.org/10.1108/YC-07-2015-00537
- Teo, A.-C., Tan, G. W.-H., Ooi, K.-B., Hew, T.-S., & Yew, K.-T. (2015). The effects of convenience and speed in m-payment. *Industrial Management* & *Data Systems*, 115(2), 311-331. https://doi.org/10.1108/IMDS-08-2014-0231
- Teo, A. C., Tan, G. W. H., Ooi, K. B., & Lin, B. (2015). Why consumers adopt mobile payment? A partial least squares structural equation modelling (PLS-SEM) approach. *International Journal of Mobile Communications*, 13(5), 478–497. https://doi.org/10.1504/ IJMC.2015.070961

- Tossy, T. (2014). Modeling the adoption of mobile payment system for paying examination fees in Tanzanian major cities. *International Journal of Computing and ICT Research, 8*(2), 83–98. http://www.ijcir.mak.ac.ug/ volume8-number2/article7.pdf
- Venkatesh, Morris, Davis, & Davis. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478. https:// doi.org/10.2307/30036540
- Venkatesh, V., Tong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory. *MIS Quarterly*, 36(1), 157–178.
- Wang, X., Yuen, K. F., Wong, Y. D., & Teo, C. C. (2018). An innovation diffusion perspective of e-consumers' initial adoption of self-collection service via automated parcel station. *The International Journal of Logistics Management*, 29(1), 237–260. https:// doi.org/10.1108/IJLM-12-2016-0302
- Williams, M. D. (2021). Social commerce and the mobile platform: Payment and security perceptions of potential users. *Computers in Human Behavior*, 115, 105557. https:// doi.org/10.1016/j.chb.2018.06.005
- Wong, A. T. T. (2018). A study of consumer acceptance of mobile payment services in Hong Kong. *Journal of Economics, Management* and Trade, 21(3), 1–14. https://doi. org/10.9734/JEMT/2018/39472

- Wu, T.-Y., Chen, R., & Chen, H.-Y. (2019). A study on universal design of using interface for mobile payment. Proceedings of the 2019 7th International Conference on Information and Education Technology - ICIET 2019, 306–310. https://doi. org/10.1145/3323771.3323808
- Yan, H., & Yang, Z. (2015). Examining mobile payment user adoption from the perspective of trust. *International Journal of U-and e-Service. Science and Technology, 8*(1), 117–130. https://doi. org/10.14257/ijunesst.2015.8.1.11
- Yang, S., Lu, Y., Gupta, S., Cao, Y., & Zhang, R. (2012). Mobile payment services adoption across time: An empirical study of the effects of behavioral beliefs, social influences, and personal traits. *Computers in Human Behavior*, 28(1), 129–142. https://doi.org/10.1016/j. chb.2011.08.019
- Yang, Y., Asaad, Y., & Dwivedi, Y. (2017). Examining the impact of gamification on intention of engagement and brand attitude in the marketing context. *Computers in Human Behavior*, 73, 459–469. https:// doi.org/10.1016/j.chb.2017.03.066
- Yap, C. M., & Ng, B. A. (2019). Factors influencing consumers' perceived usefulness of m-wallet in Klang Valley, Malaysia. *Review of Integrative Business and Economics Research*, &(4). http://buscompress.com/journalhome.html



- Yeow, P. M., Khalid, H., & Nadarajah, D. (2017). Millennials' perception on mobile payment services in Malaysia. *Procedia Computer Science*, 397-404. https://doi.org/10.1016/j. procs.2017.12.170
- Yuan, S., Liu, L., Su, B., & Zhang, H. (2020). Determining the antecedents of mobile payment loyalty: Cognitive and affective perspectives. *Electronic Commerce Research and Applications*, 41. https:// doi.org/10.1016/jelerap.2020.100971
- Zalessky, A., & Hasan, M. M. (2018). The impact of payment context on the use of mobile payment systems. https:// ntnuopen.ntnu.no/ntnu-xmlui/ bitstream/handle/11250/2598704/ no.ntnu%3Ainspera%3A1763954. pdf?sequence=1
- Zhao, Z. (2019). Cashless society: Consumer perceived value propositions of mobile payment. https://trepo.tuni. fi/bitstream/handle/10024/115548/ ZhaoZheng.pdf?sequence=2
- Zhou, T. (2013). An empirical examination of continuance intention of mobile payment services. *Decision Support Systems*, 54(2), 1085–1091. https:// doi.org/10.1016/j.dss.2012.10.034