The Role of Entertainment and External Values in Consumer`s Intention to Use Social Network Mobile

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Abstract. While people use more social network mobile games, research on SNMG is gaining more attention. This article presents results of entertainment and external drivers function in intention of social network mobile game and we suggest a research model that extend TAM model by adapting values from social network mobile game nature. Structural Equation Modeling (SEM) was used to measure relationships. We found that three factors, social norm, conditional value and perceived entertainment positively influence to intention. In conclusion, firms would use result of research to develop more favorable social network mobile game applications by reflecting values explored in this paper.

Keywords: Technology Acceptance Model (TAM), Social Network Mobile Game (SNMG), Perceived Entertainment.

1. Introduction

Social network services (SNS) is exponentially growing in today and causes many transitions. Game industry is one of area which is influenced by SNS`s power. Game companies have been developing various applications based on SNS platforms to reflect SNS trends. A social network mobile game (SNMG) is based on SNS platforms and support social interaction via multiplayer game and asynchronous game play. While people are more enthusiastic about SNS, they play more SNG. Furthermore, SNG is threating casual game markets. Not only off-line or on-line game market but also SNG deeply passes through in mobile game market. Consequently, many game developers are trying to jump into SNMG market including Electronic Arts (EA Games) which is famous game software company in casual game market.

In past, mobile game was not a main stream in game industry because lack of device quality prohibited developers to make better software with high quality graphic or various functions. In today, while improvement of smart phone has been dramatical, mobile game industry also has been growing rapidly. Smartphone not only provide better hardware quality but also network functions like Wi-Fi or LTE which was not often used in feature phones because of high cost. Moreover, developers utilize friendly OS environment such as Android or iOS which decreases level of difficulty and offers almost PC-like developmental environment. These improvements of devices and OS accelerate the growth of mobile game industry.

The purpose of this study is to identify the role of entertainment and values which affect to entertainment in intention to use social network mobile games (SNMG). A structural equation modeling (SEM) was used to test the model. To explore antecedents of intention, this study did a qualitative research of personal in depth interview.

2. Background

Mobile game has been studied by various scholars. Baber and Westmancott[2] explained mobile game playing from social network aspects. Ha et al[11] considered an extension of TAM to anticipate user`s adoption of mobile broadband wireless access technology-based game. Shin and Shin[6] studied how security and entertainment influence to intention to use SNMG. Many studies about intention of online game adopted TAM model to explain consumer`s activity. Many of them included social norm to predict user`s

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acceptance. Social influence was used to figure tout their role in user`s intention to use. [3,7,8] Moreover, perceived entertainment takes the important role in many.[4,10,15,20] This is because most of people play games to get entertainment, so hedonic value should be considered. Finally, mobile game is activated through communication networks and this means users may get in trouble of conenction while they enjoy game. Server of service or networks may function incorrectly and people feel uncomfortable to keep using application. Furthermore, connection quality should be regarded as key value in mobile game research.

3. Research Model and Hypothesis

As mentioned earlier, we used TAM model to investigate the relationships. However, TAM model does not solely explain user`s adoption of social network mobile game (SNMG), consequently we extend TAM model by including values; social norm, conditional value, connection quality and perceived entertainment. Fig 1 shows our model and relationships between constructs are described.
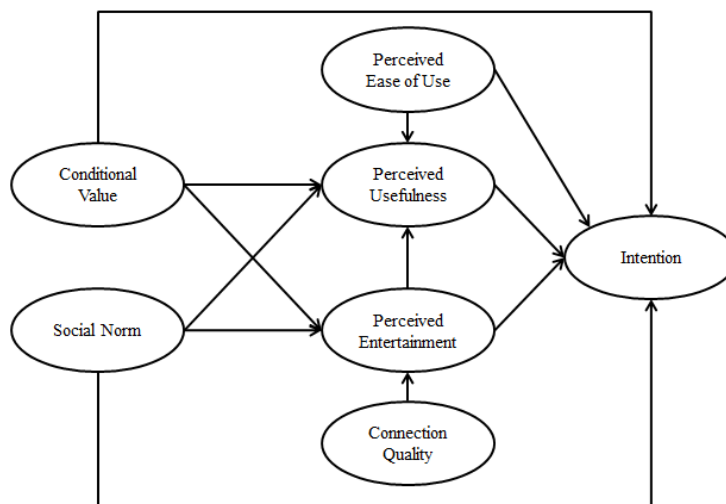

Fig 1: Research model.

