Factors Affecting Mobile Payment Acceptance and Intention: A Case Study of Hospitality Customers in Vietnam

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Abstract

The outbreak of the COVID-19 pandemic has had a significant impact on the Vietnamese economy. In the midst of a complex disease that compelled people to limit their interaction, customers' shopping habits shifted from "offline" to "online" transactions. Mobile payments have also grown in popularity. The goal of this study is to figure out what factors influence the use of mobile payments by hotel clients in Can Tho after COVID-19. The research team also examines how those factors influence customers' willingness to use mobile payment and makes recommendations to better the current situation. Primary data was collected from 227 persons using online surveys and processed with SPSS software for this study. To analyze the correlation relationship between the elements determining the intention to use, the Cronbach alpha, EFA, Correlation, and Regression methods used to assess the scale are applied. Perceived Trustworthiness, Perceived Usefulness, and Perceived Ease of Use all have positive effects on customers' propensity to use, according to the findings. Perceived Security, on the other hand, has no bearing. The findings of this study have significant theoretical and practical implications for the development of mobile payment services in Can Tho, particularly following the implementation of COVID-19.

Keywords: Mobile Payment, COVID-19, Perceived Trustworthiness, Perceived Usefulness, Perceived Ease of Use, Intentions to Use

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1. Introduction

The appearance of Coronavirus at the end of 2019 has been changing the way of operation of all fields, in which the trend of using mobile payment services is gradually being accepted by consumers. As reported by the World Health Organization, due to the high risk of Coronavirus infection, they recommend that people reduce contact and maintain social distance. In addition, they also warned of the risk of COVID-19 infection from cash and encouraged people to switch from cash to electronic forms of payment. Since then, mobile payment has been proposed as one of the solutions to facilitate payment instead of using cash as before (Begonha et al., 2002). To ensure safety in the payment process, the contactless nature of M-Payment can support and meet users' expectations for safety. Research about the use of mobile payment services in the hotel sector post-COVID-19 period will contribute to supplementing theoretical arguments. The study will show which factors affect the customers' intention to use mobile payment, and

at the same time provide practical evidence as well as offer solutions for businesses, hotels, analysts on this issue. Based on the TAM (Technology Acceptance Theories) model, the research team will propose a research model that includes four independent variables (perceived usefulness, security, trustworthiness, and ease of use of M-Payment) that have impacts on a dependent variable which is a customer's intention to use M-Payment service.

2. Literature Review

2.1. Mobile Payment

M-payment is a method of paying for goods, bills, and services using mobile devices and wireless communication technologies as an alternative to direct cash or credit card/card transactions debit. Mobile devices can make payments in a variety of ways, such as payments for digital content, concerts, service payments or airline tickets, parking fees, and bus, tram, train, and taxis. Mobile devices access and utilize mobile payment services to pay bills and invoices. A mobile device allows a user to connect to a server, perform authentication and authorization, make a mobile payment, and then confirm the transaction is complete (Antovski & Gusev, 2003; Ding & Hampe, 2003). There are two types of M-payment, according to the Federal Reserve Bank of Boston (Becker, 2007): remote M-payment and proximity M-payment. Remote M-payment will be more suitable for sellers who do not have a POS system and sell directly. Paying for transactions with a merchant on the Web via a mobile device may also be referred to as Remote M-payment. As for proximity M-payment, it is more suitable for vending machines and users who use POS vending systems instead of using cash or credit/debit cards. Consumers who make mobile payments are based on the close exchange of financial information through a transportable platform. Transactions through the form of proximity M-payment can be paid by contactless credit or debit card transactions without actually giving the card to the merchant, and the process will take place entirely in front of the customer. The form of payment through proximity M-payment will be very convenient, take less time and reduce concerns about errors when using physical cards.

2.2. Technology Acceptance Model (TAM)

Mobile payment service is essentially information technology. The intention to use mobile payment services will be partly explained by TAM (Technology Acceptance Theories) as introduced by Davis (Davis, 1989). Therefore, this model was selected as the appropriate basic model in this study. Many experiments have shown that this model strongly explains the adoption of information technology. The TAM model proposes two factors that influence consumers' intention to use new tools; they are considered easy to use and useful. The mobile payment procedure applied by information technology proves that the higher the usefulness, the easy it is to use, the more users will be. Both factors affect a person's attitude towards using the system, influencing the intention to use behavior (intent to use, IU).

2.3. Perceived Trustworthiness

According to Schurr and Ozanne (1985), trust is considered a catalyst that can facilitate successful transactions in consumer-marketer relationships. Especially for e-commerce services, trust clearly shows its core role. For example, trust is the most critical factor of consumer perception in electronic services (Mallat, 2007; Yan et al., 2009). Similarly, Kim et al. (2008) and Lee (2005) also said that in uncertain situations like e-commerce, trust is viewed as a particularly essential factor influencing consumer behavior. So first of all, we need to know how trust is defined? According to Muñoz-Leiva et al. (2016), trust has been formed by two basic components including a cognitive component and a behavioral component. The cognitive component defines trust as ''the belief that the other party's word or promise is reliable and the party will fulfill its obligations in an exchange relationship'' (Dwyer et al., 1987; Schurr & Ozanne, 1985).

