

Research on the Factors Affecting Consumers' Willingness to the Use of Mobile Payment

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Abstract. In this paper, we want to explore the factors which influence consumer's adoption of mobile payment. Firstly, according to the theoretical study, we put up the research model and hypothesis. Then, we got data through questionnaires(N=229) and it showed that the data had good validity and reliability. Lastly, the research model and hypothesis were verified by statistical analysis. The results showed that mobile payment's comparative advantage, compatibility, complexity, image, social influence and individual innovative of consumer affect the consumers' adoption of mobile payment.

Keywords: Mobile payment, willingness to pay, factors.

1 Introduction

With the coming of the 3G era, mobile e-commerce based on credit card payment has been greatly developed, mobile payment as part of the core of mobile e-commerce stand out conspicuously. China has a huge population of mobile users and of bank cards users, which provided a huge mass base for the growing of the mobile payments. As of 2010, Chinese mobile phone users reached 738 million and mobile Internet users increased to 233 million accounting for 60.8% of total Internet users. Estimated to 2013, China's mobile payment market will reach \$ 20 billion and China is expected to become the world's second-largest payment market. HC's findings show that there are currently 97.5% of users are very interested in mobile payments, the will of nearly 80% of users using the mobile payment for public transportation, shopping and dining is much strong, 60 percent of mobile phone users query transaction details and features of interest, 20% of users willing to use recharge, refuel, to pay high tolls and other functions. Thus, it is extremely potential for China's mobile payment market, which will become a major e-gold payment system of China.

However, China's mobile payment system is still in the market cultivation stage. The survey shows that, less than 15% of mobile phone users to pay full trust, about 40% of mobile consumers who lack confidence in payment security, and 65% of mobile users refused to send their credit card information via mobile network, and large most users can only take small mobile payment. Therefore, to explore why mobile payment service is limping in such a huge market in China and the factors which limit consumers to take such a convenient way, has important theoretical and practical significance.

At present, most studies on mobile payment focused on the characteristics and the restriction factors of mobile payment industry and the study on the will for mobile

payments was only focused on the technology acceptance model and planned behavior model. In this paper, we regarded mobile payment as an innovative technology, based on innovation diffusion theory, studying factors affecting innovative behavior. On this basis, the policy recommendations are proposed, which is practically significant for the popularity of mobile payment in China.

2 Literature Review

Rogers pointed out that the main factors impacting on individuals or organizations to use innovative products is comparative advantage, compatibility, complexity, operability and observability [1]. Siau and Shen considered that whether the consumer use an innovative depends on the following five factors [2]: (1) the consumer's personal characteristics; (2) Other consumer influencing on him / her; (3) innovative products features; (4) innovative vendors marketing activities; (5) the level of competition in the market. Among them, the company's marketing activities and the level of competition in the market are the external influencing factors, which is not to be included in this study. How the innovative characteristics of the product, the consumer's personal characteristics influence on the innovation adoption process and affecting the diffusion model in a particular market is the focus of this study. In addition, Davis pointed out that the use of innovative products associated with the perception of risk affect innovation adoption, the greater the risk, the more spread slowly [3].

Heijden studied the factors affecting successful promotion of mobile payment system [4]. From the aspects of the reception from consumers and merchants, six factors that affect the acceptance of mobile payment were proposed, namely the cost of consumer awareness, consumer perception of ease of use, perceived risk of consumers, businesses perceived cost, perceived ease of business and businesses perceived risk. It was also pointed out that consumer acceptance of mobile payment and business acceptance of mobile payment have a positive correlation.

Zhao et al investigated consumer psychology of mobile payment through empirical study [5]. They believed that there were two factors affecting consumer psychology, namely internal and external factors. Internal factors include individual attitudes, subjective norm of mobile payment, perceived behavioral control; external factors include user age, educational level, the use of mobile phones, network skills, environmental policy factors and etc. Min et al pointed out that in the context of mobile commerce, consumer behavior intentions are positively affected by perceived trust [6]. Gimun et al considered that in the process of building trust, reliability and security are very important for mobile commerce; security is a very important factor for a customer to refusing mobile payment [7].

3 Models, Hypothesis and Data

3.1 Models

According to the theoretical study, mobile payment is deemed as an innovative consumer payment instruments in this paper. The personal use of the innovation process was not only affected by the personal impact of the level of innovation, but also

by the innovative features of the product itself. Meanwhile, the social impact will be also introduced as an important factor in research model. Therefore, whether consumers use mobile payment or not was mainly affected by three factors: consumers' awareness of the innovative characteristics of mobile payment, social impact and the consumer's personal level of innovation. Among the three factors, consumer awareness and evaluation of mobile payment innovation will play a critical impact on the use of mobile payment, which will be focused on in this paper. Research model was shown in Figure 1.

