Study on Factors Affecting Mobile Payment Usage Intention of Vietnamese Users and Countermeasures

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Abstract

Based on the technology acceptance model, this paper analyzes the factors that affect Vietnamese users' willingness to use mobile payment through personal interviews and questionnaires. First, this paper uses SPSS 20 software to analyze the reliability and validity of the research samples, and then uses AMOS 24 software to conduct empirical tests. The research results show that perceived usefulness, perceived ease of use, personal innovation, and subjective norm directly have a positive impact on users' willingness to use, while perceived risk has a negative impact on willingness to use. Vietnamese mobile payment service providers can take advantage of these factors to take relevant measures to improve the quality of the platform to attract more users.

Keywords

Mobile Payment in Vietnam; Technology Acceptance Model; Perceived Ease of Use; Perceived Usefulness; Willingness to Use.

1. Introduction

Mobile payments are trade activities that use smartphones as payment tools. Mobile payment is based on communication technology, combining smartphones, the Internet and financial institutions into a new system, allowing users to make payments through mobile devices. In Vietnam, with the development of e-commerce, mobile payment has also received more and more attention from the government. In 2018, Vietnamese Prime Minister Nguyen Xuan Phuc applicationroved the 2018-2025 Vietnam Banking Industry Development Strategy Resolution[1]. One of its goals is to promote the development of non-cash payments and optimize ATM and POS systems, including: (1) by the end of 2020, the proportion of cash in total payments will be less than 10%; (2) by the end of 2025, cash in the proportion of total payment methods will be less than 8%. In 2020, when the epidemic severely affected the world economy, the scale of Vietnam's e-commerce still increased by 18%. In addition, Vietnam's e-commerce scale has been ranked among the top three in ASEAN in recent years, and it is predicted by Temasek and Bain & Company that it will be one of the countries with the highest growth rate of e-commerce development in the world from 2015 to 2025 [2] According to the statistics of the Ministry of Commerce According to the data[3], by 2020, the growth rate of mobile payment will be 238%. For Vietnam, e-commerce will become an important driving force for domestic economic development, and mobile payment is the core foundation for the development of e-commerce. It can be seen that mobile payment has a good development prospect in Vietnam.

However, there are still many problems with mobile payment in Vietnam. First, the development of mobile payment in Vietnam is relatively slow. Mobile payment in Vietnam started in 2009 and did not officially enter the development stage until 2015[4]. The 2020 Vietnam E-commerce White Paper report also pointed out that cash is still the most popular payment tool in Vietnam. Even for online purchases, consumers often choose the payment

method of cash on delivery (COD). In addition, the mobile payment service provider system also faces low network security, too complicated page design and operation, low popularity, and insufficient number of partners (for example, each e-commerce platform supports different mobile payment service providers) and many other issues.

Therefore, it is necessary to study the factors affecting the willingness of Vietnamese consumers to use mobile payment and their degree, so as to promote the popularization of mobile payment in Vietnam and help the development of domestic e-commerce in Vietnam.

2. Theoretical Background

2.1. Technology Acceptance Theory

Davis first proposed the Technology Acceptance Model (TAM) in 1989[5] to explain the influencing factors of users' use of computer technology. TAM is also one of the first research models to explain user behavior in IT adoption. The basic principle of TAM is that when a user decides to use some kind of IT, he must take reasonable action. In the process of users trying to use new technologies, two variables of their technology: Perceived Usefulness (PU) and Perceived Ease of Use (PE) will affect the user's decision. Perceived usefulness is defined as the degree to which a person believes that adopting a new technology will increase his productivity. Perceived ease of use is the effort and time required for a person to adopt and master a new technology. The higher the user's perceived ease of use, the easier it is to use IT technology. David et al (1989) pointed out that perceived usefulness and perceived ease of use affect intention to use through Attitude Towards Use. However, through research, Davis and Venkatesh in 1996 found that both PEU and PU directly affect users' willingness to use, and PEU also affects both perceived usefulness and willingness to use.

