

Print ISSN: 2234-3040 / Online ISSN 2234-3059
doi:10.13106/eajbm.2017.vol7.no2.21

Influence on the Use Intention of User's Traits in China Market*

Jong-Ho Lee**, Runze Wu***, Linlin Fan****

Received: March 16, 2017. Revised: March 21, 2017. Accepted: April 15, 2017

Abstract

Purpose - Because of the development of smartphone and communication technology, Smart TV programs are filled with various contents and applications. This study included additional individual variables like innovativeness and self-efficacy, and characteristics of smart TV are both user-interface and function as exogenous factors based on TAM model. So, this study focuses on identifying the influencing factors of continuous use intention of smart TV traits and user ones and analyzing how they make influences on them in China market.

Research design, data, and methodology - Totally 182 samples were adopted as appropriate ones for analysis in this study. They were collected from 20 February 2016 to 10 March 2016.

Results - The results are as follows. First, function has positive influence on perceived usefulness. Second, innovation and user-interface make affirmative influences on perceived easiness. Third, perceived easiness has affirmative influence on perceived usefulness. Fourth, the perceived easiness and perceived usefulness make positive ones on continuous use intention. Fifth, perceived ease of use affects significantly on perceived usefulness.

Conclusions - According to the findings, they (smart TV traits and user traits), influencing on continuous use intention, are possible to give significant implications on persistent development in China smart TV market.

Keywords: User Traits, Smart TV Traits, Innovativeness, Self-Efficacy, Continuous Use Intention.

JEL Classifications: M10, M15, M19.

1. Introduction

With the recent development and diffusion of the communication technology of smartphones, before and after the traditional TV market in 2010, this paradigm has been converted into a smart TV that everyone can enjoy wide ranges of contents and applications. Smart TV, based on the development of broadcasting and communication technology, broadband networks, can not only watch TV for

conventionally several contents and applications but also utilize broadcasting services connected to the Internet (Kim, 2012). Smart TVs are commonly used as a terminal for various dramas, movies, and provides video content, animation, and many kinds of services for a variety of applications connected with computer, smart phones via universal Internet.

China utilizes the apps in the Smart TV to an average of 81% annually, and this situation will be more popular in the future (Wang, 2013). In addition, the dramas are constantly increasing to utilize the services with a change in the way of watching such films. Therefore, Smart TV users will foresee the rapid growth of the smart TV market in that they most often use the service apps. When we look at the relevant similar studies, some ongoing studies on the use of smart TV apps related to e-commerce are not enough. Some studies among them have focused on the current state of smart TV apps. Nowadays, there are some leading smart TV in China like "Youku CIBN TV", "AI QI YI", "SO

* This work was supported by the research grant of the Kongju National University in 2015

** First Author, Correspondent Author, Department of Business Information Education, Kongju National University, Korea.
Tel: +82-41-850-8255, E-mail: leejh@kongju.ac.kr

*** Co-author, Ph. D. Student in E-Commerce, Kongju National University, China. Tel: +82-41-850-8255,
E-mail: wu3140025@163.com

**** Co-author, Company Employee, Master of E-Commerce, China.
Tel: +82-41-850-8257, E-mail: somnus0405@hotmail.com

HU TV", "LE TV", "Mango TV", etc., (Fan, 2015). With them, this study focuses on the influence by characteristics of both smart TV and user to highlight how they impact on any of the properties derived perceived ease of use and perceived usefulness, continuous use intention.

2. Theoretical Background

2.1. User Personal Traits

2.1.1. Innovativeness

Goldsmith and Hofacker (1991) showed that innovativeness is how much individuals are interested in adopting innovation in their study, and that how quickly they accepted it than others. Most user-related behaviors are occurred in particular situations, so innovativeness should be measured at special product (Kim, 2010). Lee et al. (2011) has called it an individual innovativeness propensity "enough to accommodate your personal renovation relatively faster than other users in the system."

2.1.2. Self-Efficacy

The self-efficacy is the belief about their own power in that everyone can perform any actions, and that, she is able to organize and act necessary ones to achieve any goals (Bandura, 1986). Compeau (1995) defined it as the assessment about his own ability to use new technologies and new products effectively.

