FACTORS AFFECTING CONSUMER INTENTION TO USE MOBILE PAYMENT AT PHYSICAL RETAIL PLACES IN HANGZHOU, CHINA

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Abstract

This research aims to investigate the influential factors affecting consumers' intention to use mobile payment at physical retail places in Hangzhou, China. Base on Technology Acceptance Model (TAM). According to the model and theories, external variable of perceived risk, situational factor and social influence are added to build the conceptual framework model. Quantitative research method and primary data is used in this research. The scope of this survey is a random survey within the area of Hangzhou, China, the survey method adopted is the questionnaire survey.

The result shows: Perceived usefulness and perceived ease of use constitute two indispensable effects on the intention to use. Perceived ease of use also has a significant impact on perceived usefulness. Perceived risk has significant but negative impact on the intention to use. Besides, situational factors indirectly affect intention to use by influencing perceived usefulness and perceived ease of use.

Key words: Consumer, Intention to Use, Technology Acceptance Model, Mobile Payment Service, Physical Retail Places.

Introduction

Background of research

A rising mobile payment trend inevitably thrives mobile Internet and intelligent terminals. First, it leads to a growing mobile payment. With the mobile Internet era opened, people have transferred from the personal computer to the mobile terminal (like mobile phones, tablet, etc.), which carries consumer situations, so mobile payment evolves to be an essential role in mobile Internet era.

As the year of 2011, China's mobile payment compared to U.S. there is only

twice amount of transaction scale. But in 2016, the gap became huge: Mobile payments in China were a $9 trillion market in 2016, according to iResearch, almost 80 times the size of the U.S. mobile-payment market of $112 billion, bases on data from research firm Forrester.

According to a report Beijing-based research consultancy Analysys released in April, 2017, China's online payment of the users has reached 531 million, increasing by 56.61 million to that the end of 2016, with a growth of 11.9% the online prepayment users is 68.8%. Mobile payment users, 527 million are growing in number; the annual growth is 12.3%. Mobile payment has leaped from 67.5% to 70.0%.

Statement of the problems

However, most consumers still watching and waiting towards mobile payments in offline situation. With the online mobile payment market being more and more saturated, the Mobile payment increment speed of growth has been slowing down as the following Figure 1 showed:

Figure 1 Year on year mobile payment growth rate

Different payment situations lead to significantly different consumer adoptions. Online payment means that consumers use mobile payments comes from the inevitably-chosen mobile online shopping and Internet finance. Physically retailing is derived from non-mobile payers accustomed to cash or bank card, credit card bill-arrangement. Additionally, the application of mobile payment security issues in physical retail places further causes more waiting-and-seeing consumers. Mobile payment has achieved success in providing subsidies and other

marketing methods for widening consumers. Actually, more new users will enter "invalid accounts", presenting an insubstantial breakthrough. This study aims to identify the influential factors of consumer intention to use mobile payment.
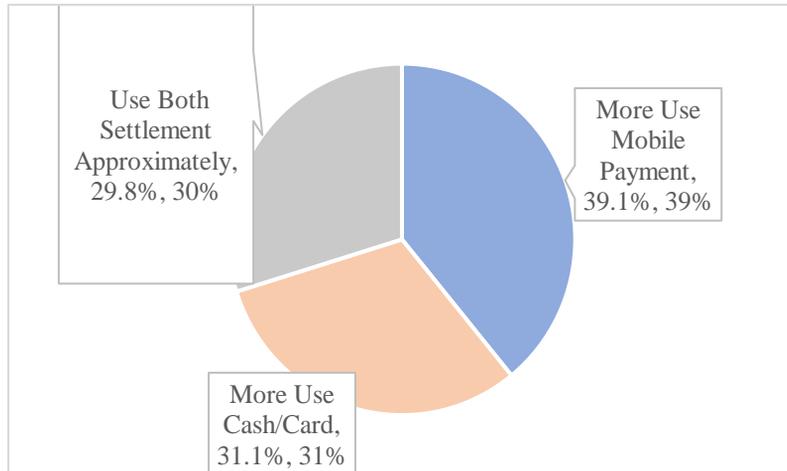

Figure 2 User settlement method of offline mobile payment

Significance of the study

Theoretically and practically, this research identified the impact factors of the consumers' intention in the offline payment scenario. Theoretically, despite some published researches on mobile payments, offline mobile payments is far from being perfect. The disparities in mobile payment purposes and environment between online and offline tends to lead consumers to all-sided thoughts. The research segments the mobile payment market by examining the influential factors the consumer's intention for further enriched and upgraded this theory.

