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Selection Factors of Mobile Social Network Games: Focusing on the Playing Types

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Abstract

With the exponential spread of Mobile phones, the Mobile social network game (hereafter "MSNG") market is rapidly growing. MSNG Service provider can enjoy an enormous success of fast spreading market growth of MSNG, while they have to endure the short product life of its service. Recently, the average usage length is less than three months, and it is getting shortened. Managers have to harvest the profit while investing on the marketing to fuel the market penetration. This study tries to find the attributes to continue the MSNGs considering the different forms of game opponents (i.e., machine, individual player, and group players). Results based on the 678 respondents present the efficacy of different attributes for the different game opponent settings. Managerial implication and the future research direct have been discussed.

Keywords*: Mobile social network games, Attributes to continues, forms of game opponents*

1. Introduction

Due to an increase in smartphones usage, the number of customers who play mobile games is growing. In particular, SNG(Social Network Game), which is linked to Social Network Services, is in the limelight.

SNG is an acronym for "Social Network Game." It is a form of online game which connects users of various Social Network Services, including Facebook, Twitter, and Kakaotalk [1].

Recently, with the spread of Smartphones, mobile social network games (hereafter, MSNGs) have been widely accepted by all generations, and take up the spare time of smartphone users. Considering that the smartphone converges information and telecommunication technology together, MSNGs is a promising service sector with rapid market growth [2].

The market scale of MSNGs rapidly develops across the globe. Total world market volume was estimated at $99.6 billion in 2016, and personal screen took up 23.7% of the market share [3]. According to the market forecast for MSNGs, it will expand to $6.7 billion in the Korean market alone [4].

Compared with existing PC games or online games, SNG has an advantage in that the users enjoy the games with family or friends, not with unknown strangers. Online games

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pose greater risk of side effects, as it connects users with strangers [2]. While the fast proliferation has been regarded as the advantage of MSNGs, its short product life cycle (hereafter, PLC) with rapid maturity and decline is unfavorable to MSNGs service providers[4]. Recent studies insist that the average length of usage for MSNGs is less than three months and its short PLC is on the rise as risk factors to MSNGs managers [5].

This study intends to identify the attributes to continue the MSNGs. Specifically, we focus on the forms of game opponents. While the opponents of conventional arcade games were the machines, game users can nowadays play with other human players. Moreover they can enjoy the group battle. We assume that the different types of opponents can affect the attributes to continue and build three experimental groups (*i.e.*, individual player vs. machine, individual player vs. individual player, group player vs. group player) in order to compare the mean differences among the groups.

We build the constructs based on the study of the Korea Creative Content Agency (KOCCA). They conducted series of in-depth interviews to build the schema of database for contents business and the game industry was the one of the main sectors. Investors and managers of MSNGs recommended interesting factors of the contents, rewards for the MSNGs, social supports, and technical supports for the game users to continue the MSNGs [6]. So we plan to conduct a survey with high school and university students as the research population to verify the empirical evidences. The types of game opponents and users characteristics have been considered to be the moderating variables in this study. We hope to find the different patterns of attributes to continue the MSNGs and deliver the managerial implication to the MSNGs service provider.

2. Literature Review

2.1. Mobile Social Network Game (MSNG)

Requests for research on the online social network services (SNSs) has been widely proposed [7]. When online games are distributed through the SNSs (including linked distribution with SNSs), those games are defined as SNGs. MSNG is accepted as a name of social games and generally referred to as a web-based, simple repeated game that is played with the users, based on the relationships formed from the SNS [4]. The business model of MSNGs heavily depends on online advertisement and item sales. Therefore, the mangers have to rapidly expand its user network and maximize the usages of game participants within short PLC. So the factors that attract and maintain the customer are essential to sustaining the MSNGs business[8].

2.2. Attributes to Select and Continue the Msngs

Game services providers continue to invest to find the attributes to be selected by the customer. Considering short PLC of MSNGs, the factors to maintain the usages are essential, too. To introduce a numerous MSNGs, two critical factors should be the in the core in any entertainment services delivery systems. Fun factor of the games and usefulness of the game content have been identified as the previous advantages of MSNGs [9-10]. For the usage of traditional games, the enjoyment factor is the main issue for the participants of the games [11]. But, the usefulness should be engraved in the mind of each customer, when users pursue the advantages from the content of services delivery systems [12-13].

