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Factors Affecting Customer Initial Trust in the Mobile

Payment Service Providers: An Empirical Study

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Abstract: It is known that perceived trust of vendor can positively affect customers' acceptance of a certain product or service. Based on Mayer's three-dimensional trust model and traditional trust theory, the factors affecting different dimension of customer initial trust in the mobile payment service providers were tested through an empirical study, including service providers' reputation, perceived security, trust propensity, reference groups, etc. The results indicate that reputation and reference groups both positively affect three dimensions of trust significantly, perceived security only affects ability and benevolence, and trust propensity has a significant effect on benevolence and integrity. The results provide references for related enterprises to raise customers' trust and attract new customers.

Keywords: initial trust, mobile payment, reputation, perceived security, trust propensity, reference groups

1. INTRODUCTION

Along with the unceasing development of mobile Internet technology, more and more users begin to access Internet using mobile phone. According to a survey reported by China Internet Network Information Center (CNNIC), as of the end of June 2016, the proportion of mobile Internet users has gone beyond PC Internet users, reaching 92.5% ^[1]. It also shows that the number of customers using mobile phone to go shopping, group-buy, and book travel is growing rapidly, which will greatly facilitate the development of online payment. But compared with PC online payment and offline payment, the mobile payment still has a long way to catch up.

We know that the application and popularization of online payment was very difficult during the initial development of e-commerce, and so will the mobile payment. The main reason is because customers lack trust in these new payment methods. How to lure customers away from traditional payment methods and online payment is a new challenge and test for the mobile service providers, and the key to solve this problem is to establish consumer trust mechanism. Therefore, it has great guiding significance to study factors impacting customers' trust in the mobile payment.

Researchers in recent years have put forward a lot of factors affecting customer trust in the e-commerce and mobile commerce world, mainly involving vendor, technology, consumer, environment, etc. Although most researchers believed that trust is a multi-dimensional variable, and Gefen et al. advocated that we should use multi-dimensional trust model to study consumer behavior intention ^[2], but only a few studies were carried out from multi-dimensional trust point ^[3]. The result is that we can't figure out what factors will influence what dimension of consumer trust, also unable to determine what kind of trust will determine the behavior intention of consumers, and we can't put forward more precise marketing strategies.

Based on different research objects, angles and commercial environments, some different partition methods about trust dimension were brought forward, such as interpersonal trust and institutional trust ^[4], cognitive trust and emotional trust ^[5], ability, benevolence, and integrity ^[6], etc. Among them, Mayer's three-dimensional model was widely applied to various fields, including e-commerce ^[3]. In this study, we try to apply it to the

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mobile commerce field to identify the factors affecting each dimension of customer initial trust in the mobile payment service providers.

2. THEORY AND HYPOTHESES

According to the traditional trust theory, perceived risk theory, and customer satisfaction theory, some initial factors having effect on the mobile payment were first proposed by literature review, then several qualitative interviews were made for some customers never used the mobile payment, and finally we decided to use reputation, perceived security, trust propensity, and reference groups as the main antecedent variables affecting customer initial trust.

2.1 Reputation

Doney and Cannon first proposed trust transfer mechanism when they studied trust between suppliers and sales staff, that is, trust can be transferred from a trusted entity to another unknown entity ^[7]. Ganesan research showed that consumer trust in a certain product or service can help to build consumer trust in other products or services in the traditional marketing management ^[8]. Lau and Lee defined reputation as the views of other people on the quality or reliability of a product or service ^[9]. At the same time, they pointed out customers' evaluation will be spread rapidly, good word of mouth can enhance service providers' reputation, and similarly, good reputation can strengthen customer trust in the service providers. McKnight et al. built a customer initial trust model in e-commerce, and proved that reputation is the vital factor affecting customer trust ^[10]. Hence, we suggest,

- H1a: Reputation is positively related to customer ability-based trust in the mobile payment service providers.
- H1b: Reputation is positively related to customer benevolence-based trust in the mobile payment service providers.
- H1c: Reputation is positively related to customer integrity-based trust in the mobile payment service providers.

2.2 Perceived security

Compared with the traditional payment, the security of mobile payment has been a concerned issue. Due to the uncertainty of mobile technology, intangible of service and information asymmetry, customers will perceive the risk of using the mobile payment. Cox and Rich stated that the greater customers perceive risk, the lower their perceived security and trust, thus it has important negative impact on their intention to purchase or use ^[11]. Wood and Scheer also proved that perceived security can have a significant impact on customer decision ^[12]. Hence, we suggest,

- H2a: Perceived security is positively related to customer ability-based trust in the mobile payment service providers.
- H2b: Perceived security is positively related to customer benevolence-based trust in the mobile payment service providers.
- H2c: Perceived security is positively related to customer integrity-based trust in the mobile payment service providers.