2.2. Perceived Risk Theory

Perceived Risk Theory was proposed by Bauer (1960) [6] in the study of customer behavior. The author believes that any purchase behavior of consumers has hidden risks, which may have consequences that he cannot bear, or at least give him bring unpleasant results. Later scholars continued to subdivide perceived risk into different dimensions. Jacoby and Kaplan (1972) [7], Peter and Tarpey (1975)[8] divided perceived risk into six categories: functional risk, social risk, financial risk, physical risk, time risk and psychological risk. There are many scholars who have studied consumers' perceived risk of mobile payment. Yang (2015) [9] argues that perceived risk refers to the consumer's perceived degree of loss that may be caused by the uncertainty of using mobile payments. Losses include any adverse consequences for consumers. Due to information asymmetry, technological uncertainty, service intangibility and regulatory uncertainty, consumers face a variety of perceived risks in the process of using mobile payments. For example, financial loss, invasion of privacy, dissatisfaction with performance, psychological anxiety or discomfort, and wasted time. Featherman and Pavlou (2003) [10] summarized and defined the following specific perceived risks of users using mobile payments:

1) Perceived financial risk: refers to the loss of money caused by the user's use of mobile payment due to theft of passwords, tampering of QR codes, and theft of financial information by hackers.

2) Perceived privacy risk: Refers to the leakage of private information such as phone numbers, personal information, passwords, purchase locations, and shopping records during the use of mobile payment.

3) Perceived performance risk: It means that due to system failure, speed limitation and instability of mobile network, mobile payment may not be able to provide services and advertising to users smoothly.

4) Perceived time risk: refers to the time spent on familiarity with operating software, loading speed, response speed and processing.

2.3.   Perceived Cost Theory

Perceived cost refers to the price a customer pays in the process of purchasing a product or service, which may be tangible (money) or intangible (time, effort, etc.) (Neuburger, 1971[11]). Perceived cost is used in many research fields. In the field of mobile services, Wang (2005) and Wei (2009) define perceived cost as the degree to which a person considers the use of mobile services to be expensive. When studying consumers' willingness to use mobile banking, Kleijnen (2004) and Lin (2005) defined perceived cost as the money an individual spends in order to use mobile banking. The basic function of mobile payment is to realize the transfer of monetary funds. As far as money transfer business is concerned, perceived cost will have an impact on adopting technology adoption behavior (Pavlou, 2003[12]). Numerous empirical studies in developing countries confirm that perceived cost negatively affects users' willingness to use mobile services.

3.   Research Hypotheses and Model

3.1.   Research Hypotheses

3.1.1. Subjective Norms

Subjective Norms refer to the ways in which perceptions of related groups or individuals (such as family members, friends, and peers) may influence how a person behaves. Ajzen defines subjective norm as perceived social pressure to take or not to take a certain behavior. People form a belief about whether certain behaviors are acceptable or not. This belief shapes a person's perception of an action and determines a person's disposition to take or not to take that action. Subjective norms are determined by Normative Beliefs and Motivation to Comply. Subjective beliefs relate to whether the target group agrees with the action. The greater the group's support for the behavior, the more likely the individual is to adopt the behavior, and vice versa. Compliance motivation refers to an individual's motivation to comply with social norms. If a person deems a certain behavior acceptable, he succumbs to social pressure to take that behavior, and vice versa.

In a voluntary environment, subjective norm affects intention to use mainly through perceived usefulness. In view of the re-emergence of the epidemic in Vietnam in 2021, which has led to the implementation of social distancing measures in some large cities, and many infected cases are due to direct contact, the government therefore encourages the use of contactless payment and delivery for all people to reduce the risk of infection. This move is likely to affect consumers' perceived usefulness and willingness to use mobile payments. Based on this, this paper proposes the following assumptions:

H1a: Subjective norms have a positive impact perceived usefulness.

H1b: Subjective norms have a positive impact on intention to use.

3.1.2. Reachability

The reachability of mobile devices enables people to connect anytime and anywhere and provides users with the option of restricting to specific times and objects (Au and Kauffman, 2008[13]). Based on this, this paper defines the reachability of mobile payment as the attribute that users can access their system anytime and anywhere, make mobile payment and manage personal payment status and information. In the context of the global popularity of the Internet, users need to be connected to the Internet to access personal information on mobile payment applications or perform other operations, including mobile payments. The reason for the slow development of mobile payment in Vietnam is that, on the one hand, many stores have not yet opened mobile payment as a payment method, making it impossible for users to make mobile

payments. payment service provider. If the user's mobile payment applicationlication is different from the applicationlication that the store accepts payment, the user must download another applicationlication to conduct mobile payment, and it takes extra time and effort to use it. At this time, the customer feels that the use of mobile payment has brought him inconvenience and inconvenience. trouble.