The behavioral component defines trust as the willingness or desire to follow a specific pattern of behavior, which impacts the success rate of innovation acceptance (Liébana Cabanillas et al., 2014). Another similar definition by Budiantara et al. (2019) also states that trust is "the willingness of consumers who rely on and are subject to the acts of other parties during a certain process to expect that the other party will follow appropriate procedures and be able to deliver the items and services that they have promised". Trust consists of three beliefs regarding the characteristics of the company to be trusted, including integrity, ability, and benevolence (Dai & Palvia, 2009; Gefen et al., 2003). Integrity is the capability of the service provider entities to keep their obligations. Ability means parties have enough technical knowledge to fulfill their promises. Benevolence is the service provider's concern to safeguard consumer interest. All of these factors contribute to the consumer's perception of the company's trustworthiness.

For this study, we use the term "Perceived Trust-worthiness" to represent consumers' trust in a mobile payment service provider. Therefore, consumers' perception of the mobile payment provider's trustworthiness is the trust in benevolence, integrity, and its ability to affect consumers' intention to use mobile payment services (Pousttchi & Wiedemann, 2007). We all know that the COVID-19 pandemic has brought uncertainty and social pressure to individuals' daily transaction processes. So, trusting a mobile payment service platform can increase the likelihood

of users using this form of contactless payment instead of traditional payment (Marinković et al., 2020). When using mobile payment services, personal and financial information will be shared by users, so Duane et al. (2014) and Kim et al. (2010) believe that trust plays an important role in the intention to adopt mobile payment services.

Similarly, a large body of research shows that consumer trust has a major impact on their intent to use. A theory-trust model proposed by Srivastava et al. (2010) through an empirical study in Singapore identified trust as the most important construct relative to other factors. Zhou (2013) tweaked the trust-based adoption model and discovered that trust had a direct and indirect impact on the intention to utilize mobile payment services. Trust has the most important effect on behavioral intention to utilize mobile payment, according to Zhu et al. (2017) and McKnight et al. (2002). They stated that a customer's intention to use a platform will be boosted if they believe it provides a trustworthy system for transactions using a mobile payment service.

In conclusion, we expect that "Perceived Trustworthiness" can be an important factor affecting the intention to use mobile payment services. Based on the above arguments, we propose the following hypothesis:

H1: Perceived Trustworthiness will influence significantly the intention to use mobile payment services of customers in Can Tho hospitality sector.

2.4. Perceived Usefulness

According to research by Mathwick et al. (2001), usefulness is defined as the customer's perception of whether using a new service brings many benefits and improves their work performance. In another study by Gong and Xu (2004), usefulness is considered: customers have confidence that their expectations will be met when applying new technology. Therefore, lack of awareness of usefulness is one of the reasons why the vast majority of users are slow in accessing and accepting mobile devices in general and mobile payments in particular. Furthermore, users' desire to use new technology is determined by their view of the perceived utility of the technology (Davis, 1989). Users will adopt and accept innovations only if they provide benefits that are distinct from existing solutions, according to the spillover theory (Rogers, 1995). Besides other features, usefulness is one of the important factors to determine adaptability as well as decide whether customers accept change when using new services (Venkatesh & Davis, 2000). Thereby, it can be proved that usefulness will positively affect user intention when using M-Payment payment service (Karnouskos, 2004; Kim et al., 2010; Budiantara et al., 2019; Pousttchi & Wiedemann, 2005).

In conclusion, we expect that "Perceived Usefulness" can be an important factor affecting the intention to use

mobile payment services. Based on the above arguments, we propose the following hypothesis:

H2: Perceived Usefulness will significantly influence the intention to use mobile payment services of customers in Can Tho hospitality sector.

2.5. Perceived Security

According to Kreyer et al. (2002), we distinguish the concept of security between objective and subjective security (Kreyer et al., 2002). Confidentiality is a formal specification that can satisfy confidentiality, integrity, authentication, and authorization. In contrast, subjective security is considered to be the scale on which "a person believes that using a particular mobile payment process will secure his or her payment" (Pousttchi & Wiedemann, 2007). Taken as a whole, objective and subjective security are related and interdependent. Besides perceived benefits (i.e., perceived usefulness and ease of use), innovations often come with risks (Cho, 2004). As a result, perceived security in relation to a product or service has become important in consumer research on innovations (Lim, 2003; Mitchell, 1999). In the context of electronic services, security risk, conceived as a possible invasion of user privacy, has been found to be a particularly serious concern for consumers (Lwin et al., 2007; Tahar et al., 2020). Security issues are especially problematic for the restaurant industry, as the industry includes a large number of small and medium-sized suppliers. Unlike financial institutions or large telecommunications operators, consumers tend to have little trust in small suppliers and feel shy about disclosing their personal information (Mallat & Tuunainen, 2008). With the current state of security for electronic transactions as well as commercial information exchange, security has become a top concern (Kadhiwal & Zulfiquar, 2007). Similar to the previous study (Cho, 2004), we suggest a positive association between security perception and intention to use mobile payment services.