2.3 Trust propensity

Because e-commerce is conducted in a virtual environment, it is difficult to guarantee counterparty's behavior and commitment reliability. Building customer trust mainly depends on his/her cultural background, psychological trait, experiences, etc ^[13]. Gefen et al. proved that trust propensity plays an important role in building customer trust in the Internet shopping ^{[2][10]}. In this study, these findings are extended to the mobile commerce area, we think that trust propensity may has an important impact on the forming of customer initial

trust when customers facing a completely different business environment. Thus, we suggest,

- H3a: Trust propensity is positively related to customer ability-based trust in the mobile payment service providers.
- H3b: Trust propensity is positively related to customer benevolence-based trust in the mobile payment service providers.
- H3c: Trust propensity is positively related to customer integrity-based trust in the mobile payment service providers.

2.4 Reference groups

Since Hyman first proposed the idea of reference groups in 1942^[15], researchers began to explore the influence of reference groups on individual behavior and got a lot of findings. When a customer meets an uncertain thing in trade, he/she hopes to get useful information to reduce risks from other related people, such as his/her friends, classmates, family members or relatives, which are deemed to have more relevant knowledge or be the experts in the field^{[8][16]}. Thus, we suggest,

- H4a: Reference groups are positively related to customer ability-based trust in the mobile payment service providers.
- H4b: Reference groups are positively related to customer benevolence-based trust in the mobile payment service providers.
- H4c: Reference groups are positively related to customer integrity-based trust in the mobile payment service providers.

Based on above hypotheses, we present a theoretical research model, as shown in Figure 1.

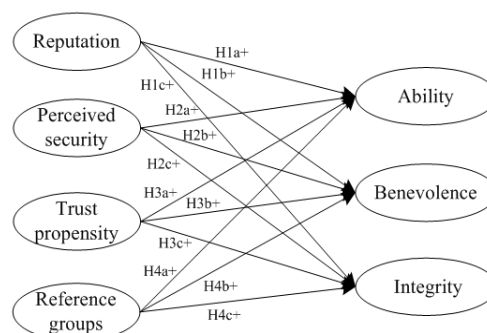


Figure 1. Theoretical model and hypotheses

3. METHOD AND RESULTS

There are seven factors in this research model. The items used to measure each factor were all drawn from some existing literatures, and were suitably revised to adapt to the mobile commerce environment. Then, a pilot investigation was made among 50 random sampled customers. Finally, we revised or deleted some ambiguous items on base of their feedbacks, and got the final scale, as listed in Appendix A.

We collected data from online and offline customers in China, mainly focused on young people without mobile payment usage experiences, involving undergraduates, graduates, young teachers, etc. We sent out 400 questionnaires, and got 352 valid responses. Table 1 shows the sample demographics.

At first, an exploratory factor analysis was conducted with SPSS18.0 to evaluate the construct validity of the measurement items. Table 2 shows that seven main composition factors are extracted and their cumulative contribution of variance amounts to 77.56%. Moreover, the factor loading of each item on its corresponding factor is all more than 0.5, and each cross-loading on other factors is all less than 0.5. Thus, the preliminary results indicated that the scale is acceptable in terms of convergent validity and discriminant validity.

Table 1. Sample demographics (N=352)

Variable	Option	Count	Percentage (%)
Gender	Male	170	48.30%
	Female	182	51.70%
Age	<20	39	11.08%
	20-25	212	60.23%
	26-30	70	19.89%
	>30	31	8.81%
Education	High school or less	17	4.83%
	Bachelor's degree	302	85.80%
	Master's degree or above	33	9.38%
Using mobile internet	Frequently	126	35.80%
	Occasionally	177	50.28%
	Never	49	13.92%
Mobile service provider	Mobile operator	44	12.50%
	Bank	101	28.69%
	Third part service provider	207	58.81%

