The Effect of Mobile Payment Service Quality on Usage Intention - Focusing on the adjustment Effect of user Satisfaction

[1]Hyun Soon, Jang, Yen Yoo You, Joo-Sang Jeon

Abstract: Background/Objectives: This research will verify the role of service quality and user satisfactionas a control variable in discerning how consumers decide to use mobile service. Method/Statistical analysis: Research subjects are consumers who used mobile payment service usage more than once. Survey consists of 21 questions: 5 on demographic statistics, 10 on mobile payment service quality, 3 on purpose of mobile payment service usage, 3 onuser satisfaction as a mediating variable, using Likert's 5-point-scale measurement. Positive analysis used SPSS 23.0 for element analysis, reliability analysis, correlation analysis, regression analysis to control for variables.

Finding: The total variance for mobile payment service element measurement categories is 87.880% and the found eigenvalue is all above 1.0, and the factor score is above 0.5, meeting the reliability and validity of research. Regression analysis shows all independent variables affects the dependent variable. Mediating effects of three categories of mobile payment service on economic usage intention of using mobile payment service hold significant. The economics and security of the independent variable and its R2 value incrementally increased and significance probability was below 0.05. Therefore, we conclude that even if service quality is high, if user satisfaction is low, intention of using service decreases. So, we can state that customer satisfaction is important.

Improvements/Applications: In the future, it is required to develop a measurement tool for items such as user satisfaction and usage intention for more objective measurement.

KEYWORDS: Fintech, Mobile Payment Service, Service Quality of Mobile Payment, User Satisfaction, User Intention

I. INTRODUCTION

Previous researches have shown that the service quality of mobile payment service affects user intention. However, no matter how high the service quality, it does not necessarily mean that user satisfaction is high, and user satisfaction can affect user intention. However, previous researches have not researched the control effects of user satisfaction. Therefore, in this research, we comprised the independent variable (service quality) with elements such as economics, convenience, security and chose the dependent variable as user intention and customer satisfaction as control variable. We argued that, regarding the effect of mobile payment service quality on user intention while controlling for user satisfaction, even when service quality is high, user intention to use mobile payment services can be low if user satisfaction is low.

II. MATERIALS AND METHODS

2.1 Fintech

The word Fintech is a combination of Finance and Technology, and a convergence industry of the changing finance service. Fintech can be categorized into Fintech service and Fintech technology. Fintech service consists of payment services through cards and virtual currency, online loans, online investments, and Fintech technology consists of digitization of finance, big data analysis to fit consumer needs, bio-identification technologies, and information security.[1]

2.2 Mobile Payment Service

With the spread of smartphones and development of wireless internet technology, financial transaction through mobile devices has grown active and mobile payment services have also grown and developed. Mobile payment services are all the products and services that allow mobile payment.[2,3]

Kruger (2001) defined the purchase of a product or service through mobile devices, both online and offline, as mobile payment service.[4,5]

2.3 Mobile Payment Service Quality

Mobile payment service quality is different from other general services, with its own distinct characteristics, and thus we cannot apply the SERVQUAL quality measure directly. This article used previous literature to draw categories for mobile payment service measures. Wei, Gu (2015) categorized mobile payment services into economics, security, convenience. So we can call mobile payment service quality as economics, convenience, security that allows users to enjoy economic benefits and easy to use, while protecting one's personal information.[6,7]

2.4 User Satisfaction

User satisfaction is the degree of fulfillment of the demand or desire about a product or service. Anderson, E. W., Fornell, C & Tatham, D. R, (1994) defined user satisfaction as being heavily determined by one's experience about a service and product.[8,9]

2.5 User Intention

When users think that a certain product or service is useful to oneself, they show the intention to continue to use the useful product or service. So, one can define mobile payment service user intention as the intention to use mobile payment services due to the convenient and benefits one can enjoy.[10]

2.6 Research Model and Hypothesis
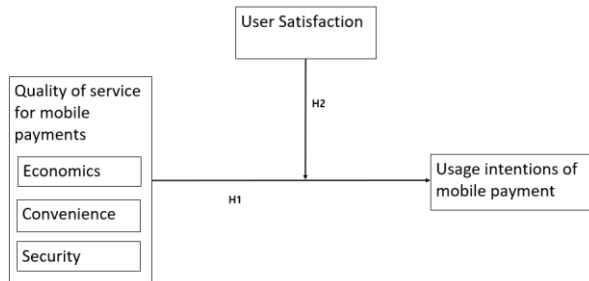
2.6.1 Research model

Figure 1. Research model

In this research, as shown in the Figure 1, the independent variable is service quality comprised of elements such as economics, convenience, security and chose the dependent variable as user intention and customer satisfaction as control variable. The reason we chose user satisfaction as the control variable is because even when similar service qualities are provided, not every user is satisfied, and thus we decided to include user satisfaction, a quality that we think is important in deciding user intention, in the research to better understand the causal mechanism. In this sense, this research model is distinct from other previous researches.

