



Predicting Intention to Use QR Code Mobile Payment among Malaysian Muslim Millennials

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ABSTRACT - Financial transactions in the digital age have shifted from traditional to digital systems. With the proliferation of smartphones and the internet, cashless payments via smartphone or mobile payment system are becoming more popular. Quick Response (QR) code mobile payment is one of the cashless payment options available today. Using the extended theory of Technology Acceptance Model (TAM), this study investigates the intention of Malaysian Muslim millennials to opt for QR code mobile payment. The study was conducted as a cross-sectional study with a convenience sample. Data was collected through a questionnaire distributed via Google forms on various social media applications. Multiple linear regression analysis was used to analyse the data. The results showed that perceived usefulness, perceived risk, hedonic motivation, and performance expectancy have a significant influence on the intention of Malaysian Muslim millennials to use QR code mobile payment as a payment method. Perceived ease of use and social influence, on the other hand, were not predictors of intention to use QR code mobile payment. This study contributes to filling the gap in the literature on technology acceptance, digital payments, and consumer behaviour. At the same time, this study can serve as a basis for QR code developers and retailers to better understand and serve their customers, and for the government to integrate more QR code applications into many government-provided services.

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INTRODUCTION

Mobile technology has undoubtedly transformed the world. The introduction of smartphones has heralded a sea change in the mobile phone industry. The explosion of smartphones combined with the advancement of technology, the internet, and the digital world has not only led to a huge change in people's activities, but the transition from analogue to digital devices has far exceeded most people's expectations. Smartphones have now influenced every aspect of human life and it is impossible to imagine daily life without them. According to reports by Statista (2023), there were 6.567 billion smartphone users worldwide in 2022, representing approximately 86 percent of the world's population and growing at a rate of 4.9 percent per year. About 90 percent of smartphone

owners always have their phone with them. As people rely more and more on their smartphones to perform their daily tasks, smartphone options are a natural evolution and growth.

The rapid growth of mobile technology has ushered in a new era of financial transaction services worldwide. It is positively contributing to the diffusion of cash to cashless transactions. Cashless transactions are becoming more popular globally (Chen & Jiang, 2022; Jakubowska, 2017; Shukur et al., 2022) and global demand for them is steadily increasing (Alam et al., 2021). Cashless transactions involve making or accepting payments without physical cash, mainly through cards or electronic methods (Rahman et al., 2020). Cashless payments are now accepted in almost all retail shops, food and beverage outlets, supermarkets, and street stalls. They are preferred because they are a faster and time-saving technology for daily financial transactions (Alam et al., 2021). Moreover, cashless payments via the internet and mobile banking applications (apps) are cheaper than cash transactions (Ananda et al., 2020). For these reasons, cashless payments are the way of choice.

Cashless payments can be made using a variety of electronic methods, including mobile phones. There are two types of mobile payment systems: remote and proximity (Dahlber et al., 2015). The former allows consumers to pay for online purchases via short messaging services (SMS) or remote payment servers, such as mobile banking and mobile shopping. The latter is a payment method for ticket, restaurant, or point-of-sale (POS) purchases, such as payment via QR code.

QR code is a two-dimensional scannable code that has a similar function to the traditional barcode found on many products. QR code is more efficient because it can store a larger amount of information and is more flexible in terms of storage (Crompton et al., 2012). The biggest advantage of QR code is the low cost for customers and retailers. For customers, it is enough to use a mobile banking app or an electronic wallet to make a purchase, open the app and scan the QR code, confirm the amount, and make the payment. And retailers, especially the smaller ones, do not need to set up expensive POS terminals. This way, retailers can simply use a sticker with a QR code to accept electronic payment. Retailers can accept payments from any customer, bank, or electronic wallet by simply displaying a QR code on the payment counter. The money is instantly credited to the account. Payment with the QR code is beneficial for mobile operators, mobile device providers, and banks as it ensures interoperability (de Reuver & Ondrus, 2017).