Therefore, if a mobile payment service provider can improve the reachability of users, the easier it is to win the favor of users. Whether users choose mobile payment in the process of consumption depends on the reachability of mobile payment. If the user knows the convenience and speed of using mobile payment and is willing to use it, but if the store does not accept the mobile payment method, the user can only choose other payment methods. Therefore, if they can access their personal status and payment status anytime and anywhere, users will feel that mobile payment is very convenient, which can improve efficiency (save time) without having to go out with cash (reduce the risk of being robbed), so they are more willing to participate in mobile payment. Therefore, this paper proposes the following assumptions:

H2a: reachability has a positive impact on usefulness.

H2b: reachability has a positive impact on intention to use.

3.1.3. Personal Innovativeness

According to Lai et al. (2005), personal innovativeness is explained as the tendency of an individual to try any new technology. Innovative people have also been shown to be highly communicative, curious, adaptable, highly motivated, and have a tendency to pursue adventure and excitement. Highly innovative people adopt earlier or are more willing to try new technologies (Tariq, 2007)[14]. In addition, innovative people will be more adaptable than the average person, can quickly master technical operations, so it is easier to use a new technology. Similarly, people who are interested in technology will be more willing to try and experience mobile payment than the average person, and they will actively explore and touch all the functions of mobile payment application in the process of using mobile payment technology. In the initial stage of promoting their mobile payment application, many service providers will solicit the opinions of highly innovative people, and modify and optimize the application accordingly to improve the user experience. Therefore, personal innovation plays an important role in researching users' willingness to use. Personal innovativeness may not only affect a person's willingness to use through perceived ease of use, but also directly affect the willingness to use. Based on this, this paper proposes the following assumptions:

H3a: Persoanl innovativeness has a positive impact on perceived ease of use.

H3b: Persoanl innovativeness has a positive impact on intention to use.

3.1.4. Mobile Payment Knowledge

A person's knowledge will determine his perception of the outside world. Likewise, an individual's mobile payment knowledge will affect their perception of mobile payment, including their willingness to use. When computer technology, the Internet and smart phones were in the initial stage of development, most ordinary people or non-professionals were very unfamiliar with these new technologies, and they had to go through a process of training and exercise before they could master the operation. However, with the development and popularization of these technologies, most people in this day are relatively proficient in the basic operations of computers, the Internet, and smartphones, and even non-professionals can perform basic operations. Research by Rieh (2004)[15]shows that network experts tend to use their experience and knowledge for information processing and can easily divide relevant and irrelevant information. Users with sufficient knowledge of mobile payment services are more likely to find mobile payment easier to use and master than users who lack such knowledge. Kim et al (2009) believe that people who have experience in using mobile services and people who are not afraid of revealing their personal information are more willing to gain more

experience through mobile payment. Based on this, this paper proposes the following assumptions:

H4a: Mobile payment knowledge has a positive impact on perceived ease of use.

H4b: Mobile payment knowledge has a positive impact on usage intention.

3.1.5. Perceived Risk

Under the background of all kinds of fraudulent behaviors hidden in cyberspace at any time, users' precautionary psychology and vigilance awareness are getting stronger and stronger. The mobile payment platform involves not only the user's personal information, but also various bank account numbers and passwords, financial transactions, and personal financial status. Therefore, even those who have the basic knowledge of mobile payment will feel a certain risk of using mobile payment and the Internet. And these risks can be a key barrier to using mobile payments for many people. Potential users of mobile payment will weigh the pros and cons of mobile payment to decide whether to use mobile payment. If a person has a strong perceived risk of mobile payment, he is likely to be reluctant to use mobile payment for fear of encountering potential risks. Therefore, perceived risk is an important factor that directly affects the willingness to use mobile payment. Thus, the study hypothesizes the following:

H5: Perceived risk has a negative impact on intention to use.

3.1.6. Perceived Usefulness

The original TAM model stated that the most direct influence on a person's willingness to use a new technology is the usefulness of the technology. At the time, perceived usefulness was defined as the degree to which a person believed that using a certain technology would increase his productivity. However, given the current era, the use of mobile payments is mostly a voluntary environment and a way of life. Therefore, this paper slightly adjusts and concretizes the original concept of perceived usefulness of the TAM model, that is, the degree to which a person believes that using mobile payment can improve the efficiency of his life. Thus, the study hypothesizes the following:

H6: Perceived usefulness has a positive effect on intention to use.