2.6.2 Hypothesis

Hypothesis 1 (H1): Mobile payment service quality has a positive effect on mobile payment service usage intention.

Hypothesis 2 (H2): Mobile payment service quality plays a mediating role between mobile payment service elements, consisting of economics, convenience, security.

Hypothesis H2a "user satisfaction has a control effect on the relationship between economics (of service quality) and user intention (of mobile payment service)"

Hypothesis H2b "user satisfaction has a control effect on the relationship between convenience (of service quality) and user intention (of mobile payment service)"

Hypothesis H2c "user satisfaction has a control effect on the relationship between security (of service quality) and user intention (of mobile payment service)"

2.6.3 Research tool and operational definition of variables

There are many ways to do positive analysis, and this research employed the survey method, and for statistical and actual significance of the research we carried out the survey among people who had experience of using mobile payment service. We distributed 400 survey sheets and retrieved 291. From the 267, we excluded unsupportive respondents and date-omitted respondents, with 275 final sheets. Final retrieval rate was 68.75%.

This article's measurement variables are mobile payment service quality, user satisfaction, mobile payment service user intention, and for research tools, we modified or used Kim Hyo-Young et al (2016)'s research tools. Survey consists of 21 questions: 5 on demographic statistics, 10 on mobile payment service quality, 3 on satisfaction of mobile payment service usage, 3 on user intention, we used Likert's 5-point-scale measurement.[11]

III. RESULTS AND DISCUSSION

3.1 Research of Positive Analysis

3.1.1. Survey questions on demography statistics consist of questions of gender, age, location of residence, education, job.

Men were 151 people (54.9%) and women were 124 people (45.1%). Age distribution was 20~30 years (46.9%), 31~40 years (31.6%), 41 and above (21.5%). Location of residence consisted of Seoul, Kyung-gi, Incheon (53%), and the remaining 47% in rural areas. For education, 41.4% were college graduates or students, and for job, 261 people (94.9%) were employed.

3.1.2. Validity and Reliability of Research Tool

We used the SPSS 23.0 program to analyze the validity and reliability of the 19 survey categories (excluding demographic statistics) and the independent variables and their variance was 87.88%. The found eigenvalue is all above 1.0, and the factor score is above 0.5, meeting the reliability and validity of research. In reliability analysis, Cronbach Alpha value was all above 0.8 and so all were used as survey categories.

3.1.3. Correlation Analysis

As a result of correlation analysis, all correlations, excluding the correlation between security and user intention (correlation of 0.054 with significant probability of 0.375) and security and user satisfaction (correlation of -0.010 with significant probability of 0.871) showed a high correlation of above 0.2 and hence hypothesis H1 was properly posited.

3.1.4 Hypothesis H1 Test

Hypothesis H1 was "Mobile payment service quality has a positive effect on mobile payment service usage intention." and resulted in R=0.541, R2=0.292, and modified R2=0.285. 2 independent variables (excluding security) showed results of Table 1 and thus H1 was partially selected.

Table 1. Verification of Hypothesis H1

Dependent Variable	Independent Variable	Standardized Error	β	t	p
Usage intentions of mobile payment	(Constant)	.204		10.891	.000
	Economics	.064	.281	3.638	.000
	Convenience	.070	.401	5.032	.000
	Security	.054	-.289	-4.772	.000
R = .541, R^2 = .292, Modified R^2 = 0.285, F = 37.346, P= .000					

3.1.5 Hypothesis H2 Test

Hypothesis H2 was "Mobile payment service user satisfaction plays a controlling role between mobile payment service elements, consisting of economics, convenience, security." As Table 3 shows, for H2b, P value was above 0.05 so was discarded. H2a and H2c showed an increase in R2 value, as Table 2 and Table 4 shows, and P value was below 0.05, and so H2 was partially selected.