Despite the proven benefits of QR code mobile payment, penetration rates in Malaysia are quite low and slow, and the technology is still in its early stages (Hairani et al., 2021; Hajazi et al., 2021; Osman & Din, 2022). This study is therefore motivated to explore this area, where empirical research is still lacking and unestablished globally (Ashrafi & Easmin, 2023; Chang et al., 2021), even more so in emerging countries such as Malaysia (Aris et al. 2022). Moreover, the slow adoption of QR code mobile payment in this country is due to the different behaviours, perceptions, and values of customers (Aris et al., 2022).

Hence, this study focuses on the millennial generation because this generation is a dominant demographic in Malaysia (Agil et al., 2022). Millennials are characterised as adaptable, democratic, and open-minded to the challenges of modern society (Lestari, 2020), which makes them not only a large group in the market, but at the same time an attractive target for many marketers. Likewise, Muslims are also a target group in this study, as they are the largest ethnic group in the country. They make up 57.8 percent of the total population (Department of Statistics Malaysia, 2023). As they are the largest generation and ethnic group, their size and purchasing power (Amin & Hassan, 2022; Hasbullah et al., 2022) provide an attractive opportunity to explore these segments. In response to this proposition, this study explores the complex and intriguing behaviour of Malaysians in adopting QR code mobile payment, especially among Muslim millennials.

This study extends the Technology Acceptance Model (TAM), a widely used model for analysing the acceptance of new technological innovations, to predict consumer intention in evaluating the acceptance of new technologies such as QR code mobile payment. The extended TAM model was used to examine Malaysian Muslim millennials' intentions to use QR code mobile

payment as a payment method based on perceived usefulness, perceived ease of use, perceived risk, social influence, hedonic motivation, and perceived expectancy.

This study provides useful insights into the perceptions of Malaysian Muslim millennial consumers towards the use of QR code mobile payment. The findings can be used by QR code developers to better understand their customers and continuously improve QR code mobile payment apps for the benefit of consumers. In addition, the government can integrate more QR code apps into many government-provided services to support the country's vision of becoming a cashless nation by 2025. As this study focuses on Muslims, Islamic retailers and institutions such as mosques and *zakat* and waqf institutions, can take full advantage of QR code mobile payment and target these segments. Mosques, for example, can use a QR code mobile payment system to encourage Muslim millennials to give sadaqa (donations) and *infaq* (spendings) to mosques, particularly in Malaysia. This can help the mosque's sadaqa and *infaq* grow over time.

LITERATURE REVIEW

Theory of Acceptance Model

The Technology Acceptance Model (TAM) was developed by Davis in 1989. The model is an extension of the Theory of Reasoned Action (TRA) by Ajzen and Fishbein (1980) and Fishbein and Ajzen (1975), and the Theory of Planned Behaviour (TPB) by Ajzen (1991). Both TRA and TPB are social psychological theories that attempt to explain behaviour in terms of intentions. Davis (1989) originally developed TAM to explain the factors that influence computer acceptance (Rigopoulos & Askounis, 1970). Today, TAM has established itself as a reliable, powerful, and cost-effective model for predicting user acceptance of technology (Davis, 1989; Davis et al., 1989).

Since its introduction, TAM has been used as a research framework for predicting technology acceptance in a variety of contexts and for a variety of technologies. The TAM model has been widely used because it is simple, accurate, and can be applied to a wide range of information systems (Suhartanto et al., 2020; Venkatesh & Morris, 2000), and also because a significant proportion of studies use TAM, particularly in the QR code mobile payment (see, for example, A. Rosli et al., 2020; Aris et al; 2022; Hajazi et al., 2021; Ibrahim et al., 2019).

In the current study, a research framework was adjusted, and the original TAM was expanded. The proposed model consisted of three factors, namely perceived usefulness, perceived ease of use, and intention, which were adopted from the original TAM, and the four remaining factors, namely perceived risk, social influence, hedonic motivation, and performance expectancy were added.

Intention

Intention continues to be the focus of intensive research in a variety of disciplines, as it is the driving force behind human behaviour. The construct was originally developed in the context of TRA and TPB and is now widely used for user technology acceptance, such as TAM. According to Ajzen (1985), intention is defined as attempting rather than actually performing a specific behaviour. It is the desire to act in a specific way in order to own, dispose of, or use goods or services. Fishbein and Ajzen (1975) added that the intention to perform a particular behaviour can predict that behaviour.