In conclusion, we expect that "Perceived Security" can also be an important factor affecting the intention to use mobile payment services. Based on the above arguments, we propose the following hypothesis:

H3: Perceived Security will significantly influence the intention to use mobile payment services of customers in Can Tho hospitality sector.

2.6. Perceived Ease of Use

Perceived ease of use is also one of the important factors in the technology adoption model. According to Davis (1989), perceived ease of use is the degree to which a user believes that using a particular system is simple, easy, and effortless. Ease of use refers to the clear and

apprehensible interaction that users experience with the service as well as their comfort level using the service (Ndubisi & Jantan, 2003). Since there are some limitations of mobile devices, ease of use is considered an important construct in the adoption of mobile applications. For example, an individual may find the use of mobile payments tedious and complicated because of the constraints of mobile device features, such as a small display screen or difficulty entering information using mobile devices, which can lead to unsatisfied and unaccepted consumers of mobile payment services, especially inexperienced consumers (Venkatesh & Davis, 2000). As a result, some individuals may find the system difficult to use even though they may believe it to be useful. Therefore, simple learning and ease of use are the foremost influential aspects for mobile payment services regardless of whether the user is tech-savvy or not (Palvia, 2009). Mobile payment service technology is self-service in nature, so consumers will feel more comfortable and more likely to try new technology if they find mobile payment services easy to use and user-friendly (Dahlberg & Mallat, 2002). For these reasons, ease of use is considered as one of the important factors influencing people's acceptance and use of new technology. In addition, ease of use is considered an antecedent of perceived usefulness (Davis et al., 1989).

In conclusion, we expect that "Perceived Ease of use" can be an important factor affecting the intention to use mobile payment services. Based on the above arguments, we propose the following hypothesis:

H4: Perceived Ease of use will significantly influence the intention to use mobile payment services of customers in Can Tho hospitality sector.

2.7. Intentions to Use Mobile Payment

Previous researchers have confirmed that trust and attitude are factors influencing intention to use mobile payment services (Wang et al., 2009; Zhang et al., 2012).

They also confirmed that intention to use is a very important concept in the study of consumer behavior and is also a factor used to understand that attitude can influence actual consumer behavior. Previous studies have also shown that the intention to use mobile payments is beneficial for service users when they have positive beliefs (Au & Kauffman, 2008). Then, Fred D. Davis (1985) proposed the technology acceptance model (TAM) to explain the factors affecting the acceptance and behavior of technology users. TAM model examines the relationship and influence of factors such as ease of use, usefulness on attitude, thereby affecting the intention and behavior in accepting technology of users. The intention is considered as a direct premise leading to technology use behavior in the TAM model. Therefore, this study will highlight the factors affecting the behavioral intention of consumers to use mobile payment.

3. Research Methods

3.1. Research Design

The study is based on the theoretical model proposed in Figure 1. In this study, intention to use mobile payment services is the dependent variable (IU). The independent variables include Perceived Trustworthiness (PT), Perceived Usefulness (PU), Perceived Security (S), Perceived Ease of use (PEU). In the questionnaire, the components will be measured using a 5-point Likert scale, from 1 completely disagree to 5 agree. The Likert scale is a basic psychological assessment tool, commonly used by researchers in social science research and education (Joshi et al., 2015). To conduct the survey, we will design an Online Questionnaire created through Google's forms platform. Questionnaires are one of the easiest and most widely used data collection tools in scientific research. Besides, helping surveyors get reliable and valid primary data information for further use as analytical data (Taherdoost, 2018).
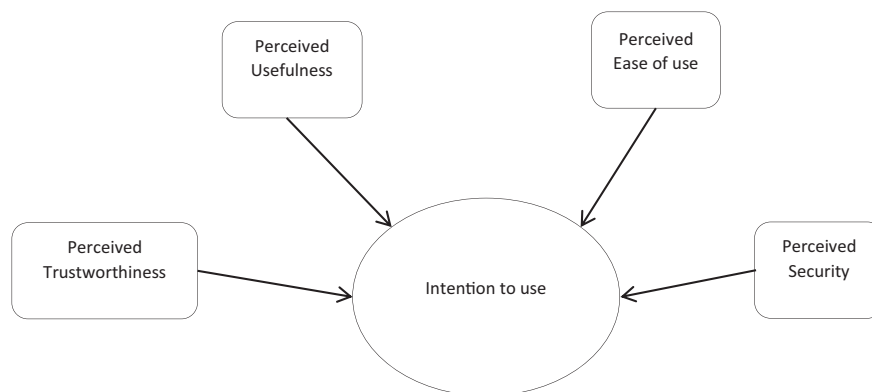

Figure 1: Research Model

3.2. Data Collection Method

The primary data is collected using a survey form and questionnaires created with Google Forms. The total number of responses obtained after two months of conducting the survey and collecting data is 277 answers through an online survey. The questionnaire is divided into two main parts. The first part is the demographic survey. The second part is divided into five sections showing the relationship between the independent and dependent variables. These sections include perceived trustworthiness, perceived usefulness, perceived ease of use, perceived security, and finally, the customer's intention to use. A five-point Likert scale is used to assess respondents' tendencies and how they relate to a given statement. "Strongly disagree" is represented by one, and "Strongly agree" is represented by five on a scale of one to five.