3.1.7. Perceived Ease of Use

Perceived ease of use has always been a key variable in the TAM model, and the original model proposed that perceived ease of use can affect users' perceived usefulness and willingness to use at the same time. According to this, at the beginning of contact with a new technology - mobile payment, if users feel that the mobile payment application is difficult to operate and use, and even takes a lot of energy and time to become proficient, they may reject it and stop trying it. However, at this stage, if the mobile payment application allows users to quickly adapt and operate easily, users will feel that mobile payment may not take much time or effort to operate, and continue to use and be interested in exploring the application's functions. Ease of use is a prerequisite for users to perceive other conveniences in mobile payment. Because, even if it is a useful new technology, if the operation is difficult for users to control, they will not be willing to use it. Therefore, as a technical application for mass users, ease of use plays an important role, and it is a decisive factor for users to decide whether to continue exploring and using mobile payment technology. Based on this, this paper proposes the following assumptions:

H7: Perceived ease of use has a positive impact on intention to use.

3.1.8. Perceived Cost

As mentioned earlier, the perceived cost referred to in this article refers to the tangible cost of money. Correspondingly, the perceived cost of mobile payment is the money that consumers pay to use mobile payment, including traffic fees, transfer fees, cash withdrawal fees, and other fees paid in addition to purchasing products and services during mobile payment transactions. The perceived cost of mobile payment will directly affect users' willingness to use. Users

compare mobile payments with other payment methods and thus develop a perception of the cost of using mobile payments. For example, in the process of using mobile payment, users will compare it with traditional payment methods or card swiping methods. If the required cost exceeds the user's ability to bear, or far exceeds the cost of using other payment methods, the user is likely to stop using it. . On the contrary, if the cost of using mobile payment is within the acceptable range of the user, or the benefit that can bring to the user exceeds its cost, the user will continue to use it and recommend it to others. Therefore, the higher the user's perception of the cost of using mobile payment, the less willing they are to use mobile payment. Based on this, this paper proposes the following assumptions:

H8: Perceived cost has a negative impact on intention to use.