Most MSNGs deliver the games that provide services based mainly on fun factor and usefulness. So the MSNGs developers consider enjoyable tasks, and providing players with fun and entertainment [14-15]. To give the customer the perception of usefulness, MSNGs should be linked to SNS(Social network services). SNS gives the game participants the connection with the other players and social support from them. So the game users experience the extinction of the relationships with other people and

communication in virtual reality [7]. Existing studies try to identify the degrees of usefulness and enjoyment perceived by the game users in the different contexts [16].

3. Research Model

Existing studies on MSNGs largely concern with gamer's personal traits [17] and his or her behaviours [18]. Game players use SNG to pursue fun. Additionally, some users love to compete with other game players, and the others want to achieve more by challenging themselves to master the game or to get a higher level. Immerging MSNGs, users are absorbed in a fantasy world, and identify themselves with another game character. Sometimes game players of SNG enjoy the interaction with other game participants [17].

Moreover, Korea Creative Content Agency (hereafter 'KOCCA'), with data gathered from interviews with entrepreneurs of mobile game business, proposes content entertainment elements, reward, social support, and technical support as building components of a mobile game [19].

The model of this study is basically based on the elements of KOCCA. First, mobile game report of ARC Group asserts that plot or theme is important in order to attract gamers. Also, it stresses that "appearance" of a game, including color display, sound, graphic, animation and graphic elements, poses critical influences on gamers' continued use of the game content.

According to 'White book on Korean game 2005' published by KOCCA, responses showed that "favorite character" and "storyline" were important in choosing mobile game than in other game platforms; thus game characters and story are important factors to be considered in the making of a game.

Hypothesis 1. Perception of content entertainment elements will differ depending on mobile game playing types and groups.

Second, "reward" in game refers to a proper reaction of an online game to user when he or she has completed a certain action. It also includes cases in which the enemy perishes by the attack of user, or the power of user's character strengthens when he or she reaches a certain goal.

A fitting reward in online game could promote effective interaction, making the player immerse himself in the game.

Hypothesis 2. Perception of a reward will differ depending on mobile game playing types and groups.

Third, in choosing which mobile game to play, studies have shown that factors including interaction, reward, and a sense of accomplishment influence user intent to use and continue to use the game. Also, challenge elements were one of the most important factors in mobile games. According to a survey taken by developers of mobile games, social support, challenge, interaction, recognition, and a sense of accomplishment were important factors in mobile game.

Hypothesis 3. Perception of social support will differ depending on mobile game playing types and groups.

Lastly, a study by KOCCA showed that accessibility, handy control, the volume of game contents, and network overload were important factors in technological support of mobile game developers [9].

Generally, system quality is an extent to which the user can use the system efficiently and steadily. It explains the operational efficiency of Information Systems. While system quality has been studied as a success factor of information systems, such outcome is the result of technological factors, which includes turnaround time, currency, accuracy, response time, system flexibility, reliability, and completeness. And accessibility means that anyone could easily access media and use the contents. Conditions that facilitate mobile game use of players are referred to as technological support.

Considering Group to Group play type is in the situation of limited space with numerous participants who want a relatively simple purpose, accessibility and loads for

game and network would not be so burdensome than that of Person to Person game or Person to Machine play type

Hypothesis 4. Perception of technical support will differ depending on mobile game playing types and groups.

Here we tried to analyze the difference of perception depending on mobile game playing types and groups by extending from the existing study (KOCCA, 2015). This study aims to illustrate the differences in factors of mobile game depending on game playing types and groups with what we found about factors of content entertainment elements, reward, social support, technical support in mobile games.

4. Research Methodology

We intend to compare the mean differences among the groups based on two factors. We consider the level of freedom as the first control variable, and collect the data from high school students (lower freedom group) and university students (upper freedom group). Additionally, we hypothesize the differences among the forms of game opponents, and build three types of surveys.

