

The Effect of Perceived Usefulness, Perceived Ease of Use, Perceived Risk and Reward Towards E-wallet Usage Intention: A Moderating Role of Trust

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Abstract

In the current globalized world, the development of the internet has made one's life become easier. Currently, most of the payment was done using smart devices. The E-wallet is one of the greatest inventions of the 21st century and has become an important part of the electronic payment system. However, this type of service was considered relatively new and unfamiliar among Malaysian consumers. To date, limited research has focused on the E-wallet usage intention among Malaysians. Specifically, the factors affecting consumers' intention towards the usage of e-wallet among youth aged 18-30, need to be further examined. Perceived usefulness, perceived ease of use, perceived risk and reward are utilized to examine the relationships with e-wallet usage intention by the consumers in Malaysia, while the trust was tested as a moderator towards e-wallet usage intention. Technology Acceptance Model (TAM) was adopted in this research. There were 251 respondents and an online questionnaire was used for data collection. This paper is expected to contribute to the literature on e-wallet by finding the causes influencing consumer usage intention toward e-wallet.

Keywords: E-Wallet, Technology Acceptance Model, Youth, Technology, Malaysia

Introduction

Information and Communication Technology (ICT) advancement has transformed the individual's lives as well as the organization's duties cooperatively. The advances of digital and ICT had a huge impact and improvement in terms of finance, economics, operational costs

(Slozko and Pelo, 2015) and strengthened the organizational performance (Rokhman, 2010). Various new technological developments and improvements over the last two decades. These new technological evolutions allow the traditional business activities to perform an electronic transaction and related services on the internet which is known as e-commerce (Tang et al., 2021). Moreover, the bright future of e-commerce is kept skyrocketing by the increasing number of resources and artificial intelligence (A.I.) roles in big data analytics (Suresh and Rani, 2020). The evolution of financial technology towards digital and electronic payment has led to the new era of a cashless society, where the usage of cash in the financial payment process or transaction is becoming less popular (Abdullah et al., 2020). Becoming a cashless society has been the exclusive goal of countries worldwide, and the research on the implementation of cashless transactions has been broadly conducted (Kadar et al., 2018). So far, Bank Negara Malaysia has already approved more than 48 e-wallet licenses in the country and due to the mushrooming of digital payment in the country, Malaysia is moving towards becoming a cashless society by 2050 (Yunus, 2018; Tan, 2019). The situation is quite different in Malaysia. Azmi (2018) stated that 80% of transactions in Malaysia are still made in cash, while another 20% of transactions use credit cards and online methods. As for the results, e-wallet usage had increased to 40% (Bernama, 2020). The acceptance of e-wallet technology in Malaysia is still relatively low, although it has been introduced for several years to Malaysians (Abdullah et al., 2020). Therefore, it indicates that most Malaysian consumers still use the traditional cash method for payment transactions. In a nutshell, for the time being, cash remains the preferable method in the payment system among most Malaysians.

Currently there are 40 percent of e-wallet usage in Malaysia and leading as the most e-wallet usage in the southeast Asian countries (Bernama, 2020). Yet, the percentage is still considered as moderately low and it is still insufficient enough to achieve as a cashless society completely. Ariffin and Lim (2020) considered the trust element as a vital moderator in evaluating users' acceptance of new technologies and applications. In a similar vein, a study conducted by Ariffin and Lim (2020) stated that the moderating role of trust was reported to have a significant effect on the intention to use mobile payment among young professionals in Malaysia. Even though some research has been conducted on trust as an independent and moderating variable in many fields, empirical research on young adults in the context of e-wallet is lacking; hence, motivating this study, particularly to examine the moderating effect on trust as a moderator in the relationship between perceived usefulness, reward, perceived risk, and perceived ease of use and the intention to use the e-wallet.

E-wallet can be considered as new applications in Malaysia and it is still in the developing phase. Hence, this study provides several valuable implications which very useful for the society. This present study gives contributions by exploring the e-wallet usage intention among youth by using several variables and the results offer valuable implication to the e-wallet service providers, retailers and lastly marketers.