2.2. Characteristics of Smart TV

2.2.1. The User Interface

The user interface, in the study of Ketola and Roykkee (2001), is defined as mutual interactions between users and machines including the display, the input devices, communication method, ergonomic factors (slide, touch, size). Yoon (2010) defined the user interface as the easy degree of learning and memory, and clearness and appropriateness. And it makes a significant impact on perceived usefulness.

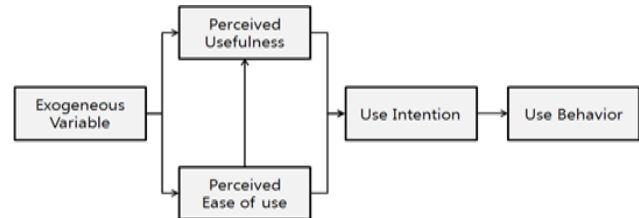
2.2.2. Function

Smart TV, just as smartphones, refers to the varieties of functional factors in the form of media convergence like PC, DMB, mobile phone. This can be used for a variety of purposes with wireless internet access, information management, gaming, PC interworking, listening to music, shopping, and such a banking (An, 2013).

2.3. Technology Acceptance Model (TAM)

TAM is consisted of perceived usefulness, perceived ease of use, attitude, intention to use. Davis et. al. (1989)

discovered that the role of the attitude was very small impact on other variables. So they decided erasing "attitude", and built the model with the perceived ease of use and the perceived usefulness, see Figure 1. They, the perceived ease of use and the perceived usefulness, usually make direct influences on the use intention



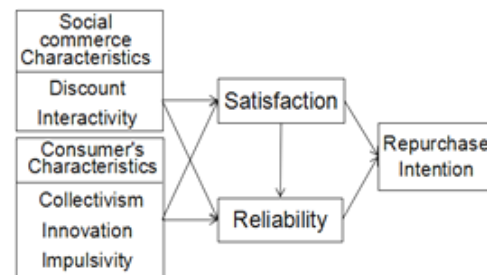
<Figure 1> Information Technology Acceptance Model

Many studies related to information technology acceptance model basically includes perceived usefulness, perceived ease of use like the above model. Intention to use is the concepts of revisit intention for the businessman who he or she has using experiences or the sustainable use intention of some products even though researchers insisted different meanings. Han (2014) defined it as the sustainable use intention to continue using rewards apps.

3. Research Model and Hypothesis

3.1. Research Model and Hypotheses

Research model of this study is depicted in <Figure 2>.



<Figure 2> Research Model

Han et al. (2010) proposed self-efficacy, innovativeness, perceived usefulness, and perceived ease of use. Also, they insisted in their study, all variables had significant impacts on each other in the above model. In addition, No (2013) suggested that individual characteristics like innovation orientation, self-efficacy, goal appropriateness affected positive influences on mediators like perceived usefulness, perceived ease of use. Lee (2014) demonstrated that the higher positive impacts on self-efficacy, the greater affirmative ones on perceived usefulness, perceived ease of use.

<H1> user's personal traits based on smart TV will have

a positive effect on perceived usefulness.
 <H2> user's personal traits based on smart TV will have a positive effect on perceived ease of use.

Lee (2011) demonstrated that the user interface had a significant impact on the efforts expectations. The effort expectations variable is derived from the mixture of the ease of use (Technology Acceptance Model and innovation diffusion theory), complexity (PC models use). Lee and Eune (2013) studied that emotional user interface had a positive effect on the perceived usefulness, while functional user interface had a positive effect on the perceived ease of use. Jeon (2012) demonstrated that function among smart devices characteristics, made a significant effect on the perceived usefulness, perceived ease of use. An (2013) showed function made a positive effect on the perceived usefulness and perceived ease of use.

<H3> Smart TV traits will have a positive effect on the perceived usefulness.
 <H4> Smart TV traits will have a positive effect on the perceived ease.

Lee (2012) found that mediators like the perceived ease of use and the perceived usefulness had the positive effect on the intention to use. Park (2013) insisted that the perceived ease of use had a significant effect on the perceived usefulness, and that they, the perceived usefulness and perceived ease of use had positive effects on the intention to use. Kwak (2013) verified that usefulness and ease of use from TAM had significant impacts on continuous use intention. Yu (2013) showed that the perceived usefulness made a positive effect on the continuous use intention. Kim (2014) demonstrated that the perceived usefulness made a significant impact on the sustainable use intention.