Constructs and the measurements are anchored on the research for the game industry. According to the report from the KOCCA (2015), practitioners in MSNGs suggest four necessary dimensions(*i.e.*, interesting factors of the contents, rewards for the MSNGs, social supports, and technical supports) to develop successful games.

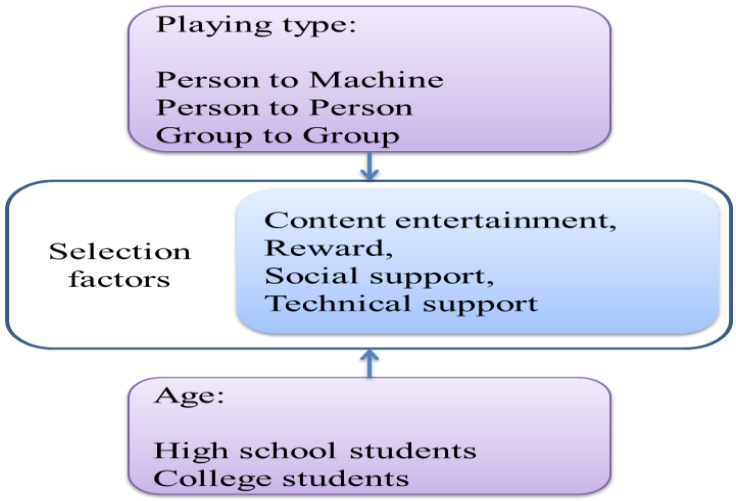

Figure 1. The Proposed Research Model

We collected the 677 responses, and plan to apply the ANOVA to compare the differences among the groups.

The population of this study is users who play mobile game continuously. Individual survey question was posed based on the existing literature, and the data were gathered by survey. In this process, we retrieved a total of 678 surveys. Excluding 10 inappropriate responses, we carried out the analysis with 668 surveys.

Table 1 is the summary of attributes of descriptive statistics of the responses. The results showed that male users are 74.0% and female users 26.0%. The age group from 16 to 20 were most frequent users, with 58.1%. For academic background, high school students and college students were 50.0%, respectively. For “Hours of smartphone use,” more than 5 hours was the most frequent response, with 22.5%. For “Hours of mobile game use” less than 30 minutes was the most frequent response, with 64.2%.

Table 1. Respondent's Information in the Main Survey (n= 668)

Division		Frequency	Percent	Division		Frequency	Percent
Gender	Male	494	74.0	Age	10~15	4	0.6
	Female	174	26.0		16~20	388	58.1
Academic Background	High School Student	334	50.0		21~25	197	29.5
	College Student	334	50.0		26~30	79	11.8
Hours of use of smartphone	Less than 1 hour	65	9.7	Hours of use of mobile game	Less than 30 minutes	429	64.2
	1~2 hours	112	16.8		31 minutes to 1 hour	111	16.6
	2~3 hours	145	21.7		1 hour ~1 hour 30 minutes	59	8.8
	3~4 hours	133	19.9		1 hour 31 minutes~2 hours	22	3.3
	4~5 hours	63	9.4		More than 2 hours	47	7.0
	More than 5 hours	150	22.5		Total	668	100.0

5. Results

It has been shown that there is a meaningful difference between the perception of content entertainment elements, social support, and technological support, depending on mobile game playing types and groups.

According to the analysis, content entertainment elements (p = 0.007), reward (p = 0.034), social support (p =0.001), and technical support (p = 0.024) were the factors which assumed to influence the differences. And all hypotheses were supported;

Table 2. Results of Analysis

Factors	Play type	Students	Mean	Standard deviation	*F*	Post-hoc analysis
Content entertainment	Person to Machine	① high school	3.594	1.044	3.226 (p = 0.007)	③ > ⑥
		② college	3.421	0.906		
	Person to Person	③ high school	3.760	0.819		
		④ college	3.461	0.806		
	Group to Group	⑤ high school	3.600	1.098		
		⑥ college	3.263	0.881		
Reward	Person to Machine	① high school	3.678	0.969	2.437 (p = 0.034)	③ > ⑥ / ② > ⑥
		② college	3.871	0.773		
	Person to Person	③ high school	3.848	0.772		
		④ college	3.714	0.769		
	Group to	⑤ high school	3.788	1.057		