3.1. Research Hypotheses

First, we described relationships related with perceived ease of use (PEU). PEU is defined as how people play SNMG more easily and adopt fast. PEU had shown positive effect on perceived usefulness (PU) and intention in previous studies. Therefore, in this research, positive relationships between PEU and PU and between PEU and intention need be predicted.

- H1 Perceived ease of use positively influences to perceived usefulness
- H2 Perceived ease of use positively influences to intention

Social influence was defined as 'the degree to which an individual perceives that important others believe he or she should use the new system' (p.451) by Venkatesh[14]. It has great impact on entertainment services like game to involve interpersonal influence.[9] To be specific, online game which is very similar to social network mobile game is appraised by social relationship during game play. [4, 10] In addition, mobile service usage is also influenced by social norm. [17] Finally, social norm was prominent factor comparing to others. [3,7,8] Moreover, our-qualitative interviewees responded that they think SNMG is useful when they touched their old friends.

- H3 Social norm positively influences to perceived usefulness
- H4 Social norm positively influences to perceived entertainment
- H5 Social norm positively influences to intention

Conditional value was defined as 'the perceived utility acquired by an alternative as the result of the specific situation or set of circumstances facing the choice maker.' (p.162) [13] It is important in mobile services to focus on offering conditional value to consumer and it would increase commitment and intention to use.[16] Survey result by MocoSpace reported that 83% people play game to have fun when they are waiting for an appointment and 72% replied while commuting. According to the qualitative research, they often played game to relieve the boredom by entertainment during moving to somewhere, or spare time and mentioned that SNMG is useful to consume their spare time.

- H6 Conditional value positively influences to perceived usefulness
- H7 Conditional value positively influences to perceived entertainment
- H8 Conditional value positively influences to intention

System quality means reliability, response speed and ease of use of mobile social network platforms. [1, 14] The connection quality refers response speed and depending on location or hardware, response speed would be decided. This is really important matter SNMGs are based on social network platform. To enjoy game, people need to access social network via WiFi, 3G or any type of networks. Therefore, connection quality deeply involves in determining total quality of game by player. [15, 20] In the qualitative research, if connection fails during playing game, players were very annoyed.

- H9 Connection quality positively influences to perceived entertainment

The relationship between perceived usefulness (PU) and intention has mentioned in prior research, so we expect the similar result.

- H10 Perceived usefulness positively influences to intention

Perceived entertainment (PE) means fun or pleasure during playing. It is defined that the intrinsic reward given by the use of the technology or service. [12] Perceived entertainment is a strong determinant of intention. In online game, entertainment is positively related with intention to use. [3, 8] Also, perceived entertainment is positively related with intention to use of mobile services. [11]

- H11 Perceived entertainment positively influences to perceived usefulness
- H12 Perceived entertainment positively influences to intention

4. Methodology

4.1. Measurement

The research model contains 7 constructs. Multiple items were used to measure each structure. All items were first translated into Korean and measures were checked to confirm content validity. PEU items were selected from Doll *et al* [19]. SN and PU were chosen from Venkatesh [14]. PE and intention was from Ha and Stoel [18] and conditional value was selected from Sheth *et al*. [13] Connection quality items were picked in Kuo *et al* [20]. We used the results of qualitative research to reflect actual users` expressions. Number of respondents of qualitative research was 15 and they were heavy users of social network mobile game.