Furthermore, according to Warshaw and Davis (1985), intention is the extent to which a person consciously plans to perform or not perform a particular future behaviour. As a result, intention is a factor that demonstrates how determined or strong a person is to engage in or carry out a particular behaviour (Ajzen, 1991) in the future. Intention is a strong desire to achieve one's goals that will not be thwarted by anything. A person who recognises that the outcome of performing a behaviour is positive will have a positive attitude, belief, and perspective on the behaviour, whereas a negative outcome will produce a negative attitude toward the motivational factors that influence a specific behaviour. The stronger the desire to engage in the behaviour, the

more likely it is that it will be engaged in. In this study, intention can therefore be defined as the user's willingness to use or not use the QR code mobile payment as a mode of payment in the future.

A cornucopia of studies around the world, including in Malaysia, have investigated the intention to use QR code mobile payment in the past (see for example A. Rosli et al., 2020; Chen, 2018; Chuah & Balachandran, 2019; Hajazi et al., 2021; Hamzah et al., 2023; Ibrahim et al., 2019; Karim et al., 2020; Le, 2022; Lim et al., 2019; Musyaffi et al., 2021; Suebtimrat & Vonguai, 2021; Suo et al., 2022; Tu et al., 2022; Yan et al., 2021). However, there are differences in research determinants, measurement instruments, and samples, leading to mixed and contradictory results. Furthermore, QR code mobile payment is relatively new as a research area and hardly explored in Malaysia. Therefore, the study on the intention to use QR code mobile payment, especially among Malaysian Muslim millennials, deserves further investigation.

Perceived Usefulness

Perceived usefulness is a classic variable determined by TAM. Davis (1989) defined perceived usefulness as users' subjective belief that using certain technologies will improve their work performance. A person's intention to use a system is strengthened if the system provides multiple benefits, such as facilitating work organisation, increasing usefulness, and increasing productivity (Winarno et al., 2021). People will use technology if they believe it will benefit them and vice versa.

Many previous studies have examined in depth the relationship between perceived usefulness and intention. As such, perceived usefulness is one of the most intensively studied variables in mobile payment adoption (Dahlberg et al. 2015). Sang Ryu and Murdock (2013) and Senali et al. (2022) discovered a significant positive relationship between perceived usefulness and intention to use QR codes mobile payment. Other studies on QR code mobile payment have found a similar relationship between the two constructs (see for example Aris et al., 2022; Chang et al., 2021; Ibrahim et al., 2019; Türker et al., 2022). However, studies by Agardi et al. (2022), Ozkaya et al. (2015), Sukwadi et al. (2022), and Tang et al. (2022) found an insignificant correlation between the two. Therefore, the role of perceived usefulness in influencing intention should be further explored.

Thus, this leads to the following hypothesis:

H₁: Perceived usefulness has a positive relationship with the intention to use QR code mobile payment as a payment method.

Perceived Ease of Use

Perceived ease of use is another classic construct under TAM. It refers to a person's belief that using a system is easy, does not require much effort, and is simple (Davis 1989). In other words, the more users find a system easy to use, the greater their interest in using the system and the more likely they have the intention to use them. Conversely, if users think a system is difficult to use, they will abandon it.

In recent decades, research has examined the relationship between perceived ease of use and intention. However, the results on the impact of perceived ease of use on intention have been inconsistent. Zhong and Moon (2022), Ibrahim et al. 2019; Senali et al. (2022), Sukwadi et al. (2022), and Tang et al. (2022) found a significant positive relationship between perceived ease of use and consumers' intention to use QR code. This is also consistent with empirical research from numerous studies (Hewawasam et al., 2022; Susanti & Alamsyah, 2022). However, Aris et al. (2022), Baskoro and Amini (2020), and Setiawan et al. (2022) found that perceived ease of use was not a significant predictor of intention. Therefore, the influence of perceived ease of use on intention should be further investigated.

Hence the following hypothesis is put forth:

H₂: Perceived ease of use has a positive relationship with the intention to use QR code mobile payment as a payment method.