3.2.   Research Model
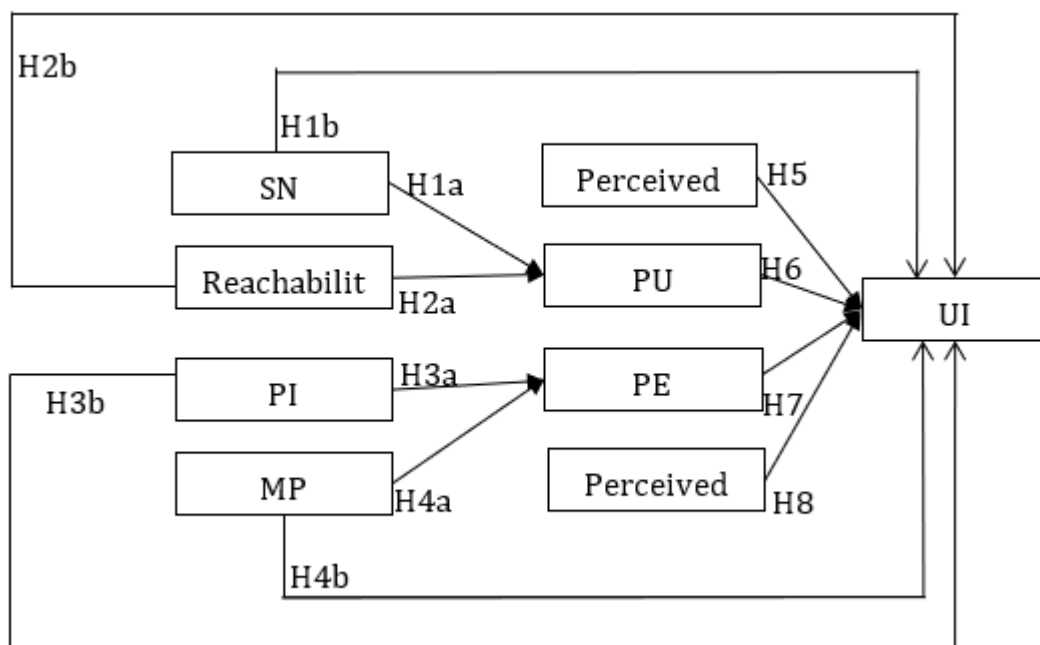
The research model of this paper is as follows:

Fig 1. Research model

4.   Research Methods

4.1.   Questionnaire Survey Method

Based on the previous research results, this paper first designs the first draft of the research questionnaire, then seeks opinions from experts in the mobile commerce service industry to revise the questionnaire in order to optimize and form the final draft of the questionnaire, and finally distribute the questionnaire to conduct a large-scale survey. The questionnaire is divided into two parts: the first part explains the research topic, the purpose of the questionnaire and collects the most basic personal information of the participants such as gender, age, education level, income and consumption; the second part is based on the cognition and use of mobile payment. Questions to study participants' specific perceptions and evaluations of it. The questionnaire used a Likert scale to measure participants' attitudes on a scale of "completely disagree", "disagree", "not sure", "agree", and "completely agree", respectively.

4.2.   Statistical Analysis Method

The reliability, validity and covariance structure analysis of the collected data were carried out through statistical analysis software SPSS 20 and AMOS 24 to test the hypothesis, and to explain the influencing factors and degree of influence of the willingness to use mobile payment in Vietnam through the test results.

5.   Emperical Analysis

5.1.   Demographic Analysis

This paper uses SPSS 20 to descriptively analyze the sample, including the most basic information of the sample such as gender, age, education level, work, etc. and the current situation of mobile payment use, such as daily use frequency, purpose of use, and the most commonly used mobile payment applications.

1) Gender: Among the 397 respondents, 234 were women, accounting for 58.9%. The remaining 163 were male, accounting for 41.1%.

2) Age: The results of the analysis showed that 361 respondents were between the ages of 18 and 30, accounting for 90.0%, and 25 were between the ages of 31 and 45, accounting for 6.3%. It can be seen that most of them are young people willing to participate in this survey. Mobile payment is an emerging technology and payment method in Vietnam, so young people are likely to be more willing to try and adapt to new technologies than other age groups. Therefore, the age distribution is reasonable.

3) Education level: Most of the respondents were undergraduates and masters, 278 and 70, accounting for 70% and 17.7% respectively. There are 29 doctors and above, accounting for 7.3% of the total number. College and high school and below had the fewest numbers at 15 and 5, respectively.

4) Work situation: According to the statistical results of the sample data, it can be seen that most of the respondents are office workers and college students, accounting for 47.4% and 33% respectively. Freelancers accounted for 13.4% of the total, while other types of work and retirees accounted for 5.2% and 1%, respectively.

5) Average monthly income amount (VND). The average monthly income of 10,000,000 – 18,000,000 VND was the largest, with 193 people, accounting for 48.6% of the total sample. Followed by those with a monthly income of less than 10,000,000 and 18,000,000 – 26,000,000 VND, the numbers were 127 and 60 respectively, accounting for 32% and 15.5%. It can be seen that most of the respondents are office workers and college students, so the distribution of monthly income is reasonable.

6) Average monthly consumption amount (VND). The average monthly consumption of 6,000,000 – 13,000,000 VND is the largest, with 201 people, accounting for 50.6% of the total. This is followed by those with monthly consumption below 6,000,000 and 13,000,000 – 19,000,000 VND, with 122 and 35 people, accounting for 30.8% and 8.9% of the total.

5.2.   Reliability and Validity Analysis

Cronbach's Alpha test is a common method for measuring the reliability of scales. The purpose of the Cronbach test is to test for consistency within variables and whether the observed variables measure, explain, or reflect the same concept or phenomenon. When conducting validity analysis, first ensure that the corrected item-total correlation coefficient of each variable is greater than 0.3. If the corrected item-total correlation coefficient of any variable is less than 0.3, it is necessary to delete that variable, and then re-run. Conduct reliability analysis. After that, the alpha value fluctuates from 0 to 1, and the closer the alpha value is to 0, the worse the internal consistency. Conversely, the closer the Alpha value is to 1, the more consistent the

variable is. The Alpha value of each factor is greater than 0.6, indicating that the scale can be used for new research, and less than 0.6 means the scale is unqualified. The Alpha value is between 0.7 and 0.8, indicating that the scale has good reliability. The Alpha value is between 0.8 and 1, reflecting the reliability of the scale is very good. Therefore, a qualifying variable requires that the correlation coefficient of the adjusted item total score is greater than 0.3, and the Alpha value of the factor must be at least greater than 0.6.