<H5> Perceived ease of use will have a positive effect on the perceived usefulness.
 <H6> perceived usefulness will have a positive effect on continuous use intention.
 <H7> perceived ease of use will have a positive effect on continuous use intention.

3.2. Operational Definition of Variables

In this study, there are some characteristics of the continuous use intention of smart TV (innovativeness, self-efficacy), the properties of the Smart TV (user interface, function) etc. Operational definitions for each variable are shown from <Table 1>.

4. Empirical Analysis

This study was conducted using questionnaire surveys over 20 days from 20 February 2016 to 10 March 2016 from several areas including Sandong-Seong in China. In this study, empirical analysis was performed with using IBM SPSS Statistics 21.0, and IBM SPSS AMOS 21.0 to verify the hypotheses and research model.

4.1. Demographic characteristics of the study

According to the demographic characteristics of the respondents in this study, first male is 74 respondents (40.7%), female 108 (59.3%), second under 20 age is 8 persons (4.4%), 20~29 is 98 (53.8%), 30~39 is 52 (28.6%), 40~49 is 18 (9.9%), above 50 is 6 (3.3%), third in case of school career, under high school is 13 (7.1%), undergraduate is 32 (17.6%), university graduate is 109 (59.9%), graduate is 28 (15.4%).

<Table 1> Operation Definitions

Variable		Operational Definition	Item	Related Research
User Traits	Innovativeness	Prompt acceptance degree of new technology and products based on smart TV by personal user than others	4	Lee (2011), No (2013), Wang (2015)
	Self-efficacy	The assessment about his own ability that can use new technologies and new products based on smart TV effectively	4	Pyo (2012), Chang (2014), No (2013)
Smart TV Traits	User interface	Design on menu, function for easy handle, direct content-retrieval based on smart TV by user	4	Lee (2011), Choe (2011)
	Function	Various functional traits like broadcasting, internet retrieval, application, linking with other devices based on smart TV	4	Jun et al. (2012), Jun(2012), An(2013)
Mediator	Perceived Ease of Use	Degree of easy learning, memory and use based on smart TV by user	4	Janeaya Revels et al. (2010), Fan(2015)
	Perceived Usefulness	Degree of belief on gaining profit and useful recognition on purpose based on smart TV by user	4	Janeaya Revels et al. (2010), Fan(2014)
Continuous Use Intention		Intention to continuous use based on smart TV by user	4	Fan(2015), Han(2014)

<Table 2> Demographic Characteristics

Division		Respondent (number)	Ratio(%)
Sex	male	74	40.7
	female	108	59.3
Age	under 20	8	4.4
	20~29	98	53.8
	30~39	52	28.6
	40~49	18	9.9
	above 50	6	3.3
School career	under high school	13	7.1
	undergraduate	32	17.6
	uni graduate	109	59.9
	graduate school	28	15.4

4.2. Reliability Analysis

In this study, the reliability of all the variables is measured in more than 0.7. These are all over the desired level. So the reliability is good for the analysis. The results of reliability analysis are shown in the following <Table 3>.

<Table 3> Reliability Analysis

Division		Item	Numbering	Cronbach's α
User traits	Innovativeness	4	V1~V4	.873
	Self-efficacy	4	V5~V8	.788
Smart TVtraits	User interface	4	V9~V12	.823
	Function	4	V13~V16	.791
Perceived usefulness		4	V17~V20	.782
perceived ease of use		4	V21~V24	.835
continuous use intention		4	V25~V28	.889

<Table 4> Exploratory Factor Analysis

Item	Component							
	fac1	fac2	fac3	fac4	fac5	fac6	fac7	fac8
Innovativeness	V1			0.793				
	V2			0.852				
	V3			0.748				
	V4			0.882				
Self-efficacy	V5							0.7769
	V6							0.664
	V7							0.782
	V8							0.745
User Interface	V9	0.833						
	V10	0.772						
	V11	0.791						
	V12	0.859						
Function	V13				0.836			
	V14				0.668			
	V15				0.854			
	V16				0.763			

4.3. Exploratory Factor Analysis

All eigen value in the factor analysis is more than 1.0, and loading factor is more than 0.5. So, exploratory factor analysis is fit for empirical analysis. Total cumulative ratio is 6.82%.