Literature Review

Technology Acceptance Model (TAM)

The TAM is a remarkable tool for providing an understanding of technology acceptance in various sectors, such as business (Ha and Stoel, 2009), education (Huang et al., 2007), healthcare (Melas et al., 2011) and construction (Davies and Harty, 2013). The TAM model was introduced by Davis (1985) to provide a better understanding of user acceptance and serve as a theoretical guideline for a new development of technology systems. Davis (1985) also proposed that the model could be a method for testing user acceptance. To understand

consumers' attitudes towards the technology, researchers used the TAM to learn and reveal consumers' beliefs towards a specific innovation. For instance, one study applied the model whereby consumers discovered that using mobile phones was easy and helpful (Mao et al., 2005). There are several reasons for selecting TAM as the underpinning theory for this study. First, this model was selected due to its simplicity, parsimony, and good prediction, which can be used easily in various information systems (Alalwan, 2016; Chaouali, 2016; Mital et al., 2018). Next, a substantial number of studies have used the TAM, especially from an e-wallet perspective (Slade et al., 2015). TAM has been broadly used to measure the usage and acceptance of information systems (Mathieson, 1991; Davis and Venkatesh, 1996). Furthermore, many TAM extensions have been validated and verified (Lai and Zainal, 2015; Lai, 2016). This study will include several variables for the extension of TAM to determine the intention to use the e-wallet.

Next, Shaw (2014) suggested that perceived ease of use (PEOU) and perceived usefulness (PU) are the main factors influencing the intention to use. In addition, research using TAM shows a positive relationship between PEOU and PU (Van der Heijden, 2003; Yang, 2005; Yang 2012). Therefore, both variables will be included in this study to determine consumer intention to use the e-wallet. Mun et al., (2006) stated that attitude was removed from the theory because it did not mediate the relationships between the constructs and intention to use. Therefore, attitude is eliminated from this study.

Lai and Zainal (2015) conducted a study on consumers in Malaysia using the extended TAM model with perceived risk and found that perceived risk can reduce consumers' intention to use the e-wallet system. Meanwhile, Rehman and Shaikh (2020) stated three main predictors to identify potential adopters: perceived usefulness, perceived ease of use, and perceived risk. These are the main predictors determining their intention to adopt new technology (Rehman and Shaik, 2020). Another study by Prabhakaran (2020) stated that reward or tangible benefits could increase the intention to use a mobile wallet. Therefore, this study applies perceived risk and reward as extended variables in the TAM.

Finally, Agarwal and Prasad (1998) have openly criticised the absence of moderating effects in TAM and suggest more studies should examine the moderating effects. On the other hand, Chin et al., (2003) observed and empirically found a significant moderating effect in the TAM. Meanwhile, Nag and Gilitwala (2019) believed more studies should examine the moderating effects in the model. Bernama (2020) found that trust was a crucial moderating variable between independent variables towards the acceptance of the latest technology and its applications. Therefore, this study includes trust as a moderator in the relationships between perceived usefulness, perceived ease of use, perceived risk, and reward towards the intention to use the e-wallet.

Perceived Usefulness and Intention to use E-wallet

A study conducted by Nag and Gilitwala (2019) suggested a significant relationship between perceived usefulness and the intention to use e-wallet in Thailand. Another research by Pertiwi et al (2020) confirmed that perceived usefulness has a significant positive relationship with the intention to use an e-wallet as a payment method among the Y generation in Surabaya. A similar study by Camilleri (2019) also confirmed a positive relationship between perceived usefulness and the intention to use e-government services.

Besides, a recent study by To and Trinh (2021) indicated that perceived usefulness has a significant effect on behavioural intention to use mobile wallets in Vietnam. The findings are in line with the study by Madan and Yadav (2016) which found a significant relationship

between perceived usefulness and behavioural intention to adopt mobile wallets. Madan and Yadav (2016) also concluded that perceived usefulness is a vital motivator for users' intention to adopt a new technology revolution. Therefore, the following hypothesis is developed:

H1: There is a positive effect between perceived usefulness and intention to use e-wallet.