Practically, based on mobile Internet promotion and mobile terminals popularity, mobile payment will penetrate all aspects of people's lives. With the growing competition, physical retail places is potential competitiveness for mobile-payment industry. However, the current market situation reveals the less anticipation value of their suppliers. It is valuable for the providers to explore the inflectional factors and an enhanced comprehensive payment industry.

Research Objectives

The objective this research is below:
(1) To investigate the factors affecting consumers intention to use mobile payment.
(2) To provide recommendations for enhancing the intention to use the mobile payment services.

Research questions

Base on the Research objective above, the research question as follows:

(1) What factors will affect consumers' intention to use offline mobile payments?
(2) How to provide recommendation for enhancing the intention to use the mobile payment services to mobile payment enterprises?

Scope of the study

The scope of this study is Hangzhou, China. The pilot city of cashless society, and China's largest mobile payment company - the location city of Alibaba.

Expected Benefits

Two benefits can be achieved at physical retail places:
(1) Segment the mobile payment market and expansion of research areas. The existing research is mainly focused on the research of mobile payment online, this study is focusing offline payment situation, and combine the theory model to analysis, the conclusion of this research is expected to make contribution to the future academic research related to E-commerce.
(2) The result providing similar enterprises and the providers with useful reference significance

Operational definition

The mentioned mobile payment at "physical retail places" or "offline scenes" mainly refers to consumers' purchase in offline physical places (including department stores, supermarket, convenience stores, restaurants, vending machines, public transportation, and parking lots). the payment method of bill payment is performed through the mobile payment technology (like scanning code payment, code payment, NFC payment, etc.). These are averagely committed through Alipay, WeChat Pay, and Apple Pay, etc.

Literature review
Intention to use of mobile payment research

The research of intention to use mobile payment based on consumer concentrates on the technology acceptance model and diffusion innovation model. Proposed by Fred D. Davis (1989), Technology acceptance model is made up of five factors: perceived usefulness, perceived ease of use, attitude, intention and actual use. This model is widely used in

information systems or information technology adoption research. Everett Rogers (1983) raised innovation diffusion model, believing that under the consumer acceptance of innovation level, consumers is composed of innovators, early adopters, early majority, late majority, and laggards. Innovation will be accepted by innovators then following the sequence until laggards, the whole innovation diffusion process will eventually show a "S" curve trajectory, the model is widely used in innovative diffusion behavior interpretation and prediction.

According to the technology acceptance model and the diffusion innovation model, the scholars mainly discussed the affecting factors of consumer use of mobile payment, including cost, convenience (Pousttchi, 2003), ease of use, usefulness (Dahlberg et al., 2003), risk, trust (Mallat, 2007), the speed of the transaction (Dewan and Chen, 2005), individual characteristics (Schierz et al., 2010), network externality (Mallat, 2007), System Stability (Lee and Warkentin, 2004), compatibility (Schierz et al., 2010), social impact (Mallat, 2007) and so on.

In China domestic market, the first type of research base on the technology acceptance model. Wu Xianfeng and Fan Jihong (2010) constructed a mobile payment use behavior model based on perceived risk based on the technology acceptance model and the factors that influence the consumer's acceptance and use of mobile payment. Chen Yang et al. (2014) combined the technology acceptance model with the technology preparation theory and studied the effects of perceived usefulness, perceived ease of use, discomfort, fun, innovation, and insecurity on consumer mobile payment adoption. Lei Jing and Li Xia (2014) introduced compatibility, perceived risk, subjective norms, and personal innovation, and studied consumer mobile payment adoption behavior.

The second is the research based on the integrated technology acceptance model. Chen Huaping and Tang Jun (2006) have added risk perceptions and costs, and empirically examined the impact of risk perception, cost, expected utility, hard work expectation, social influence, and convenience conditions on the intention to use mobile payments. Cao Yuanyuan and Li Qi (2008) added five cultural dimensions to the cultural latitude theory (power distance, individualism / collectivism, masculinization / feminization, uncertainty avoidance, long-term orientation/short-term orientation), explored the acceptance and use of mobile payment users in the context of Chinese culture. Cao Yuanyuan and Li Qi (2009), on the basis of the integrated technology acceptance model, added cost factors to verify the impact of cost, expected utility, hard work expectations, social influence, and convenience conditions on the intention to use mobile payments.

Third, research based on other theories. Yang Shuiqing et al (2011), based on trust transfer theory and potency theory, analyzed how Internet payment trust influences consumers' initial trust in mobile payments under mobile conditions, and empirically tests positive and negative use factors of mobile payment use intentions. influences. Yang Shuiqing et al. (2012) empirically analyzed the factors affecting the initial adoption behavior of mobile payment users based on the overall perspective of social influence, individual characteristics and technical attributes. Yang Yongqing (2012) further studied the consumer acceptance behavior of close-in mobile payments from the theory of perceived value and the theory of network externalities.