4.4. Confirmatory Factor Analysis

Finally, confirmatory factor analysis was performed and removed V8 and V14. The results of confirmatory factor analysis in the overall final variables are =6230.841 (p=0.000, df=359), IFI=0.933, CFI=0.925, RMSEA=0.045.

4.5. Discriminant Validity

In this study, after removal of both V8 and V14, the discriminant analysis was performed. The results are on <Table 4>. According to it, the biggest correlation coefficient between the latent variables is 0.719. The square of the correlation coefficient, that is the coefficient of determination is 0.52. In this study, all AVE is greater than 0.52. So discriminant analysis is significant.

4.6. Analysis of Structural Model

The results of the fitness of structural model are on the <Table 7>. The indices are as follows: =544.325 (p=0.000, df=323), IFI=0.929, CFI=0.941, RMSEA=0.041. All standardized factor loading value is greater than 0.5, And the SMC value is more than 0.4. Therefore, this model does not have any serious problem to make analysis. The evaluation result of structural model is good as proper model.

Item		Component							
		fac1	fac2	fac3	fac4	fac5	fac6	fac7	fac8
Perceived usefulness	V17						0.763		
	V18						0.751		
	V19						0.762		
	V20						0.788		
Perceived ease of use	V21			0.713					
	V22			0.737					
	V23			0.773					
	V24			0.759					
Continuous use intention	V25		0.755						
	V26		0.740						
	V27		0.763						
	V28		0.771						
eigen value		2.825	2.802	2.754	2.739	2.648	2.630	2.455	2.396
Ratio (%)		7.98	7.97	7.85	7.83	7.58	7.54	7.05	7.02
Cumulative (%)		7.98	15.95	23.8	31.6	39.2	46.75	53.8	60.82

<Table 5> Confirmatory Factor Analysis

Factor	mea. item	stn. loading	mea. error	Stn error	t value	p value	SMC	AVE
Innovativeness	V1	.768	.276	.109	9.867	***	.567	.890
	V2	.795	.230	.102	10.153	***	.636	
	V3	.668	.367	-	-	-	.441	
	V4	.794	.149	.087	10.113	***	.623	
Self-efficacy	V5	.693	.209	.109	8.725	***	.479	.865
	V6	.729	.220	.114	8.912	***	.541	
	V7	.710	.219	-	-	-	.489	
User interface	V9	.788	.180	.089	11.336	***	.621	.906
	V10	.689	.278	.101	10.152	***	.478	
	V11	.719	.239	-	-	-	.519	
	V12	.818	.162	.092	11.639	***	.678	
Function	V13	.859	.079	-	-	-	.752	.915
	V15	.817	.081	.070	12.854	***	.669	
	V16	.714	.284	.089	11.719	***	.521	
Perceived usefulness	V17	.698	.283	.107	9.315	***	.479	.869
	V18	.729	.239	.102	9.635	***	.529	
	V19	.688	.258	-	-	-	.491	
	V20	.673	.310	.109	8.976	***	.438	
Perceived ease of use	V21	.781	.213	.104	10.812	***	.611	.889
	V22	.778	.227	.108	10.868	***	.607	
	V23	.711	.287	.103	9.979	***	.492	
	V24	.693	.259	-	-	-	.479	
Continuous use intention	V25	.810	.151	.081	13.032	***	.649	.941
	V26	.804	.161	.085	13.051	***	.659	
	V27	.819	.159	.087	13.132	***	.649	
	V28	.749	.187	-	-	-	.569	
fitness of mea. model	=6230.841 (p=0.000, df=359), IFI=0.933, CFI=0.925, RMSEA=0.045							

<Table 6> Discriminant Validity among Construct

Division	Innovativeness	Self-efficacy	User interface	Function	perceived usefulness	Perceived ease of use	Continuous use intention
Innovativeness	.890						
Self-efficacy	.249	.865					
User Interface	.127	.241	.906				
Function	.112	.018	.059	.915			
Perceived usefulness	.139	.359	.176	.239	.869		
Perceived ease of use	.251	.341	.289	.112	.445	.889	
Continuous use intention	.219	.409	.251	.109	.425	.719	.941