Perceived Ease of Use and Intention to use E-wallet

Recent study by To and Trinh (2021) found that perceived ease has a significant effect on behavioural intention to use mobile wallets in Vietnam. Another study by Karim et al (2020) confirmed that perceived ease of use positively influenced behavioural intention to use the e-wallet. The findings clarified that e-wallet applications that are easy to be used have a positive impact on consumers' intention towards e-wallet usage. Meanwhile, Keni et al (2020) noted that perceived ease of use had a significant impact on intention to use mobile payment services.

In addition, a study by Singh et al (2020) stated that perceived ease of use has a significant effect on the intention to use mobile wallets. The findings explained that ease of use would significantly influence consumers' intention towards mobile wallet usage. Yang et al (2021) also revealed that perceived ease of use has a significant positive effect on the intention to use e-wallets among adults. The study's findings corroborated another study by Chawla and Joshi (2020) that found savings in time, cost, and ease of use are benefits of e-wallets usage, which consumers perceived as easy to use.

H2: There is a positive effect between perceived ease of use and intention to use e-wallet.

Perceived Risk and Intention to use E-wallet

A study conducted by Wong and Mo (2019) suggested that perceived risk has a negative effect on consumers' intention to use mobile payments. Another study Gupta et al (2018) found that perceived risk negatively influenced tourists' behavioural intention towards smartphone applications. Perceived risk was found hindering the decisions of mobile users compared to PC users (Cozzarin and Dimitrov, 2017).

In addition, the findings by Lu et al (2011); Cham et al (2018); Aw et al (2022) showed that consumers' risk perceptions of mobile payment services negatively affect consumers' intention to adopt and use the service. Many previous researchers have pointed out a negative significant relationship between perceived risk and behavioural intention in the mobile application context (Gupta et al., 2018; Khurana and Jain, 2019; Piarna et al., 2020). Therefore, the following hypothesis is suggested:

H3: There is a negative relationship between perceived risk and intention to use E-wallet.

Reward and Intention to use E-wallet

According to a study by Saprikis (2018) rewards positively affect the social commerce behavioural intention. The findings suggest that rewards can attract social network service users to do online buying purchases. These actions can convince even more individuals to adopt social commerce (Saprikis, 2018).

In addition, a study by Ming et al (2020) indicated that reward has a significant impact on the intention to adopt e-wallet. The findings stated that rewards tend to attract and

encourage more consumers to adopt and use e-wallet applications. Thus, this hypothesis was proposed

H4: There is a positive relationship between reward and intention to use E-wallet.

Trust as a Moderator

A study done by Madan and Yadav (2016) revealed a positive effect between trust and consumers' behavioural intention to adopt new mobile technologies. Another study by Saprikis (2018) confirmed that trust directly influences the behavioural intention towards using the e-wallet platform. This factor has been recognised as a strong predictor for the adoption intention of mobile wallets (Dahlberg et al., 2003; Shin, 2009; Amoroso and Magnier-Watanabe, 2012; Pham and Ho, 2014). Furthermore, Suresh and Rani (2020) also found that trust has a significant effect on behavioural intention to use the e-wallet.

On the other hand, Alfansi and Daulay (2021) pointed out that trust has a negative impact on the intention to use e-money among the millennial generation. This is supported by Goh (2017) who found a negative effect between trust and intention to adopt e-payment. Due to the mixed findings and the lack of empirical research on the e-wallet context, it is important to examine the role of trust as a moderator in the intention to use e-wallets. Therefore, from the above discussions the following hypothesis is developed:

H5a: The positive relationship between perceived usefulness and intention to use E-wallet is strengthened among youth with higher trust.

H5b: The positive relationship between perceived ease of use and intention to use E-wallet is strengthened among youth with higher trust.

H5c: The negative relationship between perceived risk and intention to use E-wallet is strengthened among youth with higher trust.

H5d: The positive relationship between reward and intention to use E-wallet is strengthened among youth with higher trust.