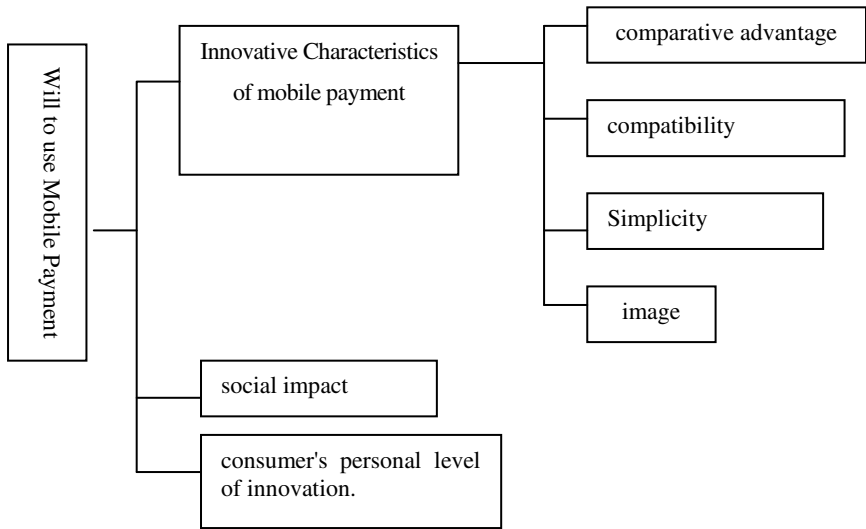


Fig. 1. Research Model

3.2 Hypothesis

Based on the research model and previous research results, combined with the relevant theory about the will to use mobile payment, the paper made the following hypothesis:

H1: The comparative advantage of mobile payment and consumers' willingness to pay has positive correlation.

H2: The compatibility of mobile payment and consumers' willingness to pay has positive correlation.

H3: The simplicity of mobile payment and consumers' willingness to pay has positive correlation.

H4: The image of mobile payment and consumers' willingness to pay has positive correlation.

H5: The social influence of mobile payment and consumers' willingness to pay has positive correlation.

H6: Consumers' personal level of innovation and consumers' willingness to pay has positive correlation.

3.3 Data

This study investigated through interviews and questionnaires. Online and paper questionnaires were issued at the same time. The object of this investigation is divided into two categories: college students and serving officers. 276 questionnaires were returned of the total of 300 questionnaires with 92% of recovery. The number of valid questionnaires is 229, of which 74 were online questionnaire, 155 paper questionnaires; the questionnaire response rate was 83%.

Table 1. Respondents' Fundamental Information

Index	Index value	Quantity	Proportion(%)
gender	male	132	58%
	female	97	42%
age	Below 18	2	1%
	18-24	202	88%
	25-29	14	6%
	30-34	9	4%
	Above 35	1	0%
profession	serving officers.	54	24%
	college students	171	75%
	others	4	2%
Monthly disposable Income(yuan)	below1000	123	54%
	1000-2000	76	33%
	2000-4000	27	12%
	Above 4000	3	1%
Monthly phone bill(yuan)	Below 50	118	52%
	50-100	90	39%
	100-200	19	8%
	Above 200	2	1%

4 Result and Discussion

4.1 Reliability and Validity Analysis

Cronbach's α coefficient is used in this study to measure the questionnaire's reliability. The Cronbach's α coefficients of the variables was shown in Table 2.

Table 2. Reliability Statistics

Variable	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
comparative advantage	.806	.807	7
compatibility	.803	.803	3
Simplicity	.766	.768	2
image	.754	.754	2
social impact	.836	.836	4
consumer's personal level of innovation.	.855	.856	4
Will to use Mobile Payment	.904	.905	5

Seen from the table 2, Cronbach's α coefficient of the variables is mostly more than 0.8, only simplicity (0.768) and the image (0.754) is below 0.8, which means that the questionnaire of this study has high reliability and can meet the requirements of empirical study.

The six factors of measuring willingness to use mobile payment were checked by KMO and Bartlett's chi-square test. The result showed that: KMO value is 0.914 (Table 3), significance probability of Bartlett's chi-square test is 0.000, indicating that the questionnaire has good validity.

Table 3. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.914
Bartlett's Test of Sphericity	of Approx. Chi-Square	3539.415
	df	351
	Sig.	.000

4.2 Correlation Analysis

This study used the Pearson correlation coefficient to measure the degree of correlation between the willingness to use mobile payment and various factors, ** indicates a significantly positive correlation at the 0.01 level, * indicates a significantly positive correlation at the 0.05 level.

Table 4. Correlation Analysis

Factors,	Will to use Mobile Payment
comparative advantage	.317**
compatibility	.566**
Simplicity	.554**
image	.171**
social impact	.552**
consumer's personal level of innovation.	.621**

Seen from the results of the above analysis (Table 4), the correlation coefficient among the relative advantage of mobile payment (that is, its convenience and quality of service), compatibility, simplicity and image, as well as social impact and personal innovative level and mobile payment were 0.317,0.566,0.554,0.171,0.552,0.621, respectively. This indicated that six factors and willingness to use mobile payment has a positive correlation, which has a significantly positive correlation at the 0.01 level. Therefore, the proposed six hypotheses have been verified.

In conclusion, consumer's willingness to use mobile payment in China is affected by three main effects: Firstly, consumers awareness for four innovative features of mobile payment, including the relative advantages of mobile payment, compatibility, simplicity, the image; the second is social environment; thirdly, the innovative level of individual consumers.

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