Table 2. Results of exploratory factor analysis

Item	PS	AT	BT	IT	RG	TP	REP
REP1	0.041	0.230	0.047	0.089	0.028	0.104	0.731
REP2	0.056	0.032	0.306	0.162	0.110	0.023	0.796
REP3	0.128	0.174	0.098	0.162	0.044	0.015	0.838
PS1	0.809	0.179	0.020	0.075	0.030	0.086	0.157
PS2	0.813	0.042	0.015	0.259	0.122	0.095	0.054
PS3	0.823	0.094	0.130	0.063	0.188	0.070	0.042
PS4	0.867	0.099	0.168	0.087	0.068	0.156	0.096
TP1	0.070	0.184	0.086	0.068	0.304	0.746	0.016
TP2	0.153	0.010	0.227	0.111	0.107	0.868	0.101
TP3	0.148	0.049	0.171	0.108	0.054	0.829	0.040
RG1	0.143	0.256	0.107	0.026	0.709	0.136	0.160
RG2	0.145	0.077	0.044	0.126	0.876	0.130	0.043
RG3	0.078	0.117	0.124	0.200	0.815	0.147	0.005
AT 1	0.251	0.716	0.106	0.206	0.235	0.048	0.229
AT 2	0.081	0.870	0.203	0.187	0.109	0.106	0.148
AT3	0.084	0.870	0.202	0.239	0.122	0.074	0.188
AT 4	0.218	0.555	0.237	0.433	0.278	0.113	0.071
BT1	0.164	0.236	0.736	0.162	0.059	0.083	0.116
BT2	0.012	0.159	0.781	0.357	0.102	0.101	0.070
BT3	0.054	0.137	0.876	0.123	0.118	0.145	0.124
IT1	0.161	0.257	0.307	0.709	0.147	0.152	0.228
IT2	0.203	0.286	0.240	0.778	0.155	0.113	0.184
IT3	0.218	0.299	0.236	0.771	0.087	0.127	0.206

Then, in order to further analyze the validity and reliability of the constructs, we conducted a confirmatory factor analysis with AMOS 18.0 (see Table 3 and Table 4). The Cronbach's α value of each construct is ranged from 0.78 to 0.91, and the composite reliability (CR) values are all higher than 0.8. From these values we confirm that the scale has good internal consistency. Besides, as listed in Table 3, the average variance extracted (AVE) values all exceed 0.5, which can confirm the convergent validity of the scale. At last, Table 4 tells us the discriminant validity is acceptable, because the correlation coefficients between any two constructs are all less than the square root of the AVE value of the corresponding construct.

Table 3. Cronbach's α values, CR, and AVE

Factor	Cronbach's α	CR	AVE
REP	0.78	0.81	0.56
PS	0.88	0.89	0.66
TP	0.81	0.83	0.63
RG	0.81	0.82	0.61
AT	0.90	0.90	0.70
BT	0.85	0.84	0.67
IT	0.91	0.90	0.75

Table 4. Discriminant validity

Factor	REP	PS	TP	RG	AT	BT	IT
REP	0.75						
PS	0.23	0.81					
TP	0.17	0.31	0.79				
RG	0.22	0.32	0.39	0.78			
AT	0.44	0.39	0.31	0.45	0.84		
BT	0.34	0.25	0.31	0.30	0.51	0.82	
IT	0.47	0.42	0.35	0.39	0.68	0.59	0.86

At last, we used AMOS 18.0 to estimate the structural equation model. The model fit statistics, as listed in Figure 2, show that its root mean square error approximation (RMSEA) is less than 0.08, NFI, CFI, GFI, IFI and TLI are all above 0.90. All these values prove that the model has a good fit with the sample data. The explained variance of ability, benevolence and integrity is 31%, 38% and 25%, respectively.

4. DISCUSSION

The results presents that most hypotheses are supported, except H2c and H3a. Moreover, all the hypotheses are significant at a $p < 0.001$ level, except H2a, H3c and H4b, which all significant at a $p < 0.05$ level.

From the perspective of different dimensions, firstly, the factors affecting ability, in order of path coefficient, are reputation (0.43), reference groups (0.32), and perceived security (0.17). Then, the factors

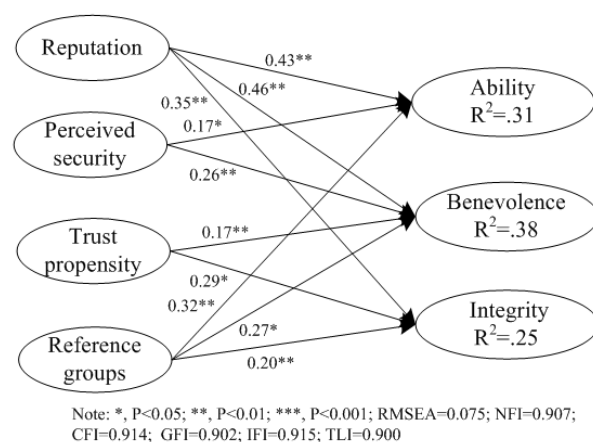


Figure 2. Results of model estimation

impacting benevolence include reputation (0.46), reference groups (0.27), perceived security (0.26), and trust propensity (0.17). And there are three factors influencing integrity, reputation (0.46), trust propensity (0.29), and reference groups (0.20). The results indicated that the factors affecting each dimension of trust and their effects are different.