Perceived Risk

Perceived risk is defined as the feeling of uncertainty among customers about the possible negative effects of using a new technology that might prevent adoption (Bauer, 1967). The perceived risk factor is one of the most important barriers that consumers consider when deciding to use new technological tools to conduct financial transactions. This is because many novel products and services are considered risky by nature (Suebtimrat & Vonguai, 2021). This risk is related to the extent to which a consumer has the confidence to incorporate technology into various tasks they perform, particularly making a payment. As such, part of society stays away from the use of digital payment because of the various risks involved (D'souza & Bhadury, 2017). Therefore, paying with technological tools is perceived by many consumers as more risky than traditional shopping.

In the present study, perceived risk refers to the perception of uncertainty and possible negative consequences associated with the use of QR code mobile payment. Based on previous research, perceived risk in this study includes financial, privacy, and fraud concerns. A number of studies have confirmed the impact of perceived risk on customers' intention to use QR code mobile payment (Senali et al., 2022; Tang et al., 2022). However, some studies reached a different conclusion (Suebtimrat & Vonguai, 2021; Sukwadi et al., 2022). Thus, due to the contradictory results, the influence of perceived risk on purchase intention should be further looked into.

This then leads to the following hypothesis:

H₃: Perceived risk has a positive relationship with the intention to use QR code mobile payment as a payment method.

Social Influence

Social influence can take various forms. One form of this influence is conformity. This is when individuals adjust their opinions, revise their beliefs, or change their behaviour as a result of social interactions with others (Moussaïd et al., 2013). This construct has been widely accepted by many previous researchers in determining interest in technology adoption. In the context of adopting new technological tools such as QR code mobile payment, according to Venkatesh et al. (2003), social influence is the extent to which a person considers the opinions and beliefs of others, such as family, relatives, and peers, that they should use the new systems to be important. Since most consumers lack information about new technologies in the early stages of adoption (de Kerviler et al., 2016), social networks play an important role in shaping consumer attitudes towards new technologies. If these people are on board, adoption will be a breeze.

Previous research on the relationship between social influence and intention produced conflicting results. Sukwadi et al. (2022), Suo et al. (2022), and Wu and Liu (2022) discovered a relationship between social influence and consumers' intention to use QR code mobile payment. Ghaisani et al. (2022), Hajazi et al. (2021), Imani and Anggono (2020), and Shane et al. (2022) found opposite results. Because their studies yielded contradictory results, the relationship between the two constants should be further explored.

Accordingly, the following hypothesis is proposed:

H₄: Social influence has a positive relationship with the intention to use QR code mobile payment as a payment method.

Hedonic Motivation

Hedonic motivation is defined by Ventakesh et al. (2012) as the feeling of enjoyment, fun, and pleasure in using technology. Since QR code mobile payment is a novel technology, it can contribute to the hedonic motivation effect, i.e., it can induce feelings of pleasure and satisfaction when used (Alalwan et al., 2017). The design of QR codes has also evolved over time, becoming more versatile and appealing. As a result, consumers, especially those who like the design of the user interface, have developed an emotional motivation to interact with the system. These interactive features can provide meaningful pleasure, which is likely to increase customers' intention to use them.

Because Venkatesh et al. (2012) claimed that there is a direct relationship between hedonic motivation and customers' willingness to use technology, a number of studies have investigated this proposition. However, they came to different conclusions. A. Rosli et al. (2020) and Alalwan et al. (2017) discovered that intention and hedonic motivation are important. In contrast, Amarullah et al. (2021) and Suo et al. (2022) discovered the opposite.

As such, this hypothesis is postulated:

H₅: Hedonic motivation has a positive relationship with the intention to use QR code mobile payment as a payment method.

Performance Expectancy

The term "performance expectancy" refers to the degree to which consumers believe that a system, e.g., a new technology, will be able to provide benefits or advantages in performing certain tasks in their daily lives (Venkatesh et al., 2012; Venkatesh et al., 2003). The existing literature on mobile payments mainly emphasises the features of the payment system, including security, mobility, and convenience (Kim et al., 2010). Apart from these features, mobile payment also eliminates the need to carry cash, shortens payment time, and improves payment convenience as customers can pay anytime and anywhere (Morosan & de Franco, 2016). However, it is not known to what extent the QR code mobile payment offers consumers these benefits. In the context of this study, performance expectancy therefore refers to the extent to which a person believes that using the QR code for mobile payment would help them perform better or meet more demands.