3.3. Data Analysis Method

In this research, we use the quantitative method. The data are collected from survey forms, then processed via Excel, and finally analyzed through SPSS. SPSS is a commercially distributed data management and statistical analysis software created by Norman Nie, Dale Bent, and C. Hadlai Hull (Frey, 2017). Through its advances in usability and data access, SPSS technology has made difficult analytical tasks easier, allowing more people to benefit from the use of quantitative techniques

in decision-making (SPSS Inc., 2009). The authors use SPSS to evaluate the reliability of the given hypotheses. First, it analyzes the reliability to consider the reliability of the factors which helps to decide which factors can be used to continue for the next analysis steps. Second, the exploratory factor analysis will help the authors check the validity. Then, use correlation analysis to test the degree of correlation between the factors stated in the hypothesis. Finally, regression analysis is used to determine the extent to which specific independent variables affect the dependent variables.

4. Results

4.1. Profile of Respondents

The goal of this study is to determine the factors affecting the use of mobile payment services by customers. The findings show that perceived reliability, perceived usefulness, perceived ease of use have a positive impact on the use of mobile payment services. The majority of survey data comes from under the age of 22, current students, so accessing and absorbing modern technologies will be somewhat faster than the community. In the course of the research, there may be errors, and samples are personalized and should not be taken as a whole. The findings of this study will help businesses, especially mobile payment service providers, meet the needs and desires of their customers (Table 1). Although the size of

Table 1: Profile of Respondents

Demographic Available		Frequency	Percent
Gender	Male	96	42.3
	Female	131	57.7
Age group	<22 years old	139	61.2
	From 22–30 years old	65	28.6
	From 30–40 years old	8	3.5
	From 40–50 years old	12	5.3
	>50 years old	3	1.3
Academic standard	High School	32	14.1
	Intermediate	13	5.7
	College	26	11.5
	University	149	65.6
	Master's degree	7	3.1
Occupation	Students	151	66.5
	Civil servants	10	4.4
	Workers–Employees	24	10.6
	Business	12	5.3
	Housewife	8	3.5
	Other	22	9.7

the research paper is quite limited, it will also contribute to the development of other documents and, at the same time, recognize the needs of Can Tho customers in particular and the country in general.

4.2. Reliability Test

The Cronbach's Alpha reliability coefficient was calculated to test the reliability of the equivalence scale affecting customers' intention to use the mobile payment for hospitality customers in Can Tho post-COVID-19, and the results are presented in Table 2. The correlation between the observed variables and the total variables, such as perceived trustworthiness (PT), perceived usefulness (PU), perceived security (S), perceived ease of use (PEU), and intention to use (IU). Table 2 shows that all Cronbach's Alpha coefficients ranging from 0.819 to 0.947 are greater than 0.7, showing that the relationship of the observed variable with the total variable is reliable. In addition, the correlation coefficient of each observed variable with the total variable is greater than 0.3 (Nunnally & Bernstein, 1994). Therefore, all variables ensure the requirements of reliability, so they will be kept for further testing in the following section.

4.3. Exploratory Factor Analysis (EFA)

After analyzing and testing the reliability of the scale, the authors conduct exploratory factor analysis with all remaining independent variables. KMO coefficient is 0.904 > 0.5, so it meets the requirements of factor analysis ($0.5 \leq$ KMO ≤ 1). Sig = 0.000 < 0.005 of Bartlett's test indicates that there are statistically significant correlations between observed variables in the population, so the observations are suitable for factor analysis (Table 3). The total variance extracted explained 76.532% of the variation of the data, and at the same time, it proved that the factor analysis was

Table 2: Cronbach's Alpha

Items		Corrected Item-Total Correlation	Cronbach's Alpha If Item Deleted
Perceived Trustworthiness (PT): Cronbach's Alpha = 0.947	PT1	0.796	0.940
	PT2	0.827	0.938
	PT3	0.827	0.938
	PT4	0.838	0.937
	PT5	0.811	0.939
	PT6	0.800	0.940
	PT7	0.759	0.943
	PT8	0.784	0.941
Perceived Usefulness (PU): Cronbach's Alpha = 0.878	PU1	0.771	0.830
	PU2	0.748	0.840
	PU3	0.710	0.854
	PU4	0.721	0.850
Perceived Security (S): Cronbach's Alpha = 0.819	S1	0.687	0.735
	S2	0.767	0.652
	S3	0.570	0.848
Perceived Ease of Use (PEU): Cronbach's Alpha = 0.938	PEU1	0.830	0.927
	PEU2	0.875	0.912
	PEU3	0.837	0.923
	PEU4	0.871	0.913
Intention to use (IU): Cronbach's Alpha = 0.904	IU1	0.762	0.883
	IU2	0.743	0.890
	IU3	0.798	0.870
	IU4	0.834	0.857

Table 3: Exploratory Factor Analysis

Rotated Component Matrix[a]				
	Component			
	1	**2**	**3**	**4**
PT3	0.861			
PT5	0.853			
PT6	0.808			
PT4	0.807			
PT2	0.799			
PT7	0.792			
PT1	0.723			
PT8	0.704			
PEU2		0.816		
PEU4		0.808		
PEU1		0.805		
PEU3		0.797		
PU1			0.83	
PU2			0.812	
PU4			0.799	
PU3			0.791	
S2				0.891
S1			x	0.865
S3				0.711

KMO = 0.904; Sig. = 0.000; Total Variance Explained = 76.532%.