Table 2. Verification of Hypothesis H2a

Dependent Variable	Model	Variables Entered	R^2	Significance F Variation
Usage intentions of mobile payment	1 2 3	Economics **User Satisfaction** Interaction term	.195 .533 .548	.000 .000 .003

Table 3. Verification of Hypothesis H2b

Dependent Variable	Model	Variables Entered	R^2	Significance F Variation
Usage intentions of mobile payment	1 2 3	Convenience **User Satisfaction** Interaction term	.211 .531 .536	.000 .000 .121

Table 4. Verification of Hypothesis H2c

Dependent Variable	Model	Variables Entered	R^2	Significance F Variation
Usage intentions of mobile payment	1 2 3	Security **User Satisfaction** Interaction term	.003 .467 .490	.375 .000 .001

3.2. Discussion

Hypothesis H1 "Mobile payment service quality has a positive effect on mobile payment service usage intention" was partially selected with the exception of security. Hypothesis H2 "Mobile payment service user satisfaction plays a controlling role between mobile payment service elements, consisting of economics, convenience, security." Was partially chosen except for convenience.

IV. CONCLUSION

4.1. Research conclusion and implication

Through this research it has been shown that user satisfaction is an important factor in users decided to use mobile payment service. Therefore, no matter how good the quality of mobile service payment is, if the user is not satisfied they will not show the intention to use the service. This is because the public perception has evolved to think that mobile payment service should have good quality, requiring us to further research how one can increase customer satisfaction. For this end, further research is needed.

4.2 Improvement

User satisfaction was defined, and its categories comprised through referencing previous works, and thus one can't be sure that this category properly represents user satisfaction. This also means that survey questions were unable to fully define and explain user satisfaction, leading to a lack of understanding from participants. Future research must design more precise tools and models for this purpose.

REFERENCES

1. Lee, Sol Hee, , A study on factors influencing continuous cooperation between finance institution and fintech organization for fintech industry activation, 2016, Graduate School of Hanyang University, Korea, http://www.riss.kr/link?id=T14169219
2. Lee, Dae-Yeon, A Study on Determinants for Invigorate Use of Mobile Payment System, 2013, Graduate School of Business Administration Hansung University, Korea, http://www.riss.kr/link?id=T13232480
3. Lee, Soo Yeon, A study on the intention of the use of mobile payment services : application of the technology acceptance model, 2016, The Graduate School of Hanyang University, Korea, http://www.riss.kr/link?id=T13961007
4. Krueger, M.(2001) "The Future of M-payments : Business Options and Policy Issues", Background Paper No2, Electronic Payment Systems Observatory (ePSO), Institute for Prospective Technological Sutdies.
5. Lee June Yeop, Cloud Platform-based Smart Mobile Payment Service Model : Design and Evaluation, 2015, Graduate School, Kyung Hee University, Korea, http://www.riss.kr/link?id=T13711057
6. Wei, Gu, AStudy on the Effects of Use Intention of Service Quality and Personal Properties by Mobile Payment Application:Focused on China Market, 2016, Graduate School of Kongju National University, Korea, http://www.riss.kr/link?id=T13985561
7. Jiang Qiliang, A Study on Intention of Reusing Mobile Payment Service based on Consumer's Understanding of Service Quality : Focusing on Theory of Planned Behavior, 2017, Graduate School of Konkuk University, Korea, http://www.riss.kr/link?id=T14572236
8. CHEN CHENG, Easy Mobile Payment Service of satisfaction on the factors that affect the intended use-User central China-, 2017, Graduate School Silla University, Korea, http://www.riss.kr/link?id=T14601492
9. Anderson, E. W.,Fornell, C. & Tatham, D. R.(1994), "Customer Satisfaction, market share, and profitability : Findings from Sweden" , Journal of Marketing. 58(3), pp. 53-66
10. LEE, HONG-JAE, A Study on the Factors Causing the Intention to Use of Fintech-based Mobile Easy Payment Service, 2017, Graduate School of Soongsil University, Korea, http://www.riss.kr/link?id=T14545331
11. Kim, Hyo Young, The influences of perceived quality and value in mobile payment services on continuous usage: focusing on the mediating effect of trust, 2016, The Graduate School of Advertising and Public Relations Hongik University, Korea, http://www.riss.kr/link?id=T14167108