<Table 7> Evaluation of Structural Model

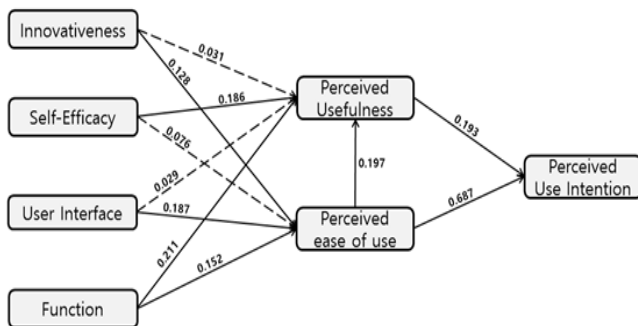
Factor	mea. item	stn. loading	mea. error	Stn error	C.R.	SMC
Innovativeness	V1	1.128	.761	.113	9.853	.569
	V2	1.104	.788	.106	10.135	.621
	V3	1.000	.661	-	-	.427
	V4	.942	.792	.091	10.088	.612
Self-efficacy	V5	.959	.688	.109	8.709	.491
	V6	1.058	.731	.118	8.859	.528
	V7	1.000	.710	-	-	.489
User Interface	V9	1.041	.782	.089	11.318	.616
	V10	.991	.689	.094	10.135	.479
	V11	1.000	.719	-	-	.519
	V12	1.007	.821	.091	11.641	.668
Function	V13	1.000	.862	-	-	.742
	V15	.861	.770	.065	12.869	.669
	V16	1.120	.735	.092	11.721	.520
Perceived usefulness	V17	1.039	.677	.109	9.231	.473
	V18	1.049	.728	.105	9.690	.532
	V19	1.000	.699	-	-	.487
	V20	.989	.658	.109	8.918	.429
Perceived ease of use	V21	1.170	.769	.111	10.786	.605
	V22	1.231	.780	.120	10.820	.609
	V23	1.079	.689	.109	9.823	.485
	V24	1.000	.690	-	-	.469
Continuous use intention	V25	1.019	.811	.080	13.029	.649
	V26	1.061	.810	.079	13.009	.658
	V27	1.112	.809	.081	13.119	.663
	V28	1.000	.760	-	-	.581
Fitness of mea. model		=544.325(p=0.000, df=323), IFI=0.929, CFI=0.941, RMSEA=0.041				

4.7. Hypothesis Testing

Verification results for each hypothesis based on structural model are as follows. <Table 8> and <Figure 3> show them.

<Table 8> Results of Hypothesis

Path(hypothesis)	Estimate	S.E.	C.R.	p value	Result
<H1-1> innovativeness→perceived usefulness	.031	.052	.363	.705	reject
<H1-2> self-efficacy→perceived usefulness	.186	.084	1.919	.045	accept
<H2-1> innovativeness→perceived ease of use	.128	.053	1.988	.048	accept
<H2-2> self-efficacy→perceived ease of use	.076	.087	.925	.332	reject
<H3-1> user interface→perceived usefulness	.029	.070	.546	.564	reject
<H3-2> function→perceived usefulness	.211	.071	2.976	.004	accept
<H4-1> user interface→perceived ease of use	.187	.073	2.552	.015	accept
<H4-2> function→perceived ease of use	.152	.067	.741	.46	accept
<H5> perceived ease of use→perceived usefulness	.197	.098	2.012	.047	accept
<H6> perceived usefulness→continuous use intention	.193	.085	2.682	.014	accept
<H6> perceived ease of use→continuous use intention	.687	.095	7.739	***	accept



<Figure 3> Measurement of Structural Model

4.8. Discussions of Hypotheses Results

All hypotheses except for the hypothesis <H1-1>, <H2-2>, <H3-1.> were accepted as shown above <Table 8> and <Figure 3>. Innovativeness of user personal characteristics on perceived usefulness is not significant but self-efficacy is. This means that innovativeness does not make any significant influence on perceived usefulness. Instead of that, self-efficacy makes significant influence on perceived usefulness. These results are different from those of Fan (2015). On the contrary, innovativeness on perceived ease of use is positive effect but self-efficacy is not. This means that innovativeness does make any significant influence on perceived ease of use. Instead of that, self-efficacy does not make. User interface of smart TV traits on perceived usefulness is not significant but function is significant. This means that user interface does not make any significant influence on perceived usefulness. Instead of that, function makes significant influence on perceived usefulness. These results are same from those of Fan (Fan, 2015). While user interface on perceived ease of use is affirmative effect also function is same. This means that not only user interface but also function does make any significant influence on perceived ease of use at the same time. Perceived ease of

use on both perceived usefulness and continuous use intention is significant. Also perceived usefulness on continuous use intention is meaningful. This means that perceived ease of use makes any significant influences on not only both perceived usefulness but also continuous use intention. Also, perceived usefulness does on continuous use intention.