Several studies which investigated the relationship between performance expectancy over intention have found significant results (A. Rosli et al., 2020; Amarullah et al., 2021; Le, 2022; Shane et al., 2022, Suo et al., 2022). Contradictory Ghasiani et al. (2022) and Teo et al. (2015) reported that performance expectancy did not impact the intention to use the technology.

Therefore, this hypothesis is put forward:

H₆: Performance expectancy has a relationship with the intention to use QR code mobile payment as a payment method.

Framework

Figure 1 depicts the research model that was used to achieve the aim of the study and the hypotheses that were made. This model and its hypotheses were created and developed in response to the discussions in the literature review section.

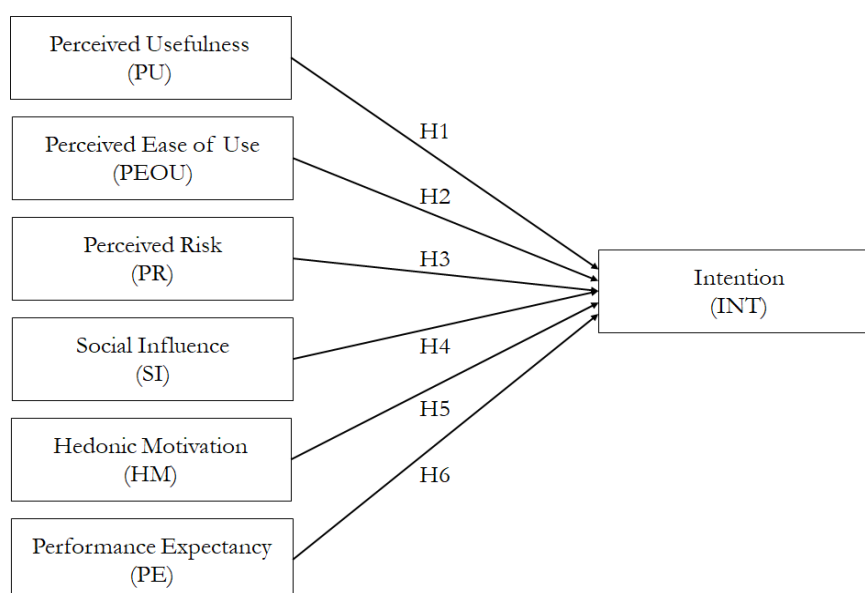


Figure 1: Research Model and Hypotheses

METHODOLOGY

This study is a field study that looks into the relationship between perceived usefulness (PU), perceived ease of use (PEOU), perceived risk (PR), social influence (SI), hedonic motivation (HM), and performance expectancy (PE) with intention (INT) to use QR code mobile payment. The questionnaire was distributed online via Google forms on various social media platforms such as WhatsApp. A questionnaire method allows researchers to collect a large amount of data from a diverse group of people quickly, conveniently, and efficiently, and it is also economical. Additionally, the online survey was chosen because it has useful validation features that ensure respondent has completely answered all questions.

Study Sample

This study's target population consists of Muslim millennial consumers who participate in the payment process on a regular basis. As Muslims and the millennial generation are interested in this study, only Muslim consumers aged 18 to 35 years old were chosen. With a population of more than one million, the target sample size was at least 384 samples, as suggested by Krejcie and Morgan (1970). Alas, only 214 samples could be collected due to time constraints. Nevertheless, the sample size of 214 is considered sufficient for the regression and correlation analyses aimed at in this study. According to Hair et al. (2018), the general rule of thumb for sample size is at least 50 participants for simple regression analyses, and 100 samples for most research situations. However, different researchers give different recommendations for the sample size for regression and correlation analyses. For example, VanVoorhis and Morgan (2007) recommended 30 participants for one variable. While Chuan (2006) and Cohen (1992) set the required sample size at 116 for studying multiple regression and 85 for studying correlation analysis. Taasobshirazi and Wang (2016), on the other hand, suggested that the minimum sample size should be 50 and 100 to obtain more reliable results. Taking the preceding recommendation into consideration, a sample size of 214 people is sufficient for both the regression and correlation analyses.