Factors affecting consumer intention to use mobile payment

From the previous research, scholars have conducted some research on mobile payment, but there are many researches on mobile payment in the general concept, and few studies on mobile payment in a certain market segment have been conducted. The study of mobile payment adoption behavior in offline scenes is almost blank. However, there are significant differences in consumer adoption behaviors in different payment environments. Therefore, this study will focus on the offline payment scene, to explore the factors that affecting consumers' intention to use mobile payments in offline payment scene, so as to provide corresponding recommendations for the promotion of mobile payment services in offline scenes. The research results of this research have a certain reference significance for the development of mobile payments in offline payment scenarios for companies in the mobile payment industry chain (such as mobile payment service providers, retailer, application providers, system integrators, equipment providers, financial institutions, etc.).

Related theories

Currently, Technology Acceptance Model (TAM) is widely used in the field of behavioral intention and behavior prediction.

Davis (1989) based on the Theory of Rational Action, extracted cognitive and emotional factors, led into the perceived usefulness and perceived ease of use, proposed the technology acceptance model to study the adoption of information systems or information technology. The basic theoretical framework of the technology acceptance model is shown in Figure 3.
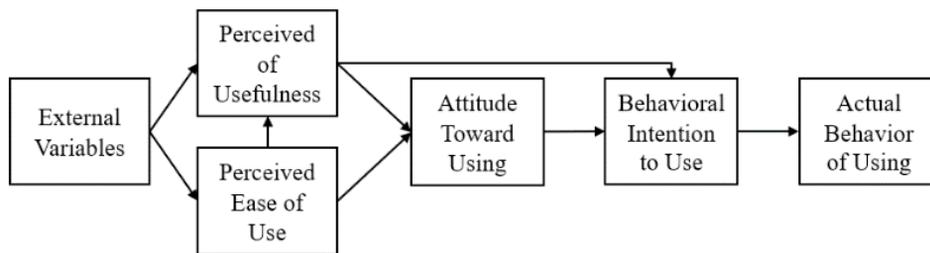
Figure 3 Framework of the technology acceptance model

According to the characteristics of different fields, scholars have extended the technology acceptance model, and added new variables in the traditional technology acceptance model.

In 2000, Venkatesh and Davis cut the influence of attitude on their intension and proposed TAM2. In the face of the same user groups and information systems, TAM2 can explain the user's decision changes better than the classic TAM. Based on the revision of TAM by IDT, the Innovation Diffusion Theory reveals the process of new technologies spreading in society. Innovation diffusion theory focus on new technologies and social behavior, while TAM more focus on technology and user behavior. After that, researchers Hemil (2005), Lei-da Chen (2000), Guo Junfeng (2007) and Zhang Nan, Guo Xunhua, Chen Guoqing (2007) introduced the IDT theory to the TAM of venkatesh.

External variables

(1) Situational Factors: Lavidge (1966) believes that all consumer decision-making behavior is generated in a certain situation, the consumer situation will have a certain impact on consumer decision-making behavior. Engle (1969) study shows that not only individual factors of consumers will influence consumers' decision-making behaviors, situational factors also influence consumers' decision-making behaviors., therefore, in order to better explain the decision-making behavior of consumers, the individual factors and situational factors of consumers should be considered.

(2) Social Influence: In social networks, everyone is affected by strong relationships, weak relationships, and the entire cultural environment in which they live. One's behavior will be influenced by the combined effects of subjective Norms. There are usually four types of peripheral factors, one is interpersonal relationships, including strong ties with parents, classmates, friends, relatives and friends, etc., Venkatesh & Davis defines social

influence as the degree to which individuals are aware of whether others think they should use new information technologies. Jiang Hailong believes that users are influenced by the specific feelings, thoughts and behaviors of a particular person or group, thus deciding whether their intention to use it. Consumers' thoughts and behaviors will not only be influenced by the society and the group they belong to, but also by the marketing and promotion activities of the main bodies in their market environment. Enterprises and businesses in the market environment can increase users' understanding and awareness of mobile payment through various forms of marketing and promotion activities, or attract consumers to try and use through some preferential activities.