The results of validity analysis and reliability analysis are shown in the following table:

Table 1. Results of reliability test and valid test

Item	Factors Group									Reliability
	1	2	3	4	5	6	7	8	9	
PU2	.805									
PU1	.784									
PU3	.742									0.833
PU4	.632									
PE3		.912								
PE2		.895								
PE4		.606								0.862
PE1		.520								
RE4			.786							
RE1			.745							
RE2			.738							0.838
RE3			.734							
SN1				.741						
SN3				.735						
SN2				.694						0.800
SN4				.670						
PC3					.726					
PC2					.718					
PC4					.712					0.808
PC1					.711					
MK2						.843				
MK1						.770				0.827
MK3						.750				
PI2							.889			
PI3							.630			0.762
PI1							.613			
PR2								.869		
PR1								.708		0.771
PR3								.618		
UI2									.904	
UI3									.807	0.886
UI1									.714	
Accumulative distribution (%)	20.35	28.69	35.14	40.78	46.25	50.68	53.9	56.93	59.03	

Validity analysis mainly includes content validity and construct validity. Content validity represents whether a variable or item can measure a phenomenon or hypothesis. Construct validity refers to the degree of correspondence between the construct and the measured value.

In this paper, SPSS 20 software was used to test the validity by Exploratory Factor Analysis (EFA). In view of the fact that the model structural equation model will be used to verify the analysis method later, the main axis factor method has been used as the extraction method and the rotation method is the orthogonal rotation axis method when the factor analysis is carried out in this paper, and all variables are rotated at one time. Table 6.6 is a table of load coefficients due to play after rotation. It can be seen that most of the load coefficients of each variable are greater than 0.6, and the discrimination between each variable in the factor is guaranteed, showing good statistical significance. Therefore, there is no need to delete any variables.

5.3.   Research Model Evaluation

Model fitness is to test how well the model fits the data. Currently, Hu & Bentler (1999) and Hair et al. (2010)[16], the best-fit standard values proposed by both are most commonly used. Most of the optimal normative values are similar, Hair et al and Hu & Bentler pay more attention to the ratio of chi-square degrees of freedom (CMIN/df), comparative fit index (CFI), goodness of fit (GFI) and Approximation Root Mean Square Error (RMSEA) for these metrics. For GFI, NFI, and AGFI index values, depending on the sample size and the number of observed variables, the ideal state of the index value is greater than 0.9. However, if the sample size exceeds 250, an indicator value greater than 0.8 is already within the acceptable range.

Table 2. Measure of model fitness

Model fitness figure	Optimal standard value	Index Value	Results
CMIN/df	< 0.3: Good	1.706	Pass
CFI	> 0.9: Good	0.945	Pass
GFI	> 0.8: Acceptable > 0.9: Good	0.896	Pass
NFI	> 0.7: Acceptable > 0.9: Good	0.877	Pass
AGFI	> 0.7: Acceptable > 0.9: Good	0.871	Pass
TLI	> 0.9: Good	0.936	Pass
RMSEA	< 0.6: Good	0.042	Pass
PCLOSE	> 0.05: Good	0.994	pass

5.4.   Hypothese Testing

Path analysis can be used not only to test hypotheses, but also to test the degree to which independent variables affect dependent variables. This paper tests 12 research hypotheses through path analysis, and the specific results are shown in Table 3. It can be seen that there are three hypotheses whose P values are greater than 0.05 (0.752, 0.063 and 0.306, respectively), indicating that the results are not significant, that is, perceived cost has a negative impact on willingness to use (H8), reachability has a positive impact on willingness to use (H2b) and mobile payment knowledge have a positive impact on willingness to use (H4b), these 3 hypotheses are not supported.

As can be seen from Table 3, the standardized coefficient of each hypothesis, that is, the degree of influence of the independent variable on the dependent variable, a higher standardized coefficient indicates a stronger degree of influence. reachability compared with subjective norm, reachability has a more positive effect on perceived usefulness. Personal innovation has a more positive impact on perceived ease of use than mobile payment knowledge. Perceived usefulness has the greatest impact on use intention (0.473), followed by perceived ease of use (0.292) and personal innovation (0.165).