Data Analysis

In this study, multiple linear regression (MLR) analysis was conducted to test the hypotheses. MLR is used in research to establish a linear relationship between some independent variables and dependent variable. In this study, specifically, MLR was used to measure the strength of association (linear relationship) between consumers' perceptions and intention to use. In addition, it helps to determine the percentage of variance in the six dimensions of consumer perceptions that can significantly explain consumer intention.

RESULTS

Respondents' Profile

Participation in this study was higher among male respondents at 59.3% compared to female respondents at 40.7%. As the study focused on Muslim millennials, all respondents were Malays and Muslims and aged between 18 and 35. In terms of education level, more than half of the respondents (61.2%) have at least a bachelor's degree, 22.9% have a diploma, 14% have a foundation/matriculation/A-level certificate, while a small number of respondents have master's and doctoral degrees (1.9%).

Reliability Analysis

Reliability was assessed by evaluating the internal consistency of the items representing each factor using Cronbach's alpha. Cronbach's alpha can be calculated using a general rule of thumb of 0.70 (Hair et al., 2006; Nunally, 1978). Table 2 shows that the value of Cronbach's alpha for all seven items of the questionnaire is greater than 0.70, thus satisfying the general rule, which confirms the

reliability of the items of the questionnaire. Table 1 also shows the number of items and the sample of questionnaire items used as measures for each construct.

Table 1: Sample of Questionnaire Items with Cronbach's Alpha for Each Section

Construct	No. of Items	Sample Item	α
INT	5	I intend to start using QR code mobile payment to make daily transaction.	.747
PU	4	Using QR code mobile payment makes the handling of payment easier.	.724
PEOU	4	Learning to use QR code mobile payment is easy for me.	.779
PR	5	I am concerned about QR code mobile payment service will lead to transaction fraud.	.873
SI	5	My friends think that using QR code mobile payment is safe and secured.	.746
HM	4	Using QR code mobile payment is enjoyable.	.825
PE	4	Using QR code mobile payment helps me accomplish transaction more quickly.	.751

Note: INT (intention), PU (perceived usefulness), PEOU (perceived ease of use), PR (perceived risk), SI (social influence), HM (hedonic motivation), and PE (performance expectancy).

Intercorrelations Analysis

Table 2 shows the intercorrelation values for each variable in the study. Any Pearson correlation coefficient greater than 0.80 between two variables indicates the possibility of multicollinearity (Shrestha, 2020). The intercorrelation analysis reveals that all variables are related, and the values are less than 0.80, indicating that there is no evidence of multicollinearity.

Table 2: Intercorrelations of the Variables

	INT	PU	PEOU	PR	SI	HM	PE
INT	1.000						
PU	.479	1.000					
PEOU	.476	.516	1.000				
PR	.160	.236	.187	1.000			
SI	.391	.344	.439	.517	1.000		
HM	.548	.471	.430	.426	.452	1.000	
PE	.532	.464	.497	.173	.420	.468	1.000

Multiple Linear Regression Analysis

Multiple linear regression (MLR) analysis was used to test the proposed hypotheses. MLR analysis is used to simultaneously determine the strength or degree of relationship between two or more independent variables and the dependent variable. The value of R ranges from 0 to 1. A value close to 1 indicates that the relationship is stronger; a value close to 0 indicates that the relationship is weaker. MLR uses the determination analysis to calculate the percentage contribution of the influence of the independent variable on the dependent variable. This coefficient indicates the percentage of variation in the independent variable of the model that can explain the variation in the dependent variable. In this study, the MLR analysis examined the relationship between PU, PEOU, PR, SI, HM, and PE with INT.

Table 3 shows the summary of MLR analysis for this study. When the relationship between PU, PEOU, PR, SI, HM, and PE and INT is examined, the R value is 0.672, indicating a strong relationship among the seven variables. All variables account for about 45 percent of the variance of INT, with the remaining 55 percent influenced and explained by variables not included in the research model. The ANOVA shows that the regression model is significant ($F = 28.370$, $p = 0.000$), which means that the null hypothesis is rejected. Table 4 also shows that the p-value for four independent variables, namely PU, PR, HM, and PE is less than 0.05, indicating that they have a significant relationship with the dependent variable INT. However, PEOU and SI were not significant.