(3) Perceived Risk: Pavlou's proposed extension of the technology acceptance model introduces perceived risk and also directly affects perceived usefulness. The basic theoretical framework of the extended technology acceptance model proposed by Pavlou is shown in the figure.
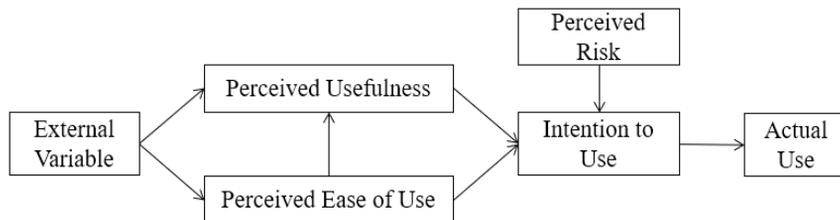

Figure 4 Extension of Technology Acceptance Model

Theoretical model / Conceptual framework

According to related literature research, integrate Technology Acceptance Model and The Unified Theory of Acceptance and Use of Technology Model, combine with the external variables. Therefore, the conceptual framework of the research is showed in the figure 5 below:
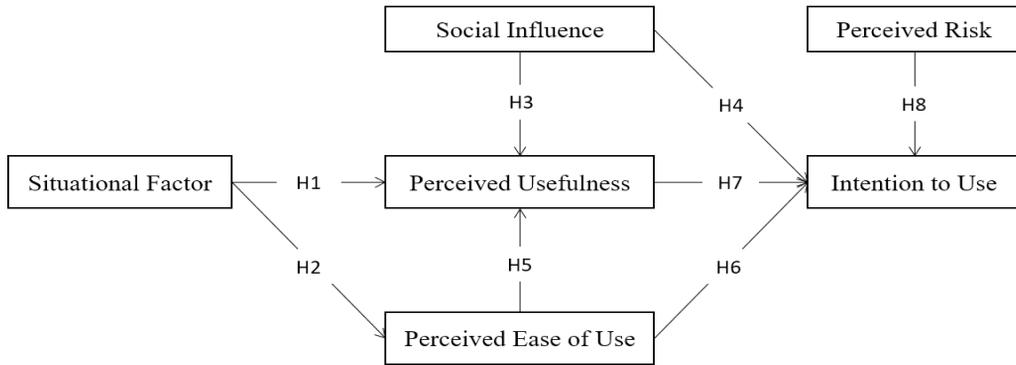
Figure 5 Conceptual framework of research

Hypothesis

According to the above research mode, the hypotheses of this research are respectively stipulated as follows:

H1: Situational Factor has a significant positive impact on the perceived usefulness of consumers using mobile payment in offline situation.

H2: Situational Factor has a significant positive impact on the perceived ease of use of consumers using mobile payment in offline situation.

H3: Social Influence has a significant positive impact on Perceived Usefulness of mobile payment in offline situation.

H4: Social Influence has a significant positive impact on intention to use of mobile payment in offline situation.

H5: Perceived ease of use has a significant positive impact on Perceived usefulness of mobile payment in offline situation.

H6: Perceived ease of use has a significant positive impact on intention to use of mobile payment in offline situation.

H8: Perceived Risk has a significant negative impact on consumers' intention to use mobile payment in offline situation.

Methodology

Research design and sample

This research is using quantitative research method by primary data. The survey method adopted is the questionnaire survey.

The scope of this survey is within the area of Hangzhou, China, the population of this research is uncertain. Therefore, the sample method is using the simple random sampling, the sample size base on the formula:

$$n = \frac{Z_{c.l}^2 \times P(1-P)}{E^2} \qquad (1)$$

Where

n = Sample size,

$Z_{c.l}^2$ *= Square of confidence level, was equal to 1.96 when confidence level is 95%.*

P = Estimated proportion of successes, basically is 0.5.

E^2 *= Square of the maximum allowance for error between the true proportion and the sample proportion. This research takes E = 5%.*

Finally, after calculation, the sample size is 384.

Considering that after the questionnaire is issued, it can not be fully recovered, even if it is fully recovered, it can not guarantee that all the questionnaires are effective. Therefore, it is necessary to adjust the sample size. The sample size before adjustment divided by the effective response rate is equal to the adjusted sample size. The effective question and answer rate needs to be determined based on actual experience or the results of preliminary surveys. The adjusted sample size is the sample size to be issued by our formal questionnaire. According to the adjustment, we finally determined the sample size to be 540 copies.

Data collection

From July 25, 2018 to August 25, 2018.540 questionnaires was distributed. The distribution process mainly divided into two different ways to distribute

questionnaires. One is the online questionnaire survey. By filling out the online questionnaire form, attaching a questionnaire link to social media groups such as WeChat, Weibo, QQ and other social media groups for questionnaire distribution. The other is to distribute questionnaires on the street.

Data analysis
Summary of basic data collection

The survey object of this thesis is Hangzhou citizens. The questionnaires are mainly distributed in the form of field visits and online questionnaires, which largely guarantees the recovery rate and efficiency of the questionnaire. After a three-month questionnaire distribution, all the questionnaires were collected. A total of 540 questionnaires were distributed,

and a total of 422 questionnaires were returned, of which 385 were determined to be valid questionnaires.