4.2. Data collection

On-line and off-line surveys were conducted together to collect data and respondents are Korean college students who are familiar with smartphone and SNMG. Total number of sample is 150. Demographic information is shown in Table 1.

Table 1: Demographic information of samples.

Sex Ratio	Male: 94, Female: 66				
Age Distribution	15~19	20~24	25~29	30~34	35~
	11	70	54	12	3
Number of usage period	Mean: 6.6 month, SD: 6				
Usage Time	Mean: 35.2 minute per day, SD: 35.6				

5. Methodology

LISREL 8.8 and SPSS 20.0 are used to analyze data. First, exploratory factor analysis (EFA) is utilized to manage relationships between variables and survey items. Through EFA, factors and items were well regulated to initiate confirmatory factor analysis (CFA). CFA was investigated by using LISREL to examine reliability and validities. To make sure, measurement model was firstly tested and research model was analyzed to test hypotheses. Convergent validity and discriminant validity were tests. All items were contained and this ensures unidimensionality of items. In addition, in Table 3 average variance extracted (AVE), composite reliability (CR) and Cronbach Alpha values are calculated and all values exceed the standard of each area.

Table 2: AVE, CR and Alpha value.

Factor	AVE	CR	Alpha
Perceived ease of use	0.830	0.815	0.845
Social norm	0.827	0.812	0.893
Conditional value	0.825	0.811	0.900
Connection quality	0.823	0.807	0.885
Perceived usefulness	0.796	0.773	0.773
Perceived entertainment	0.816	0.797	0.840
Intention	0.794	0.773	0.758

Next step was testing research model through LISREL. Figure 1 represents final result of model and Table 3 shows fit indices of the research model.

Table 3: Fit indices.

	Recommended value	Result
GFI	$p \geq 0.90$	0.91
AGFI	$p \geq 0.80$	0.84
NNFI	$p \geq 0.90$	0.94
NFI	$p \geq 0.90$	0.93
CFI	$p \geq 0.90$	0.96
RMSEA	$p \leq 0.10$	0.073

All results of fit indices passed recommended values. Final step was testing hypotheses and results were shown in Table 4.

Table 4: Hypotheses.

		Result	Estimate	t-value
H1	PEU→PU	Rejected	-0.18	-2.52*
H2	PEU →IN	Rejected	-0.02	-0.36
H3	SN→PU	Accepted	0.45	5.51*
H4	SN →PE	Accepted	0.28	3.63*
H5	SN →IN	Accepted	0.26	2.82*
H6	CV→PU	Rejected	0.07	0.81
H7	CV→PE	Accepted	0.37	4.43*
H8	CV→IN	Accepted	0.38	4.37*
H9	CQ→PE	Accepted	0.17	2.24*
H10	PU→IN	Rejected	0.13	1.15
H11	PE→PU	Accepted	0.33	3.83*
H12	PE→IN	Accepted	0.29	3.05*

Eight hypotheses were supported and four hypotheses were rejected. PEU had negative relationship with PU which result was the reverse direction of expectation and relationship between PEU and IN was not enough significant to support hypothesis. Therefore, PEU does not regard as the important determinant of SNMG. Fulfilling our anticipation, hypotheses of SN were accepted. H6 was only rejected among hypotheses related with CV and PU was not remarkable driver of intention because people may feel entertainment while playing SNMG rather than usefulness.

6. Conclusion

The purpose of this study was to determine antecedents of intention to use of SNMG. Modified TAM model was used to do research and model shows the highly significant role of PE and SN. According to result, PE is the most influencing factor to intention to play SNMG. Application providers should endeavor

to develop creative contents to give more fun. To do that, drivers like social norm, conditional value and connection quality mediate perceived entertainment. They reinforce social functions to increase social influence factor on game. Moreover, guarantee for connection quality of game is one of significant matter to keep users` attention. Finally, people play SNMG in their spare time which usually not long, so contents should be constructed with several short stages which are finished in a brief space of time.

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