5. Conclusions

In summary, the results are as follows. First, among user personal traits, innovativeness does not significantly affect perceived usefulness and self-efficacy does not significantly affect perceived ease of use. By interpreting these results, users cannot accept the innovativeness, for example, they cannot understand several kinds of technologies more quickly and easily. This means that the speed of technology development is more faster and faster than users can expect. In other words user cannot understand them fully and cannot utilize them enough. In that point, companies should prepare to get more useful and interesting contents to satisfy users with innovativeness. Second, among user personal traits, innovativeness does affect perceived ease of use significantly but self-efficacy does not significantly affect perceived ease of use. By interpreting these results, users can accept the innovativeness, for example, they can use smart TV effectively and easily as they want. But this situation cannot drive and satisfy their wants. Therefore, they want to have self-efficacies through more diversified technologies for their satisfaction. In that point, companies should further enhance the usability by designing so that users can easily have their self-efficacies when watching smart TV or contents.

Third, among smart TV traits, user interface does not significantly affect perceived usefulness but user interface and function do significantly affect perceived ease of use.

By interpreting these results, users cannot accept user interface at present for example, they cannot accept or utilize the level of interface usefully at present. In other words they want to possibly use more convenient and better interface than now. This means that most companies should develop the interface technologies to the customers' satisfied level as soon as possible. For example, companies should focus on the design of the menu, Haya, and functions to simplify the operation to the early users as new services. The technological development will induce industry promotion and it will secure and strengthen company's competitions eventually country's competitiveness.

Fourth, among smart TV traits, function does affect both perceived usefulness and perceived ease of use significantly. This means that users can satisfy function by using it usefully. And that they feel or think perceived ease of use. By interpreting these results, users can use diversified functions when watching smart TV easily and usefully. Fifth, perceived ease of use affects significantly on perceived usefulness. Namely perceived ease of use is very useful to users when using smart TV. This means that they can meet their satisfaction to use them easily and effectively. Most companies should develop rich and significant information contents with easy-to-use. Sixth, not only perceived usefulness but also perceived ease of use do affect continuous use intention significantly. This means that

present easiness and usefulness are very helpful for users to use smart TV continuously. Users have intentions to use persistently and sustainably in the future.

These are some strategical implications based on the results of this study from above findings especially for companies. First, companies had better offer a variety of contents, easily use and simple services such as easy viewing methods for users. Second, now China's market can serve many contents freely without strict regulations. So, the competition is very severe. In the new future, strict regulations will be wide spread all over the world. Therefore, companies should develop related technologies through benchmarking to compete with other countries. Third, companies should investigate the essential elements for using smart TV including minute technologies or functions like, for simple examples, smart TV menu screen, easy deployment, installation, etc.

This study has some limitations as follows. First, this study does not consider several variables sufficiently. Following studies should include diversified ones from many factors. Second, because respondents are centered on 20s and 30s, stratified sampling method is useful to collect several samples evenly. Third, results are not generalized because of regional limitations. Next time, regional consideration should be included especially in China.