Table 3: Model Summary of Multiple Linear Regression Table

DV	Model Summary ^b		ANOVA ^a		IV	Coefficients ^a		t	Sig.
	R	R ²	F	Sig.		Unstandardised Coefficients	Standardised Coefficients		
						Beta	Beta		
1 INT	.672	.451	28.370	.000 ^b	Constant	.971		3.226	.001
					PU	.152	.152	2.349	.020
					PEOU	.114	.120	1.808	.072
					PR	-.077	-.135	-2.131	.034
					SI	.096	.114	1.675	.095
					HM	.277	.326	4.851	.000
					PE	.226	.225	3.434	.001

a. Dependent Variable: INT

b. Predictors: (Constant), PE, PR, PU, PEOU, HED, SI

Hypotheses Results

The effects of PU, PEOU, PR, SI, HM, and PE on INT were investigated in this study. Four hypotheses were confirmed, while two others were not. Table 4 summarises the results of the hypotheses of the study.

Table 4: Summary of Hypotheses Results

Hypothesis	P Value	Indicator
H₁: Perceived usefulness has a positive relationship with the intention to use QR code mobile payment.	.020	Accepted
H₂: Perceived ease of use has a positive relationship with the intention to use QR code mobile payment.	.072	Rejected
H₃: Perceived risk has a negative relationship with the intention to use QR code mobile payment.	.034	Accepted
H₄: Social influence has a positive relationship with the intention to use QR code mobile payment.	.095	Rejected
H₅: Hedonic motivation has a positive relationship with the intention to use QR code mobile payment.	.000	Accepted
H₆: Performance expectancy has a positive relationship with the intention to use QR code mobile payment.	.001	Accepted

DISCUSSION

This study found that intention to use QR code mobile payment is influenced by perceived usefulness, perceived risk, hedonic motivation, and performance expectancy among Malaysian Muslim millennials. However, perceived ease of use and social influence are non-predictors of intention to use QR code mobile payment.

With regard to H₁, perceived usefulness was found to have a significant direct influence on intention. It stands to reason that the usability and usefulness of QR code mobile payment should increase respondents' willingness to use the system. This result is consistent with previous research, showing a positive relationship between perceived usefulness and the intention to use QR code mobile payment (Aris et al., 2022; Chang et al., 2021; Ibrahim et al., 2019; Türker et al., 2022).

Surprisingly, in the case of H₂, perceived ease of use was not a significant predictor of intention to use QR code mobile payment. This result shows that Malaysian Muslim millennials are sceptical about QR code mobile payment despite they believe that the system is simple and easy to use. There could be several reasons for this. First, QR code mobile payment is still in its infancy in Malaysia. Second, consumers are not yet ready to abandon cash, debit cards, and credit cards in favour of QR code mobile payment. However, this result mirrors the studies by Aris et al.

(2022), Baskoro and Amini (2020) and Setiawan et al. (2022), who found that perceived ease of use had no effect on intention to use QR code mobile payment.

As for H3, the relationship between perceived risk and intention was found to be negatively significant. Due to concerns about privacy, personal data, and fraud, perceived risk discourages this group from using QR code mobile payment. Therefore, the lower the perceived risk among Malaysian Muslim millennials, the greater their intention to use QR code mobile payment, and vice versa. This result is in line with Senali et al. (2022) and Tang et al. (2022).

In relation to H4, the results of this study show that social influence had no significant impact on intention to use QR code mobile payment, which is consistent with the studies of Ghaisani et al. (2022), Hajazi et al. (2021), Imani and Anggono (2020) and Shane et al. (2022). As the QR code mobile payment system has been on the market for several years and is mainly used by millennials, the influence of family members, friends, or other people persuading them to use the system is becoming less and less important. Moreover, millennials are extremely tech-savvy and understand very well how the QR code mobile payment system works. This could mean that the trust and influence of other social actors is irrelevant to them. As such, this group believes that they could use the QR code for mobile payments even if their significant others do not. Inferring that the decision to use QR code mobile payments is solely up to the users.