Table 4: The Product-Moment Correlations of the Constructs (*N* = 227)

	IU	PT	PU	S	PEU
IU	1				
PT	0.698**	1			
PU	0.495**	0.410**	1		
S	0.267**	0.218**	0.404**	1	
PEU	0.792**	0.673**	0.477**	0.335**	1

Note: **$p < 0.01$.

appropriate (76.532% > 50%). The results of Exploratory Factor Analysis show that there are 4 columns, which means that it has 4 ports that are aggregated from 19 variables. Factor loading coefficients of 19 observed variables are all > 0.5, so these variables have reliability and practical

significance. So the scale is usable and guarantees EFA analysis.

4.4. Correlation Analysis

There is a strong positive relationship between perceived trustworthiness (PT) and perceived ease of use (PEU) to use (IU) with correlation coefficients of 0.698, 0.792, respectively (Table 4).

4.5. Linear Regression Analysis

According to Table 5, the Sig. value of three independent variables including PT, PU, and PEU is smaller than 0.05 which is accepted. However, the Sig. value of independent value S is 0.446 which is bigger than 0.05. So, the researchers decided to remove the independent variable S and analyzed the result again.

Besides that, the VIF value of the independent variable PEU is 2.067 which is bigger than 2. It shows that the independent variables are likely to have multicollinearity. However, the sample size of this study is not too large, so it is still acceptable.

After the researchers had analyzed one more time when we removed the independent variable S, we found that all of the Sig. value of 3 remaining independent variables is smaller than 0.05 which is accepted (Table 6). From the coefficients table, the linear regression equation is:

$$IU = 0.545 * PEU + 0.283 * PT + 0.12 * PU$$

According to the equation, the factor that has the most impact on Intention to Use M-payment of customers in Can Tho hospitality sector is Perceived Ease of Use (with standardized coefficient value is 0.545). The next influence factor is Perceived Trustworthiness (0.283), and the factor is less impact on IU is Perceived Usefulness (0.12).

5. Discussion and Recommendations

After analyzing, the results of the research showed that there are three factors affecting the intention to use M-payment of Can Tho customers include perceived ease of use, perceived usefulness, and perceived trustworthiness. As the previous research of Davis (1985) about "a technology acceptance model for empirically testing new end-user information systems: theory and results", the authors proved that "perceived ease of use" and "perceived usefulness" effect to "the attitude toward using". Besides that, in another study (Pousttchi & Wiedemann, 2007), the results showed that "the hypotheses of the classical TAM are supported whereas the hypotheses regarding perceived confidentiality and perceived trustworthiness are rejected." In addition, in

Table 5: Perceived ease of use, Perceived Security, Perceived Usefulness, Perceived Trustworthiness, and IU Coefficients

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	0.167	0.235		0.710	0.479		
	PT	0.272	0.050	0.281	5.486	0.000	0.536	1.867
	PU	0.167	0.058	0.130	2.891	0.004	0.690	1.448
	S	−0.036	0.048	−0.032	−0.763	0.446	0.808	1.237
	PEU	0.542	0.053	0.552	10.255	0.000	0.484	2.067

[a]Dependent Variable: IU.

Table 6: Perceived Ease of Use, Perceived Usefulness, Perceived Trustworthiness, and IU Coefficients

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	0.100	0.217		0.459	0.647		
	PT	0.274	0.049	0.283	5.541	0.000	0.537	1.862
	PU	0.154	0.055	0.120	2.793	0.006	0.758	1.319
	PEU	0.535	0.052	0.545	10.289	0.000	0.499	2.004

[a]Dependent Variable: IU.

the study "Factors Affecting the Intention to Use Digital Banking in Vietnam" of Nguyen (2020), the author also proved that perceived usefulness has a positive effect on attitude and intention to use the mobile banking service.

The results of the study showed that perceived trustworthiness has a significant influence on customers' intention to use mobile payment services in the hotel sector in Can Tho. According to Shankar and Datta (2018), trust is an important issue that mobile payment service providers need to prioritize. Therefore, a number of recommendations are made to increase the reliability of users in non-cash payments. Mobile payment services need to ensure that transactions are error-free, reliable, and responsive to gain user trust (Shankar & Datta, 2018). Specifically, it is necessary to ensure that money transfers on mobile devices are safe and transparent. Users often tend to be afraid to make transactions by phone because they fear problems with the disclosure of personal information or transaction information. Government organizations, as well as regulatory agencies, need to continue to research and perfect the legal corridor on electronic payments to protect the interests of users. Service providers need to be equipped with modern technologies to

enhance user data security. To ensure safe data, the providers should have a dual security mechanism including payment password and OTP to create an extra layer of protection every time you log in on a new device or require a password reset. According to Le et al. (2020), banks should use multi-factor authentication combined with data encryption and as well as use biometric technology like a fingerprint combined eyes. For payment passwords, the providers should require users to choose passwords that are difficult to guess and do not involve much personal information. Passwords must have at least 8 characters (including uppercase, lowercase letters, numbers, special characters.etc.). In addition, the providers need to regularly upgrade payment features and strengthen security methods to make customer transactions more secure.