The following depicts the research model of this study:

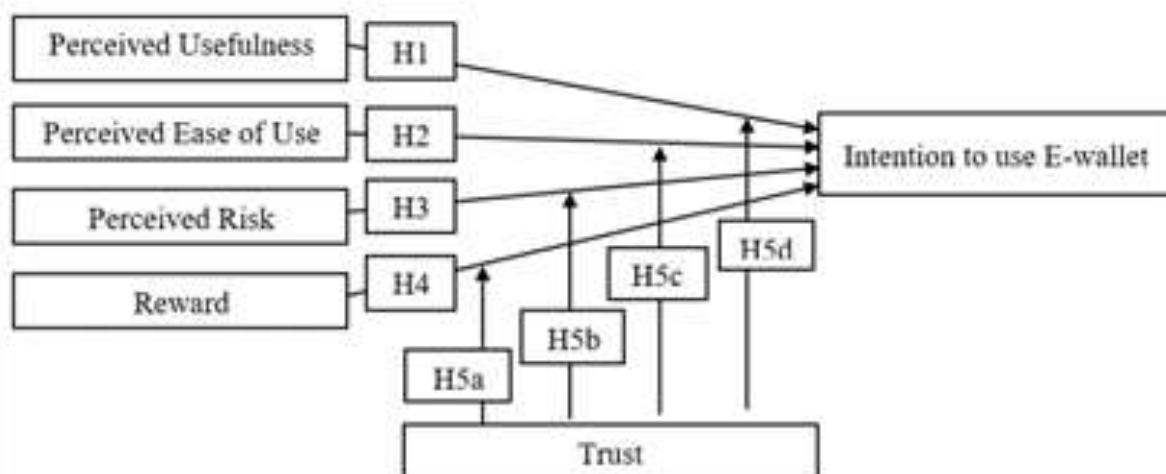


Figure 1. Research Model

Research Methodology

The chosen target population in this study is youth in Malaysia. Kaur et al., (2020) stated that only 10% of young adults in Malaysia use e-wallet. The reason for selecting youth for this

study is because youth have more knowledge and exposure to new payment technology, such as e-wallet. Wong et al (2020) reported that the younger generation grew up with wide exposure to digital technology. Tools such as mobile phones, the internet, and computers have become a basic part of their lives. Dietz (2003) stated that the younger generation was born in the digital era, making them a society of electronics, well-versed with the technological and wireless environment. The notion supported a study by Mun et al (2017) which found that youth can give good feedback on technologies and could be potential users of mobile payment services. As for the data collection, the survey was conducted through the online survey method (Google Form). Malaysian youth between 18 and 30 years old are the main focus group of this research to determine the intention to use e-wallet as a payment medium. In order to identify the age of respondents, the demographics section of the questionnaire segregates respondents' age into four groups.

The survey was conducted by disseminating the link through digital media, such as Facebook, Instagram, and WhatsApp. Using digital media to conduct the survey allows the researcher to reach out and collect data from respondents in different states beyond Sabah. Purposive sampling was adopted in this study since the researcher has already identified the targeted respondents' criteria for this study. This study uses a 5-point Likert scale to measure respondents' behaviour. Items in the questionnaire were measured using a 5-point Likert scale, ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). This study chose individuals from the targeted population to obtain the required data. A total of 251 respondents of youths in Malaysia were evaluated to collect suitable information and act as a backup if some respondents failed to complete the questionnaire as per requirement. As indicated by G*Power 3.1.9.2 calculation, the minimum sample required for this study is 242 respondents ($f2 = 0.15$, number of predictors = 8).

Data Analysis and Results

The final sample consists of 251 respondents. The largest group of respondents was the age group 22–25 (57 percent), followed by the age group 18–21 (22.3 percent) and 26–30 (20.7 percent). For respondent gender, most respondents were females (63.7 percent), while male respondents only account 36.3 percent. In terms of occupations, respondents were mostly students (52.2%), followed by employees (38.6%), self-employed (4.8%), and unemployed (4.4%).