Reliability analysis

The reliability test is aim to test the reliability, consistency and stability of the experimental results. The higher the reliability, the more stable and reliable the test results are. The data for this study were obtained at similar times and were obtained through questionnaires. Therefore, this study uses the internal consistency coefficient to test the reliability of experimental data. The internal consistency coefficient of questionnaire data is generally measured by using the Cronbach alpha coefficient.

Table 1 Cronbach's alpha test results

Factors	Variables	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Perceive Ease of Use	A1	.744	.843	
	A2	.701	.853	
	A3	.693	.855	.878
	A4	.688	.856	
	A5	.724	.849	
Perceive Usefulness	B1	.695	.868	
	B2	.747	.856	
	B3	.696	.869	.886
	B4	.723	.862	
	B5	.765	.852	
Perceive Risk	C1	.789	.838	
	C2	.715	.857	
	C3	.681	.865	.882
	C4	.733	.852	
	C5	.672	.866	
Situational Factor	D1	.767	.787	
	D2	.626	.825	
	D3	.604	.831	.848
	D4	.615	.829	
	D5	.678	.812	
Social Influence	E1	.770	.868	
	E2	.704	.876	
	E3	.668	.881	
	E4	.686	.879	.894
	E5	.649	.883	
	E6	.674	.880	
	E7	.699	.878	
Intention to use	F1	.773	.827	
	F2	.669	.851	
	F3	.709	.841	.871
	F4	.660	.854	
	F5	.684	.848	
Total				.860

The table above shows the Cronbach's Alpha values obtained by statistical analysis of collected data. Cronbach's Alpha was greater than the critical value of 0.8, indicating high reliability of the measurement model has high reliability, indicating that it has good stability and reliability, and the measurement model has passed the reliability test.

Validity analysis

The Composite Reliability (CR) value and the Average Variance Extracted (AVE) value were used as the evaluation criteria for the convergence validity. The test results of convergence validity and discriminant validity are listed in the Table 2.

Table 2 Confirmatory factor analysis for variables and AVE, CR value

			Factor Loading	AVE	CR
A1	<---	Perceive Ease of Use	0.789		
A2	<---	Perceive Ease of Use	0.762		
A3	<---	Perceive Ease of Use	0755	0.592	0.879
A4	<---	Perceive Ease of Use	0.742		
A5	<---	Perceive Ease of Use	0.797		
B1	<---	Perceive Usefulness	0.755		
B2	<---	Perceive Usefulness	0.808		
B3	<---	Perceive Usefulness	0.742	0.611	0.887
B4	<---	Perceive Usefulness	0.771		
B5	<---	Perceive Usefulness	0.829		
C1	<---	Perceive Risk	0.863		
C2	<---	Perceive Risk	0.781		
C3	<---	Perceive Risk	0.727	0.602	0.883
C4	<---	Perceive Risk	0.785		
C5	<---	Perceive Risk	0.714		
D1	<---	Situational Factor	0.843		
D2	<---	Situational Factor	0.682		
D3	<---	Situational Factor	0.674	0.537	0.852
D4	<---	Situational Factor	0.700		
D5	<---	Situational Factor	0.750		
E1	<---	Social Influence	0.826		
E2	<---	Social Influence	0.749		
E3	<---	Social Influence	0.715		
E4	<---	Social Influence	0.722	0.548	0.894
E5	<---	Social Influence	0.698		
E6	<---	Social Influence	0.721		
E7	<---	Social Influence	0.744		
F1	<---	Intention to use	0.837		
F2	<---	Intention to use	0.727		
F3	<---	Intention to use	0.779	0.582	0.874
F4	<---	Intention to use	0.718		
F5	<---	Intention to use	0.747		

In addition, when the square root value of AVE of each factor is higher than the correlation between the factor and other factors, the discriminant validity is great. As the table 2 is shown below, the square root of AVE is greater than the phase relation value with other factors, which means that the discriminant validity between internal factors of each variable is at high level.

Table 3 Square root of AVE value with Pearson correlation value.

		Situational Factor	Social Influence	Perceive Risk	Perceive Ease of Use	Perceive Usefulness	Intention to use
Situational Factor	Pearson Correlation	**0.732**					
Social Influence	Pearson Correlation	.420**	**0.740**				
Perceive Risk	Pearson Correlation	-.418**	-.404**	**0.776**			
Perceive Ease of Use	Pearson Correlation	.478**	.358**	-.267**	**0.769**		
Perceive Usefulness	Pearson Correlation	.373**	.362**	-.315**	.338**	**0.782**	
Intention to use	Pearson Correlation	.442**	.531**	-.388**	.411**	.413**	**0.763**

* bold black font is the square root of the Ave value

Structural equation model fit analysis

Structural Equation Modeling (SEM) is also known as Covariance Structural Model, which is an important tool for multivariate analysis.