Perceived usefulness (PU) hypothesis 2, investigates whether usefulness affects intention to use mobile payment services. In this study, the results show that perceived usefulness is also acceptable. However, compared with the remaining 3 factors, perceived usefulness has the least impact on customer intention to use. For users to use M-Payment, the results in this study on customers' perceived

usefulness have important implications for the improvement and enhancement of mobile payment services. According to research (Nguyen et al., 2021), to increase the intention to use the service, businesses need to focus on improving the usefulness, flexibility, ease, speed, and security of the service. It needs a system that guarantees safe execution of financial transactions without the risk of losing money and possesses a range of features that are not only easy to use but are also likely to be useful to users in many ways that can lead to an increase in their intention to use. In addition, allowing customers to use mobile phones to satisfy their payment needs anytime, anywhere through various payment methods such as transfer, QR code scanning, e-wallet, or identification biometrics. This not only helps the payment process go quickly but also limits person-to-person contact during the current epidemic situation.

The redundant operations and confirmations of the software have made many people feel uncomfortable and unsatisfied, greatly affecting customers' intention to use mobile payments. Mobile payment application designers need to pay attention to the smallest things to ensure the best and most convenient customer experience. For example, in the part of entering the amount for the payment, it is possible to leave the most used amounts by customers instead of having to enter inconvenient letters. The application will directly switch to the client when the customer has finished entering something. A well-designed application will ensure the security of customers when clicking on the "submit" button, if there is no security, it will cause customers to lose trust in the application and reduce the intention to pay by mobile. Designers can be equipped with a fingerprint payment feature, when customers have completed all necessary information, just touch the screen with fingerprints, they can pay immediately, this will help customers save money. Instead of having to surf to find the "submit" item and ensure security for customers.

The interface of the app needs to be intuitive, vivid, and designed to suit each type of mobile device with fresh colors to attract customers, the language on the app must be diverse so that customers can easily choose the type of language they need. Should emphasize the items customers need to use, avoiding ads that obscure the user's vision. Design the search bar so that customers can easily find the content they need, the payment process is clear and specific, there are specific and simple instructions on how to use the application so that customers can use the application in the most convenient way, even if they are not tech-savvy.

6. Conclusion

The goal of this study is to determine the factors affecting the use of mobile payment services by customers. The findings show that perceived reliability, perceived usefulness,

perceived ease of use have a positive impact on the use of mobile payment services. The majority of survey data comes from under the age of 22, current students, so accessing and absorbing modern technologies will be somewhat faster than the community. In the course of the research, there may be errors and samples are personalized and should not be taken as a whole. The findings of this study will help businesses, especially mobile payment service providers, meet the needs and desires of their customers. Although the size of the research paper is quite limited, it will also contribute to the development of other documents, and at the same time, recognize the needs of Can Tho customers in particular, and the country in general.

References

Antovski, L., & Gusev, M. (2003, June). M-payments. In *Proceedings of the 25th International Conference on Information Technology Interfaces*, *20,* 95–100. https://doi.org/10.1109/iti.2003.1225328

Au, Y. A., & Kauffman, R. J. (2008). The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application. *Electronic Commerce Research and Applications*, *7*(2), 141–164. https://doi.org/10.1016/j.elerap.2006.12.004

Becker, K. (2007). Mobile phone: The new way to pay? https://digitalcommons.fiu.edu/hospitalityreview/vol31/iss4/6

Budiantara, M., Gunawan, H., & Utami, E. S. (2019). Perceived usefulness, perceived ease of use, trust in online store, perceived risk as to the trigger of online purchase intention SME product "made in Indonesia" through the use of e-commerce marketplace. *Jurnal Riset Akuntansi Mercu Buana*, *5*(1), 19–27. https://doi.org/10.26486/jramb.v5i1.783

Cho, J. (2004). Likelihood to abort an online transaction: Influences from cognitive evaluations, attitudes, and behavioral variables. *Information and Management*, *41*(7), 827–838. https://doi.org/10.1016/j.im.2003.08.013

Dahlberg, T., & Mallat, N. (2002). Mobile payment service development-managerial implications of consumer value perceptions. *Proceedings of the 10th European Conference on Information Systems, Information Systems and the Future of the Digital Economy, ECIS 2002,* Gdansk, Poland, June 6–8, 2002 (pp. 649–657). Manhattan, NY: IEEE Publications. https://aisel.aisnet.org/ecis2002/139/

Dai, H., & Palvi, P. C. (2009). Mobile commerce adoption in China and the United States: A cross-cultural study. *ACM SIGMIS Database*, *40*(4), 43–61. https://doi.org/10.1145/1644953.1644958

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of Information Technology. *MIS Quarterly*, *13*(3), 319–340. https://doi.org/10.2307/249008