References

- An, M. J. (2013). *A Study on the Acceptance Factors and Gratification of the early Smart TV Users*. (Master dissertation, Sogang University).
- Bandura, A. (1986). *Social foundation soft thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Chang, H. Q. (2014). *A Study on the Influence of Using Intention by E-Government's G4C Smart Application Characteristics-Focused on the Comparison between Korea and China*. (Doctorial dissertation, Kongju National University).
- Choe, M. S. (2011). *A study on the influence of factors such as personal innovativeness, social influence and user interface on smart phone acceptance: based on an expanded technology acceptance model*. (Doctorial dissertation, Ewha Womans University).
- Compeau, D., & Higgins, C. (1995). Computer self-efficiency: Development of measure and initial test. *MIS Quarterly*, 1(19), 189-211.
- Davis, F. D. (1989). Perceived Usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- Fan, L. L. (2015). *A study on the persistent using intention of the OTT service application based on Smart TV focused on China market, Korea*. (Master dissertation, Kongju National University).
- Goldsmith, R. E., & Hofacker, C. F. (1991). Measuring consumer innovativeness. *Academy of Marketing Science*, 19(2), 209-211.
- Han, J. S. (2014). *Understanding travel-related mobile application users' continuance Intention: An extension of the expectation-confirmation model*. (Master dissertation, Kyunghee University).
- Han, P. K., Park, J. S., Jun B. H., & Kang, B. G. (2010). A study on the factors of mobile applications adoption. *Journal of the Korea Society of IT services*, 19(3), 65-82.
- Janeaya, R., Dewi, T., & Yelena, T. (2010). Understanding consumer intention to use mobile services. *Australasian Marketing Journal(AMJ)*, 18(2), 74-80.
- Jeon, S. H. (2012). *A study on the effect of user innovativeness and product characteristic on repurchase intention of smart device*. (Doctorial dissertation, Konkuk University).
- Jeon, S. H., Moon, J. B., & Yoo, W. J. (2012). Study on the factors influencing the user satisfaction and

- cost satisfaction of smart devices. *The e-Business Studies*, 13(1), 3-24.
- Ketola, P., & Roykkee, M. (2001). The three facets of usability in mobile handsets. *Proceedings of the CHI 2001 workshop. Mobile communications: Understanding users, adoption & design, Seattle, Washington*.
- Kim, J. H. (2010). *A study on the acceptance intention for smart phone: using an extended TAM*. (Master dissertation, Konkuk University).
- Kim, M. J. (2014). *The effect of smartphone mobile banking usability and perceived usefulness on continuous usage intention*. (Master dissertation, Hongik University).
- Kim, S. H. (2012). *An encryption Method for contents of video service using the HTTP adaptive streaming in smart TV environment*. (Master dissertation, Soongsil University).
- Kwak, H. S. (2013). *A study on the factors affecting the continuous intention of using cloud-based note-taking application*. (Master dissertation, Yonsei University).
- Lee, D. G. (2011). *A study an empirical study on the prediction of potential consumers' intention to use Smart TV*. (Doctorial dissertation, Chonnam National University).
- Lee, E. M. (2014). *A study on the factors affecting reuse intention of mobile application*. (Master dissertation, Chonbuk National University).
- Lee, J. A. (2011). *Influence of motivation for using smart phone application and innovation/congruence on application use and substitution for other media/living equipment*. (Master dissertation, Sogang University).
- Lee, J. Y., & Eune, J. H. (2013). A study on acceptance factors of smart TVs focusing on UX, UI. *Archives of design research*, 26(1), 287-311.
- Lee, S. K. (2012). *Promoting the museum communication through smart mobile applications*. (Master dissertation, Kookmin University).
- Lee, Y. K., Park, J. H., Chung, N. H., & Alisha, B. (2011). A unified perspective on the factors influencing usage intention toward mobile financial services. *Journal of Business Research*, 65(11), 1590-1599.
- No, J. G. (2013). *A study on users' participation intention influenced by users' perceived usefulness & perceived ease of use of smartphone radio application*. (Master dissertation, Seoul National University of Science and Technology).
- Park, H. J. (2013). *Smartphone users' motivations and acceptance of instant messenger applications: Focused on Kakao talk and kakao story*. (Master dissertation, Dankook University).
- Pyo, J. W. (2012). *The affecting factors on the usage of smart phone application: the case of Kakao talk*. (Master dissertation, Dongguk University).
- Yoon, J. H. (2010). The impact of user interface types characteristics on the information media usage behavior. *Journal of the Korean Society for Information Management*, 27(3), 53-66.
- Yu, J. H. (2013). *A study on the influence of customer satisfaction by smartphone-based game applications*. (Master dissertation, Dongguk University).
- Wang, M. (2015). *A comparative study on affecting factors of smart phone paid/free application use's continuance intention*. (Master dissertation, Chonnam National University).

<p>This work was supported by the research grant of the Kongju National University in 2015</p>
--