According to the theoretical model and hypothesis proposed in the previous chapter, the corresponding structural equation was established, and AMOS software was used to perform the relevant fitting degree test analysis. In this paper, the maximum likelihood method is used to estimate the relevant parameters of the model. In addition, the evaluation criteria for the model are also debated in the industry. Currently, it is generally accepted that the relative index (NFI) is greater than 0.9, and RMSEA is below 0.05, which means that the model fits well, and the range between 0.05 and 0.008 is acceptable. Wen Zhonglin, Hou Jietai and Marsh Herbert proposed in 2004 that the critical value of CFI was 0.9 (the larger the better), the critical value of MC was 0.85 (the larger the better), and the critical

value of RMSEA was 0.08(the smaller the better). In addition, the model was better when the value of minimum discrepancy divided by its degrees of freedom was smaller. The criteria for testing the fit index and the results of this study are as follows:

Table 4 Structural equation model fit test

CMIN	df	CMIN/DF	NFI	IFI	GFI	CFI	RMSEA
637.247	449	1.419	0.909	0.971	0.906	0.971	0.033
Suggested value		<3	>0.90	>0.90	>0.90	>0.90	<0.08

Each fitting index of the SEM model reached the recommended value, so the fitting effect of the model is high. Therefore, no model modification is required.

Path analysis of structural equation model

In this study, AMOS software was used for Path Analysis. The Path Diagram of the Structural Model is shown in Figure 6.
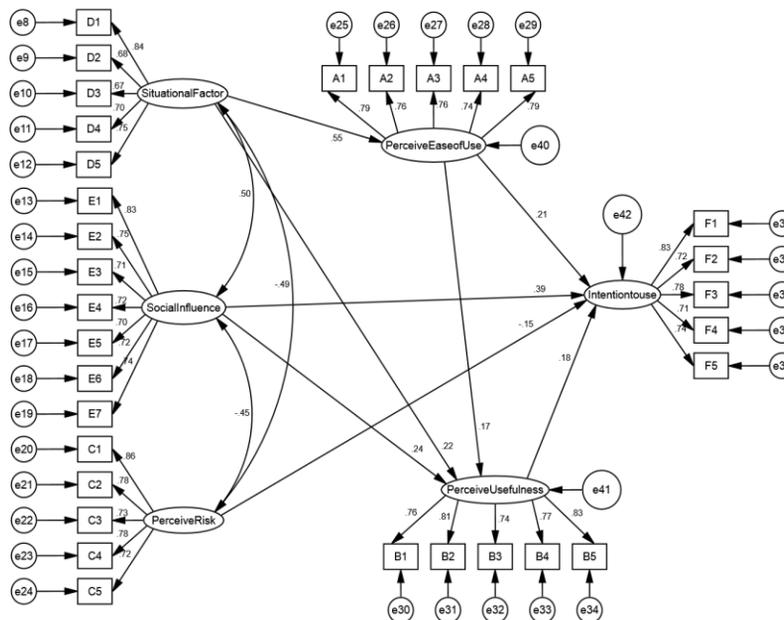

Figure 6 Path diagram of the structural equation model

Table 5 Path Coefficient and Significance Level of the Structural Equation Model.