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two

theoretical models. *Management Science*, *35*(8), 982–1003. https://doi.org/10.1287/mnsc.35.8.982

Ding, M., & Hampe, J. F. (2003). Reconsidering the challenges of mpayments: A road map to plotting the potential of the future m-commerce market. *Bled Conference Series, 49*, 854. https://doi.org/10.1.1.1026.8549

Duane, A., O'Reilly, P., & Andreev, P. (2014). Realizing m-payments: Modelling consumers' willingness to M-pay using smartphones. *Behavior and Information Technology*, *33*(4), 318–334. https://doi.org/10.1080/0144929X.2012.745608

Dwyer, F. R., Schurr, P. H., & Oh, S. (1987). Developing buyer-seller relationships. *Journal of Marketing*, *51*(2), 11–27. https://doi.org/10.1177/002224298705100202

Davis, F. D. (1985). A technology acceptance model for empirically testing new end-user information systems: Theory and results. https://dspace.mit.edu/bitstream/handle/1721.1/15192/14927137-MIT.pdf

Frey, F. (2017). SPSS [Software]. *New York: Springer*. https://doi.org/10.1002/9781118901731.iecrm0237

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, *27*(1), 51–90. https://doi.org/10.2307/30036519

Gong, M., & Xu, Y. (2004). An enhanced technology acceptance model for web-based learning. *Journal of Information Systems Education*, *15*(4), 365–374. https://jise.org/volume15/n4/JISEv15n4p365.html

Joshi, A., Kale, S., Chandel, S., & Pal, D. (2015). Likert scale: Explored and explained. *British Journal of Applied Science and Technology*, *7*(4), 396–403. https://doi.org/10.9734/BJAST/2015/14975

Kadhiwal, S., & Zulfiquar, A. U. S. (2007). Analysis of mobile payment security measures and different standards. *Computer Fraud and Security*, *2007*(6), 12–16. https://doi.org/10.1016/S1361-3723(07)70077-5

Karnouskos, S. (2004). Mobile payment: A journey through existing procedures and standardization initiatives. *IEEE Communications Surveys and Tutorials*, *6*(4), 44–66. https://doi.org/10.1109/COMST.2004.5342298

Pousttchi, K., & Wiedemann, D. G. (2007). What influences consumers' intention to use mobile payments? https://doi.org/10.1.1.86.8935

Kim, C., Mirusmonov, M., & Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior*, *26*(3), 310–322. https://doi.org/10.1016/j.chb.2009.10.013

Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*, *44*(2), 544–564. https://doi.org/10.1016/j.dss.2007.07.001

Kreyer, N., Pousttchi, K., & Turowski, K. (2002). Standardized payment procedures as a key enabling factor for mobile

commerce. *Lecture Notes in Computer Science*. *Proceedings of the EC-Web* 2002, Aix-en-Provence, France, 2-6 September 2002 (pp. 400–409). New York: Springer https://doi.org/10.1007/3-540-45705-4_41

Le, H. B. H., Ngo, C. T., Trinh, T. T. H., & Nguyen, T. T. P. (2020). Factor affecting customers' decision to use mobile banking service: A case of Thanh Hoa Province, Vietnam. *Journal of Asian Finance, Economics, and Business*, *7*(2), 205–212. https://doi.org/10.13106/jafeb.2020.vol7.no2.205

Lee, T. (2005). The impact of perceptions of interactivity on customer trust and transaction intentions in mobile commerce. *Journal of Electronic Commerce Research*, *6*(3), 165. https://doi.org/10.1246/jecr.2005.63165121

Liébana-Cabanillas, F., Sánchez-Fernández, J., & Muñoz-Leiva, F. (2014). The moderating effect of experience in the adoption of mobile payment tools in virtual social networks: The m-payment acceptance model in virtual social networks (MPAM-VSN). *International Journal of Information Management*, *34*(2), 151–166. https://doi.org/10.1016/j.ijinfomgt.2013.12.006

Lim, N. (2003). Consumers' perceived risk: Sources versus consequences. *Electronic Commerce Research and Applications*, *2*(3), 216–228. https://doi.org/10.1016/S1567-4223(03)00025-5

Lwin, M., Wirtz, J., & Williams, J. D. (2007). Consumer online privacy concerns and responses: A power–responsibility equilibrium perspective. *Journal of the Academy of Marketing Science*, *35*(4), 572–585. https://doi.org/10.1007/s11747-006-0003-3

Mallat, N. (2007). Exploring consumer adoption of mobile payments–A qualitative study. *Journal of Strategic Information Systems*, *16*(4), 413–432. https://doi.org/10.1016/j.jsis.2007.08.001

Mallat, N., & Tuunainen, V. K. (2008). Exploring merchant adoption of mobile payment systems: An empirical study. *e-Service Journal*, *6*(2), 24–57. https://doi.org/10.2979/esj.2008.6.2.24

Marinković, V., Đorđević, A., & Kalinić, Z. (2020). The moderating effects of gender on customer satisfaction and continuance intention in mobile commerce: A UTAUT-based perspective. *Technology Analysis and Strategic Management*, *32*(3), 306–318. https://doi.org/10.1080/09537325.2019.1655537