With respect to H5, hedonic motivation was the strongest predictor in the model among all variables. This implies that respondents are more likely to use QR code mobile payment if they believe the system is enjoyable and fun to use. According to the findings of this study, QR developers should create QR codes that are versatile, engaging to use, and contain exciting content. These findings support previous research by A. Rosli et al. (2020) and Alalwan et al. (2017).

Pertaining to H6 and in line with previous research by A. Rosli et al. (2020), Amarullah et al. (2021), Le (2022), Shane et al. (2022), and Suo et al. (2022), performance expectancy was a predictor of intention to use QR code mobile payment. Performance expectancy was the second strongest predictor in the model. This segment believes that using QR code mobile payment is beneficial and can assist them in meeting their objectives and increasing their productivity. As a result, this group is more likely to make use of QR code mobile payment features in their daily lives.

CONCLUSION

This study investigated Malaysian Muslim millennials' intentions to use QR code mobile payment. Six antecedents of intention were investigated, namely perceived usefulness, perceived ease of use, perceived risk, social influence, hedonic motivation, and performance expectancy, yielding six study hypotheses. Based on the results of the hypothesis tests, four hypotheses were accepted: perceived usefulness, perceived risk, hedonic motivation, and performance expectancy. On the other hand, two hypotheses were rejected: perceived ease of use and social influence.

In theory, this study contributes to the existing literature by examining the relationship between Malaysian Muslim millennials' intention to use QR code mobile payment to perceived usefulness, perceived ease of use, perceived risk, social influence, hedonic motivation, and performance expectancy of QR code system. With reference to 214 respondents, the study leads to the following conclusions. Malaysian Muslim millennials see QR code mobile payment as 1) beneficial and useful, 2) not risky or apprehensive to use it, 3) entertaining, enjoyable, and fun, and 4) beneficial and can help them achieve their goals and increase their productivity. However, there are two things to think about: 1) despite the system's ease and convenience, they are wary of QR code mobile payment, and 2) their social circles have no influence on them. Therefore, service providers should not rely solely on word-of-mouth referrals to grow their clientele, especially among millennials. Since most millennials are tech-savvy, the focus should be on improving the system offering to make it easier and more user friendly.

In practise, a better understanding of the usage intentions of QR code mobile payment in Malaysia is crucial for policy makers, service providers, and industry players, especially as the

country aims to achieve a cashless society by 2025. In addition, to support the country's vision, the government could also integrate more QR code apps into a variety of government services. The use of this type of payment by Malaysians should support the country's transition to a highly efficient cashless society. Because this research focuses on Muslims, Islamic retailers and institutions such as mosques and *zakat* and waqf institutions can fully utilise QR code payment and target these segments to encourage them to support Islamic institutions by giving sadaqa and infaq, paying *zakat*, and increasing other revenues. Moreover, industry participants could use the findings of the study to develop a comprehensive business strategy and effective institutional tools to promote the growth of mobile payments, especially QR code systems.

Although this study can help fill a gap in the literature and is helpful for practitioners, it also has some limitations. First, the data is restricted to a convenience sample, which may limit the generalisability of the results. Second, the current study collected data from participants, whom were between 18 to 35 years old. Third, because this study was designed for Muslim users, other ethnic groups may have differing perspectives on the subject. Fourth, since the factors examined in this study account for less than 60 percent of the variance in intention to choose QR code mobile payment, there are other factors that could influence the results.

To address these limitations, future research on consumer intention for QR code mobile payment could broaden the scope of the study. First, a different sampling technique, such as random sampling could be used to generalise the result. Second, by including people of different ages who may have different perspectives on QR code mobile payment. Third, by including different ethnic groups or the population from other developing countries such as Indonesia and Singapore, as consumer behaviour might differ due to cultural and value differences. Fourth, future research could combine the technology acceptance model with other relevant theories to investigate this context further. Fifth, other variables, such as cultural and religious constructs, could be included in future studies. Finally, future research could replicate the current study to investigate consumer intentions and behaviour toward various technologies (e.g., wearable technology, mobile government, and mobile health services) in various contexts (e.g., finance, education, retail, government, healthcare, and hotels) and obtain more meaningful results by employing different analytical methods.

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