Table 3. Path analysis result

Path analyis			Unstandardized coefficients	standardized coefficient	P value	Hypothese status
Perceived Usefulness	<---	Subjective Norms	.322	.232	***	Pass
Perceived Usefulness	<---	Reachability	.285	.248	***	Pass
Perceived Ease of Use	<---	Personal Innovativeness	.275	.322	***	Pass
Perceived Ease of Use	<---	MP Knowledge	.195	.177	.004	Pass
Usage Intention	<---	Perceived Cost	-.016	-.016	.752	Failed
Usage Intention	<---	Perceived Risk	-.097	-.112	.023	Pass
Usage Intention	<---	Perceived Usefulness	.505	.473	***	Pass
Usage Intention	<---	Perceived Ease of Use	.305	.292	***	Pass
Usage Intention	<---	Subjective Norms	.170	.115	.025	Pass
Usage Intention	<---	Reachability	.113	.092	.063	Failed
Usage Intention	<---	Personal Innovativeness	.147	.165	.006	Pass
Usage Intention	<---	MP Knowledge	.063	.055	.306	Failed

The above empirical analysis results show that the factors that affect users' willingness to use mobile payment include subjective norm, innovation, perceived risk, perceived usefulness and perceived ease of use. Among them, subjective norm and user innovativeness directly and indirectly have a positive impact on the willingness to use, perceived risk has a negative impact on the willingness to use, and perceived usefulness and perceived ease of use have a direct positive impact on the willingness to use. reachability and mobile payment knowledge indirectly affect users' willingness to use through perceived usefulness and perceived ease of use, respectively. reachability has a positive impact on users' perceived usefulness, personal innovativeness and mobile payment knowledge have a positive impact on perceived ease of use. However, reachability, mobile payment knowledge and perceived cost do not directly affect users' willingness to use mobile payment.

Reachability represents the level at which a product or service can reach customers. Promotional activities can make more consumers aware of a certain product or service, but reachability is the measurement variable that represents the user's ability to access the mobile payment application when needed, so reachability is the basic condition for using mobile payment. In the modern era, smart mobile devices have a high popularity, and it seems that everyone can own a mobile phone. Therefore, for applications on mobile devices such as mobile payment applications, reachability may be defaulted by users as a necessary condition rather than a sufficient condition. Therefore, reachability does not have enough influence to directly affect users' willingness to use a payment application. However, reachability still plays an important role in users' perceived usefulness of mobile payments.

At present, the design of most applications on mobile phones is developing towards the direction of simplicity, human-friendly and easy adaptation, and mobile payment applications are no exception. Today's human beings live in an era of highly developed and widely used information technology, so for many people (especially young people or people with higher cultural levels), learning to operate an application is a very simple thing, no need a prerequisite for knowledge of information technology or mobile payments. Therefore, mobile payment knowledge is not enough to directly affect a user's willingness to use mobile payment. Although mobile payment knowledge can affect users' evaluation of the perceived ease of use of a certain mobile payment, through empirical testing, users' willingness to use mobile payment does not depend on their mobile payment knowledge.

The tangible costs incurred in order to use the mobile payment application may include mobile device, traffic fees, transfer fees, and withdrawal fees. Through empirical testing, the hypothesis that perceived cost has a negative impact on intention to use does not supported. The reason may be that the popularity of mobile devices is high, and there are few cases where mobile payment cannot be used because there is no mobile device. Moreover, mobile service providers often offer data combo, and various mobile payment service providers also offer free or very low withdrawal or transfer fees for competition. Therefore, the perceived cost studied in this paper does not affect users' willingness to use mobile payment, or is within the user's acceptance range. The reason users do not choose a certain mobile payment may be because they prefer other payment methods, or other mobile payment applications.

6. Conclusion and Countermeasures

6.1. Conclusion

By reading the relevant research literature, this paper understands the basic overview of mobile payment and its related theoretical basis, and sorts out multiple influencing factors of users' willingness to use mobile payment. In view of the lack of a comprehensive model in the field of research on Vietnamese consumers' willingness to use mobile payment, this paper decides to build a model based on the Technology Acceptance Model (TAM), focusing on the perspective of consumers, plus social factors, system factors, personal factors, perceived costs, and measured variables of perceived risk, and proposed 12 hypotheses. Then, empirical tests are carried out by SPSS 20 and AMOS 24 statistical analysis.

6.2. Countermeasures

Based on the above empirical research results, this paper proposes the following countermeasures and suggestions to enhance the willingness of Vietnamese consumers to use mobile payment.