			Unstandardized Estimate	Standardized Estimate	S.E.	C.R.	P	Label
Perceive Ease of Use	<---	Situational Factor	0.655	0.555	0.069	9.494	***	H2✓
Perceive Usefulness	<---	Situational Factor	0.21	0.217	0.074	2.848	0.004	H1✓
Perceive Usefulness	<---	Social Influence	0.226	0.236	0.06	3.769	***	H3✓
Perceive Usefulness	<---	Perceive Ease of Use	0.144	0.174	0.054	2.644	0.008	H5✓
Intention to use	<---	Perceive Risk	-0.113	-0.154	0.039	-2.884	0.004	H8✓
Intention to use	<---	Social Influence	0.372	0.388	0.056	6.626	***	H4✓
Intention to use	<---	Perceive Ease of Use	0.17	0.206	0.043	3.945	***	H6✓
Intention to use	<---	Perceive Usefulness	0.177	0.177	0.054	3.261	0.001	H7✓
D1	<---	Situational Factor	1	0.837				
D2	<---	Situational Factor	0.796	0.68	0.057	14.01	***	
D3	<---	Situational Factor	0.808	0.672	0.058	13.81	***	
D4	<---	Situational Factor	0.869	0.703	0.06	14.595	***	
D5	<---	Situational Factor	0.861	0.752	0.054	15.877	***	
E2	<---	Social Influence	0.897	0.749	0.055	16.288	***	
E3	<---	Social Influence	0.847	0.715	0.055	15.298	***	
E4	<---	Social Influence	0.821	0.724	0.053	15.554	***	
E5	<---	Social Influence	0.826	0.696	0.056	14.772	***	
E6	<---	Social Influence	0.873	0.72	0.057	15.452	***	
C1	<---	Perceive Risk	1	0.861				
C2	<---	Perceive Risk	0.863	0.78	0.049	17.73	***	
C3	<---	Perceive Risk	0.689	0.729	0.043	16.126	***	
C4	<---	Perceive Risk	0.876	0.784	0.049	17.852	***	
C5	<---	Perceive Risk	0.729	0.717	0.046	15.747	***	
A2	<---	Perceive Ease of Use	0.916	0.761	0.059	15.455	***	
A3	<---	Perceive Ease of Use	0.908	0.755	0.059	15.331	***	
A4	<---	Perceive Ease of Use	0.842	0.743	0.056	15.045	***	
B2	<---	Perceive Usefulness	1.171	0.808	0.074	15.85	***	
B3	<---	Perceive Usefulness	1.089	0.74	0.075	14.428	***	
B4	<---	Perceive Usefulness	1.113	0.771	0.074	15.068	***	
F1	<---	Intention to use	1	0.834				
F2	<---	Intention to use	0.957	0.724	0.062	15.362	***	
F3	<---	Intention to use	1.029	0.775	0.061	16.779	***	
F4	<---	Intention to use	0.953	0.713	0.063	15.053	***	
F5	<---	Intention to use	0.912	0.743	0.057	15.867	***	
A1	<---	Perceive Ease of Use	1	0.79				
A5	<---	Perceive Ease of Use	0.853	0.794	0.053	16.248	***	
B1	<---	Perceive Usefulness	1	0.756				
B5	<---	Perceive Usefulness	1.149	0.825	0.071	16.204	***	
E1	<---	Social Influence	1	0.826				
E7	<---	Social Influence	0.785	0.745	0.049	16.162	***	

In this research using the standardized path coefficient to test whether the hypothesis is significant or not. The path coefficient(β) results of the Structural Equation Model are shown in the table above, and the research hypothesis h1-h8 is verified.

Hypothesis 1: The relationship between Situational Factor and Perceive Usefulness ($\beta = 0.217$, $P = 0.004 < 0.01$) significantly supports the hypothesis H2 at 0.01 level. Accept H1.

Hypothesis 2: The relationship between Situational Factor and perceived Ease of Use ($\beta = 0.555$, $P < 0.001$) is significant at the level of 0.001, was very significant and supported hypothesis H1. Accept H2.

Hypothesis 3: The relationship between Social Influence and Perceive Usefulness ($\beta = 0.236$, $P < 0.001$) significantly support the hypothesis H3.

Hypothesis 4: The relationship between Social Influence and Intention to use is significant at the level of 0.001, which is supported by the value ($\beta = 0.372$, $P < 0.001$). Accept H4.

Hypothesis 5: Perceive Ease of Use have impact on Perceive Usefulness relationship ($\beta = 0.174$, $P = 0.008 < 0.01$) significantly supports the hypothesis H5 at 0.01 level. Accept H5.

Hypothesis 6: Perceived Ease of Use had a significant relationship with Intention to Use at 0.001 level, which is supported by the value ($\beta = 0.17$, $P < 0.001$). Accept H6.

Hypothesis 7: Perceive Usefulness with the Intention to use is significant at the level of 0.01 ($\beta = 0.177$, $P < 0.01$), accept H7.

Hypothesis 8: The correlation between perceived Risk and Intention to use ($\beta = -0.154$, $P = 0.004 < 0.01$) was very significant at the level of 0.01, so hypothesis 8 was verified. The β value is negative means that there is significant negative relation between these two factors. Accept H8.

The Summary of Verified Research Hypotheses are list in the following table:

Table 7 Summary of Verified Research Hypotheses

			Unstandardized Estimate	Standardized Estimate	S.E.	C.R.	P	Label
Perceive usefulness	<---	Situational factor	0.21	0.217	0.074	2.848	0.004	H1✓
Perceive ease of use	<---	Situational factor	0.655	0.555	0.069	9.494	***	H2✓
Perceive usefulness	<---	Social influence	0.226	0.236	0.06	3.769	***	H3✓
Intention to use	<---	Social influence	0.372	0.388	0.056	6.626	***	H4✓
Perceive usefulness	<---	Perceive ease of use	0.144	0.174	0.054	2.644	0.008	H5✓
Intention to use	<---	Perceive ease of use	0.17	0.206	0.043	3.945	***	H6✓
Intention to use	<---	Perceive usefulness	0.177	0.177	0.054	3.261	0.001	H7✓
Intention to use	<---	Perceive risk	-0.113	-0.154	0.039	-2.884	0.004	H8✓

Conclusion and discussion

Through the reliability analysis of the questionnaire, the overall Cronbach alpha value of the Cronbach's alpha coefficient test scale is 0.860, which is higher than the critical value of 0.7, so this survey is reliable.