Mathwick, C., Malhotra, N. K., & Rigdon, E. (2002). The effect of dynamic retail experiences on experiential perceptions of value: An Internet and catalog comparison. *Journal of Retailing*, *78*(1), 51–60. https://doi.org/10.1016/S0022-4359(01)00066-5

McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). The impact of initial consumer trust on intentions to transact with a website: A trust-building model. *Journal of Strategic Information Systems*, *11*(3–4), 297–323. https://doi.org/10.1016/S0963-8687(02)00020-3

Mitchell, V. W. (1999). Consumer perceived risk: Conceptualisations and models. *European Journal of Marketing*, *33*(1/2)(½), 163–195. https://doi.org/10.1108/03090569910249229

Muñoz-Leiva, F., Climent-Climent, S., & Liébana-Cabanillas, F. (2017). Determinants of intention to use the mobile banking apps: An extension of the classic TAM model. *Spanish Journal of Marketing – ESIC*, *21*(1), 25–38. https://doi.org/10.1016/j.sjme.2016.12.001

Ndubisi, N. O., & Jantan, M. (2003). Evaluating IS usage in Malaysian small and medium-sized firms using the technology acceptance model. *Logistics Information Management*, *16*(6), 440–450. https://doi.org/10.1108/09576050310503411

Nguyen, D. D., Nguyen, T. D., Nguyen, T. D., & Nguyen, H. V. (2021). Impacts of perceived security and knowledge on continuous intention to use mobile Fintech payment services: An empirical study in Vietnam. *Journal of Asian Finance, Economics, and Business*, *8*(8), 287–296. https://doi.org/10.13106/jafeb.2021.vol8.no8.0287

Nguyen, O. T. (2020). Factors affecting the intention to use digital banking in Vietnam. *Journal of Asian Finance, Economics, and Business*, *7*(3), 303–310. https://doi.org/10.13106/jafeb.2020.vol7.no3.303

Nunnally, & Bernstein, I. (1994). Psychometric theory (3rd ed.). New York: McGraw-Hill.

Palvia, P. (2009). The role of trust in e-commerce relational exchange: A unified model. *Information and Management*, *46*(4), 213–220. https://doi.org/10.1016/j.im.2009.02.003

Pousttchi, K., & Wiedemann, D. G. (2005). The relative advantage of mobile payment methods—mobile payment from a diffusion theory perspective. https://mpra.ub.uni-muenchen.de/3607/1/MPRA_paper_3607.pdf

Rogers, E. M. (1995). *Diffusion of innovations*. New York: Springer.

Schurr, P. H., & Ozanne, J. L. (1985). Influences on exchange processes: Buyers' preconceptions of a seller's trustworthiness and bargaining toughness. *Journal of Consumer Research*, *11*(4), 939–953. https://doi.org/10.1086/209028

Shankar, A., & Datta, B. (2018). Factors affecting mobile payment adoption intention: An Indian perspective. *Global Business Review*, *19*(3), S72–S89. https://doi.org/10.1177/0972150918757870

SPSS, Inc. (2009). About SPSS Inc. http://www.spss.com.hk/corpinfo/history.htm

Srivastava, S. C., Chandra, S., & Theng, Y. L. (2010). Evaluating the role of trust in consumer adoption of mobile payment systems: An empirical analysis. *Communications of the Association for Information Systems*, *27*(1), 561–588. https://doi.org/10.144191/2010.cais.27.1.561.588

Tahar, A., Riyadh, H. A., Sofyani, H., & Purnomo, W. E. (2020). Perceived ease of use, perceived usefulness, perceived security and intention to use E-filing: The role of technology readiness. *Journal of Asian Finance, Economics, and Business*, *7*(9), 537–547. https://doi.org/10.13106/jafeb.2020.vol7.no9.537

Taherdoost, H. (2018). Validity and reliability of the research instrument; how to test the validation of a questionnaire/survey in research. *SSRN Electronic Journal*, *1*(1), 56–70. https://doi.org/10.2139/ssrn.3205040

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, *46*(2), 186–204. https://doi.org/10.1287/mnsc.46.2.186.11926

Wang, Y., Sun, S., Lei, W., & Toncar, M. (2009). Examining beliefs and attitudes toward online advertising among Chinese consumers. *Direct Marketing*, *3*(1), 52–66. https://doi.org/10.1108/17505930910945732

Yan, A. W., Md-nor, K., Abu-Shanab, E., & Sutanonpaiboon, J. (2009). Factors that affect mobile telephone users to use mobile payment solutions. *International Journal of Economics and Management*, *3*(1), 37–49.

Zhang, L., Zhu, J., & Liu, Q. (2012). A meta-analysis of mobile commerce adoption and the moderating effect of culture. *Computers in Human Behavior*, *28*(5), 1902–1911. https://doi.org/10.1016/j.chb.2012.05.008

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

Zhu, D. H., Lan, L. Y., & Chang, Y. P. (2017). Understanding the intention to continue the use of a mobile payment provider: An examination of Alipay wallet in China. *International Journal of Business & Information*, *12*, 369–390. https://doi.org/10.445213/2017.ijbi.12369390