1) Improve mobile payment market promotion

At present, the groups most exposed to information technology are still young people. Generation Z is a group of people born between 1995 and 2012. This group is considered to be a generation born and raised at the height of information technology when many changes in the consumer market are taking place. The Vietnamese market is no exception. E-commerce is full of development opportunities and potential, and Generation Z will become the main consumer. According to statistics, in 2021, Generation Z will account for more than 60% of online shopping consumers. Therefore, specific metrics related to Gen Z behaviors and preferences will help mobile payment service providers understand general trends in the industry, which will also help in formulating their business strategies. In order to allow the mobile payment application to reach more users, especially young people, KOL (Key Opinion Leader-Key Opinion Leader-Key Opinion Leader/Internet Red Person) can be used to advertise, and combine more and better trends to attract users' attention. Gen Z is a sales group who is happy to be with

influencers and trends and is easily influenced by online phenomena. Therefore, celebrities and internet celebrities who are influential to young people can be used to advertise to attract more users' attention and curiosity. Young people also like to recommend good products and services to those around them. In this way, more users can try to use and operate mobile payment applications, thereby increasing the conversion rate. This is how the user's willingness to use is improved from the subjective norm.

2) Improve the quality of mobile payment platforms

A- Improve the accessibility of mobile payment applications: mobile payment service providers need to cooperate with more stores to ensure that when users need mobile payment, they will not stop mobile payment due to the limitation of choice. Reachability plays an important role in users' perceived usefulness of mobile payment applications. When the user needs, if he can make payment through his favorite mobile payment application, he will also think this application is very useful, thus affecting his willingness to use. On the contrary, if the user can't access the favorite mobile payment application when he needs it, he will think that the application is not very useful and will not use it again. Therefore, the mobile payment service provider needs to ensure that the mobile payment application can be accessed and operated when the user needs it.

B- Improve the user's perceived usefulness of the mobile payment application: Through inspection, perceived usefulness is the most influential factor of users' willingness to use mobile payment. The functionality of a mobile payment application will determine the user's acceptance of its usefulness. While promoting its convenience, mobile payment service providers need to ensure that the benefits users expect when using mobile payment can be realized. Users expect the benefits of mobile payment to improve life efficiency, including saving time, quickly grasping their financial situation, useful financial tools, reducing the risk of carrying wallets or money when going out, more and more preferential e-coupons, providing AA system records account function, etc. In addition, mobile payment service providers can provide more functions and increase the benefits users get from participating in the mobile payment process.

C- Improve the user's perceived ease of use of the mobile payment application: Although Gen Z is a group that can easily and quickly adapt to new information technology, mobile payment service providers need to ensure that not only young people but other groups can adapt to the operation without much effort and time. The mobile payment application needs to develop towards a more simple and fully functional design to ensure that minors, middle-aged and elderly people, those who have not been exposed to mobile payment applications, or who do not have knowledge about mobile payment can also easily operate. In addition, user guidance and instructions can also be inserted in publicity to help more groups become familiar with operations and pages.

D- Reduce the user's perceived risk to the mobile payment application: With the development of the times, people's risk awareness of mobile payment is also increasing. First of all, because many people are highly concerned about their privacy issues, mobile payment service providers must ensure that all personal information of users is completely protected during the mobile payment process. Secondly, to reduce the risk of money being stolen, mobile payment service providers need to use the most advanced and secure payment technology (for example, the current face recognition payment technology is a relatively advanced one). In addition, mobile payment service providers should continuously develop new technologies for telecommunication network fraud, improve anti-fraud mechanisms and methods, and at the same time conduct anti-fraud publicity to improve users' awareness of fraud prevention. Finally, in order to reduce users' concerns about the unsmooth mobile payment transaction, mobile payment service providers can send notices to customers before the system is updated, and can provide hotlines to help customers quickly solve problems at any time.

3) Focus on user experience and innovation

The test results show that innovative users are more willing to participate in the use of mobile payment, and this group also finds it easier to use mobile payment applications. Therefore, in order to attract such groups, mobile payment applications need to increase the innovativeness felt by users in the process of use. Personalizing mobile payment applications will be a new trend in the future. In the era of high innovation of users, while ensuring that mobile payment brings convenience to users, personalization will make the mobile payment application unique. Mobile payment service providers can allow users to design pages and icons on the application while ensuring complete functions. Users can have more space to develop their own creativity and have their own unique payment tools.

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