From the perspective of the respondents on various factors affecting their intention to use offline mobile payments, mainly affected by improve the efficiency of payment, easy to use, financial risk, don't carry enough cash or credit card. Using factor analysis of the overall scale, extracting 27 observation variables into 5 common factors, there are perceive ease of use, perceive usefulness, situational factor, social influence, perceive risk. The respondents' intention to use offline payment is mainly affected by social influence, perceive ease of use, perceive usefulness factors. From a comprehensive analysis, the most significant variable on intention to use is "financial risk".

Through the above series of analysis results, it was finally concluded that the respondents paid great attention to the convenience and convenience of mobile payment platforms to users and whether the payment methods were the most popular and fashionable. Consumers have concerns about the privacy and risks of mobile payment platforms; respondents are not too concerned about the environment in which mobile payments are used; value-added services provided by third-party mobile payment platforms can increase customers' intention to use the platform.

This is a research on the consumer intention to use mobile payments in physical retail places. Based on reading a lot of relevant literature, a model of factors for consumers' use of mobile payments in offline payment scenarios was constructed. Compare to the previous literature review, there are some similarities and differences.

Similarities: Base on Technology Acceptance Model, compared with many mobile payment researches. (Ding Hui.,

2014, Factors Influencing Consumers' intention to Use Third Party Mobile Payments; Jie Wang., 2014, A Study on Users' Acceptance Behavior On Mobile Social Application.)

Differences: (1) The model introduces rational elements of rational behavior theory: subjective norms. Many studies have shown that a single theory cannot predict consumers' online purchase intentions well. Therefore, this research introduces two major variables: the subjective norms of rational behavior theory and planned behavior theory to improve consumers' intention to use of mobile payment. (2) Incorporating perceived risk into the TAM model to study consumer online purchase behavior, many scholars have conducted research in this area. (3) Expansion of research fields. With the vigorous development of the mobile communication Internet, the popularity of smart terminals and the offline payment market becoming increasingly saturated, the offline payment market has huge market potential. The existing research (Lijin Liu., 2007, Research on Consumers' Online Purchase Intention Based on Technology Acceptance Model and Perceived Risk) is mainly on mobile payment in online payment scenarios. This study focuses on offline payment scenarios, research the influencing factors of consumers' continued use of mobile payments in offline payment scenarios, the research field of mobile payment has been expanded.

Base on empirical analysis, this research puts forward corresponding countermeasures and suggestions for the development of mobile payment services in offline payment scenarios, mainly including:

(1) To enhance consumers' intention to use mobile payment is to make good use of community power and strengthen promotion.

(2) The mobile payment providers should increase publicity efforts to improve consumers' perceived usefulness and ease of use. For example, provide more useful value-added services, such as combining public transportation cards for mobile payments, binding takeaways, etc.

(3) Standardize the mobile payment market and reduce perceived risks for consumers. In the offline payment scenario, consumers are mainly worried about five risks when using mobile payment, which are financial risk, psychological risk, privacy risk, functional risk and social risk. Therefore, standardizing the mobile payment market and reducing the perceived risk of consumers is of great significance for promoting the continued use of mobile payments in offline payment scenarios.

(4) Select specific consumption places or environments and focus on promoting mobile payment. The empirical results show that situational factors indirectly affect the intention to use by affecting perceived usefulness and perceived ease of use. Therefore, mobile payment service providers should choose specific consumer places or environments (such as ticketing outlets, shopping malls, supermarkets, etc.) where consumers are vulnerable to contextual factors, and focus on promoting mobile payment services.

Limitation and further research: Although the selection of variables in this study refers to previous literature, for the study of mobile payment users' intention

to use, some selection of variables is inappropriate with less considered influential factors. The two mediating variables in the study were not specifically analyzed. In addition, the model design stage of this study did not consider whether adjustment factors such as user education level, age, work experience, and income will affect the intention to use of mobile payment. The reason I set this age range is to consider that older seniors may not have access to a smartphone or it may be more difficult for them to understand with smart payments. Therefore, the minimum age of the last option is set to 48 years, so that the age may be more consistent with the expected normal distribution results. There are no cross-cultural studies were conducted and the differences in consumer intentions to use mobile payment could be different in other cultural backgrounds.

Despite including self-efficacy, trust and other factors, more variables can be bought into the model, aiming to interpret and predict the intention. Furthermore, moderator variables and mediating variable analysis can be appropriately added in the further research along with more research in different culture backgrounds.

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