From specific factor, firstly, we found that reputation has the largest impact on each dimension of customer initial trust, which indicated that the mobile payment service providers should often pay more attention to customer reviews and feedbacks on their product and service to attract more new customers through enhancing their good reputations. Secondly, perceived security has significant effect on ability and benevolence dimensions, but doesn't affect integrity. This is possibly because what the customers concern about is mainly from the service providers' behavioral performances on ability and benevolence, such as worrying about their privacies (e.g. bank account, password, telephone numbers, and address, etc.) may be leaked due to technical reasons or be used illegally. Thirdly, trust propensity has a significant impact on benevolence and integrity, but has no direct correlation with ability, probably because customers care more about service providers' honest, and whether or not they will keep their commitment when customers meet problems or suffer losses during using the mobile payment. Thus, service providers need to build the culture of integrity and fulfill each promise for their customers at any time. Finally, reference groups influence three dimensions of initial trust, and ability has the greatest relevance, followed by benevolence, and then integrity. This indicates that the experiences of using mobile payment of the correlative customers and their affirmation will impact on customers' intention to trust in the service providers and begin to use their product and service. So, they should take steps to improve their technical ability, and raise their service levels to increase customers' satisfaction and recognition.

5. CONCLUSIONS

As with online payment in e-commerce, customers' trust in service providers has an important influence on their intention to accept the mobile payment. Based on Mayer's three-dimensional trust model, we identified the factors having impact on different dimension of customer initial trust in the mobile payment service providers by empirical surveys, including reputation, perceived security, trust propensity, reference groups, etc. The results proved that reputation and reference groups both have a significant effect on three dimensions of trust significantly, but perceived security and trust propensity only positively affect a portion dimensions of trust. The conclusions can serve as references for related enterprises to take steps to enhance customers' trust and attract new customers.

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APPENDIX A. MEASUREMENT SCALES AND ITEMS

Reputation (REP) (adapted from Kim et al. ^[17])

REP1: I am familiar with this service provider, and it's a prestigious firm.

REP2: This service provider can solve various problems or disputes in time, and make customers satisfied.

REP3: This service provider has good reputation.

Perceived Security (PS) (adapted from McKnight et al. ^[10])

PS1: I feel that inputting bank card numbers and password is safe when using the mobile payment.

PS2: I feel that my private information will not be leaked or destroyed when using the mobile payment.

PS3: I feel that current laws can protect my interests when using the mobile payment.

PS4: I feel that the mobile payment system of this service provider is safe.

Trust Propensity (TP) (adapted from Kim et al. ^{[18][19]})

TP1: It's easy for me to trust in somebody or something, although I don't know a lot about them.

TP2: I think that people will keep their promises in most cases.

TP3: I think that people will not harm others' interests in most cases.

Reference Groups (RG) (adapted from Lee et al. ^[20])

RG1: I may think to use the mobile payment when I see lots of people around me using it.

RG2: I may feel left behind if I still don't use the mobile payment when seeing lots of people around me using it.

RG3: Using the mobile payment can improve my profile and help me mingle with others around me.

Ability Trust (AT) (adapted from Schlosser et al. ^[3])

AT1: I think the mobile payment system of this service provider is of high quality.

AT2: I think this service provider has a strong technical force.

AT3: I think this service provider has the ability and resources to provide high quality system and service.

AT4: I think this service provider can solve various problems I encounter when using mobile payment.

Benevolence Trust (BT) (adapted from Schlosser et al. ^[3])

BT1: I think this service provider often pays attention to customers.

BT2: I think this service provider will protect consumers' rights when an unexpected problem occurs.

BT3: I think this service provider will compensate customers for their losses in a specific way.

Integrity Trust (IT) (adapted from Schlosser et al. ^[3])

IT1: I think the promises of this service provider are trusted.

IT2: I think this service provider must fulfill their service promises.

IT3: I believe this service provider must not deceive customers.

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