Table 1

Demographic Table

Demographic Variables	Categories	Frequency	Percent
Gender	Male	91	36.3
	Female	160	63.7
Age	18-21 years old	56	22.3
	22-25 years old	143	57.0

	26-30 years old	52	20.7
Occupation	Employed	97	38.6
	Self-employed	12	4.8
	Unemployed	11	4.4
	Student	131	52.2

Table 2

Result of Convergent Validity

Construct	Item	Loadings	AVE	CR	Cronbach's Alpha
Intention to use e-wallet	IW1	0.798	0.696	0.92	0.891
	IW2	0.822			
	IW3	0.849			
	IW4	0.833			
	IW5	0.867			
Perceived Ease of Use	PEOU1	0.825	0.741	0.891	0.837
	PEOU2	0.849			
	PEOU3	0.791			
	PEOU4	0.812			
Perceived Risk	PR4	0.727	0.636	0.777	0.437
	PR6	0.862			
Perceived usefulness	PU1	0.772	0.606	0.86	0.784
	PU2	0.797			
	PU3	0.793			
	PU4	0.752			
Reward	RWRD1	0.84	0.708	0.906	0.862
	RWRD2	0.851			

	RWRD3	0.834			
	RWRD4	0.84			
Trust	TRU1	0.754	0.634	0.896	0.855
	TRU2	0.804			
	TRU3	0.832			
	TRU4	0.816			
	TRU5	0.772			

^aAverage Variance Extracted (AVE) = (summation of the square of the factor loadings)/{(summation of the square of the factor loadings) + (summation of the error variances)}^b Composite Reliability (Composite Reliability (CR)) = (square of the summation of the factor loadings)/{(square of the summation of the factor loadings) + (square of the summation of the error variances)}

Table 3
Result of Discriminant Validity: Fornell-Larcker Criterion

	INT E-WALLET	PEOU	PR	PU	RWD	TRST_
Intention to use e-wallet	0.834					
Perceived Ease of Use	0.616	0.819				
Perceived Risk	-0.376	-0.193	0.798			
Perceived Usefulness	0.615	0.725	-0.172	0.778		
Reward	0.694	0.528	-0.244	0.529	0.841	
Trust	0.613	0.592	-0.391	0.477	0.466	0.796

There are four hypotheses with significant effects which are perceived risk ($\beta = -0.139$, $p < 0.05$), positively related to intention to use e-wallet; perceived usefulness ($\beta = 0.203$, $p < 0.05$) positively related to intention to use e-wallet; reward ($\beta = 0.397$, $p < 0.05$) significantly related to intention to use e-wallet; lastly, trust ($\beta = 0.215$, $p < 0.05$) significantly related to intention to use e-wallet. Therefore, H2, H3, H4, and H5 are supported. However, one direct hypothesis was found to have negative effects on the dependent variable. Perceived ease of use ($\beta = 0.104$, $p < 0.05$) was negatively associated with intention to use e-wallet. Thus, H1 was not supported.

Moreover, Kock and Lynn (2012) suggested that the two-stage approach is suitable for reflective and formative measures. This approach aims to determine whether or not the moderator variable has a significant effect on the relationship. This approach is the most

accurate method when estimating single effects and has higher statistical power. Based on the recommendations, this study implements the two-stage approach to create the interaction term of moderation analysis; the moderator variable for this study is trust. Trust effect on behavioural intention in mobile payment has been empirically proven (Chandra et al., 2010; Lu et al., 2011; Shaw, 2014). Therefore, this study chooses trust as the moderating variable. Table 3 shows that only two hypotheses were found to have a moderating effect out of four hypotheses. The two variables that have moderating effects are perceived usefulness (t -value = 3.779, $p = 0$) and reward (t -value = 2.582, $p = 0.004$). Thus, H5c and H5d have a significant moderating effect.

Table 4

Hypothesis testing (Direct effect)

Hypothesis	Relationship	Std Beta	Std. error	T-value	P-Values
H1	Perceived ease of use Intention to use e-wallet	0.104	0.078	1.329	0.184
H2	Perceived Risk Intention to use e-wallet	-0.139	0.036	3.832	0.000
H3	Perceived usefulness Intention to use e-wallet	0.203	0.07	2.907	0.004
H4	Reward Intention to use e-wallet	0.397	0.055	7.226	0.000
H5	Trust Intention to use e-wallet	0.215	0.065	3.306	0.001

Table 5

Result of Hypotheses Testing: Moderating effects

	Hypothesis	Std Beta	Std. error	T-value	P- value
H5a	PEOU*TRU -> Intention to use e-wallet	-0.097	0.057	1.708	0.088
H5b	PR*TRU -> Intention to use e-wallet	-0.026	0.038	0.673	0.501
H5c	PU*TRU -> Intention to use e-wallet	0.291	0.077	3.779	0.000
H5d	RWD*TRU -> Intention to use e-wallet	-0.144	0.05	2.852	0.004

Note: t -value = 1.65 at $p < 0.10^*$, t -value = 1.96 $p < 0.05^{**}$, t -value = 2.58 at $p < 0.01^{***}$ Note: PU = Perceived Usefulness; PEOU = Perceived Ease of Use; PR = Perceived Risk; TRU = TRUST; RWRD = Reward; INT = Intention to use E-wallet

Discussion and Conclusion

This study examines the effect of perceived usefulness, perceived ease of use, perceived risk, and reward towards e-wallet usage intention among youth in Malaysia. Many studies have been conducted on technology payment, such as e-payment, e-banking, e-commerce, and other technology payments. However, studies on e-wallets in Malaysia's context are very limited. Therefore, this current study was conducted to fill the gaps in the literature. Besides examining the direct relationship of all factors mentioned above, this study also investigates the moderating role of trust in youths' intention to use e-wallet applications.

This study uses the technology acceptance model (TAM) as the underpinning theory. All of the data obtained were analysed using SPSS software and the SmartPLS3.0 version. This study examines the relationships between perceived usefulness, perceived ease of use, perceived risk, and reward towards e-wallet usage intention. The findings suggested that perceived usefulness, perceived risk, and reward have a significant effect on e-wallet usage intention. However, this study's findings reveal that perceived ease of use has no significant effect on e-wallet usage intention. All of the results above are thoroughly discussed and explained in the discussion section.

Another noteworthy result in this study is the moderating role of trust towards the e-wallet usage intention. Ariffin and Lim (2020) stated that trust is one of the vital moderator variables in measuring new technology and new applications. Therefore, this study examines the moderating effect of trust towards e-wallet usage intention. In a nutshell, out of four hypotheses tested, only two hypotheses were reported to significantly impact e-wallet usage intention. The findings revealed that perceived usefulness and reward are moderated by trust. In contrast, this study found that perceived ease of use and perceived risk are not moderated by trust. Thus, the findings contributed new knowledge to the current literature.

In conclusion, it is hoped that the present study has provided invaluable information and ideas to relevant parties, such as e-wallet service providers, marketers, and retailers and assisted them in improving and attracting more consumers to use the e-wallet system as a

new technology payment for the future. Technologies are dynamic and continue to transform and advance (Aw et al., 2022; Cheng et al., 2021; Cham et al., 2022; Hosen et al., 2021). The future method of payment may become unique and more advanced. Thus, to increase the usage of e-wallet and attract more consumers, service providers need to design and create e-wallet applications that are more specific based on Malaysian consumers' preferences. Marketing companies should decide the most appropriate marketing approach towards consumers to convince them to use the e-wallet payment method. Although currently in Malaysia, many initiatives have been done to increase the usage of e-wallets, cash is still dominantly used by Malaysians as the preferred payment method (Cham et al., 2022).

Future research should widen the target respondents. Future research should consider using different categories of target respondents, such as elder consumers, generation X, and retailers. This is due to the lack of studies conducted among the suggested target respondents; most previous studies focused on millennials. It would be interesting for future researchers to study the intention to use e-wallet among the elderly. Future researchers could also study the intention to use e-wallet among retailers as a medium of payment from consumers. It could offer different opinions and perceptions on e-wallet usage intention and help researchers obtain better outcomes.

Furthermore, future studies are recommended to include new relevant variables to examine the intention to use e-wallets, such as perceived enjoyment. Future studies could also include mediators that might lead to new contributions to the body of knowledge. These recommendations would lead to new knowledge and new contributions to the literature, and academicians and researchers can use the new findings.

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