	Group	⑥ college	3.490	0.968		
Social support	Person to Machine	① high school	3.552	1.024	4.381 (p = 0.001)	① < ③ / ③ > ②, ④, ⑥ / ⑤ > ②
		② college	3.357	1.025		
	Person to Person	③ high school	3.963	0.900		
		④ college	3.564	0.861		
	Group to Group	⑤ high school	3.815	1.166		
		⑥ college	3.481	0.988		
Technical support	Person to Machine	① high school	3.645	1.062	2.605 (p = 0.024)	③> ⑥ / ② > ⑥
		② college	3.768	0.877		
	Person to Person	③ high school	3.851	0.875		
		④ college	3.721	0.851		
	Group to Group	⑤ high school	3.619	1.073		
		⑥ college	3.402	0.923		

If we look closer, the importance of content entertainment elements recorded a higher average in the high school students group than in the college students group. Game Playing type showed, from the highest rank – Person to Person, Person to Machine, and Group to Group. In the case of Person to Person, or Person to Machine, the game focuses on challenging the task with various content entertainment elements. In case of Group to Group play, the game focuses more on winning the game –competition between teams and cooperation within team. Accordingly, Person to Person, Person to Machine games put a greater emphasis on the game's story, character, sound (background music), design, and the world within game than Group to Group games.

Especially, after doing post-hoc analysis in order to check the significant difference between the groups, we found that high school students who play Person to Person rated the content entertainment elements better than did college students who play Group to Group. The importance of reward in mobile game showed an average value greater than 3.6 in all groups, except the college students who use Group to Group play. This shows that in most of cases, reward is very important in game play.

Regarding the importance of social support, high school students emphasized it more than college students did, and Game Playing Types ranked from Person to Person, Group to Group, to Person to Machine. Unlike in the case of Person to Machine, where the user gains entertainment experience through continuous challenge, cases where interaction is emphasized, such as Person to Person, Group to Group would put greater importance on social support.

In case of Person to Machine, completing a mission, including quest, or gaining scores, would fuel the challenge. However, Person to Person, Group to Group play provides fun, recognition of members, and a sense of accomplishment through competition.

Technological Support is regarded as a more important element in types like Person to Machine, or Person to Person, where users enjoy various contents in course of clearing the mission, than in Group to Group cases where competition is the primary source of enjoyment.

In Person to Machine, or Person to Person play type, no advisor exists. So, the contents and storyline are more important to persuade the participants. It is similar with that of self -service situation. Without enough information and direction, customers would not be satisfied with that service with the failure of finding right direction

6. Conclusion

While the fast growth of the market is so attractive, short PLC has been considered as the vulnerable point of MSNGs. So, the identification of the attributes for users to continue is the keystone to generate the demand of potential customers under the time limitation to maximize the profits.

This study intends to find the differences for the continuance attributes among the forms of game opponents of MSNGs. Moreover, we strive to investigate the social factors during the game. Results show that the content entertainment, reward, social support, and technical support are the important factors for game users to continue the MSNGs. And those effects would be differentiated by the playing type and age are the factors to make the differences.

Based on the data which have been gathered from those in the late teens and the early twenties, we suggest some theoretical implication. First, this study proposes the factors for MSNGs users to continue the game. While the usages of MSNGs are skyrocketing, existing studies have been focusing on the online game. Mobile environments let the users invest more time and effort to play the game, and it gives more chances to the game publishers and developers. We recommended four antecedents based on recent interview with the experts in MSNGS, so the identification of those factors would be beneficial in maintaining the incumbent customer. Second, we pay attention to the importance of playing type. Different game opponents request game participants for pursuing different selection factors of MSNGs. Moreover, game developer should consider the differentiated set of game components to fulfill the needs of customers from the different forms of playing types.

Managerial implications are as follows. First, game service providers should pay more attention to deliver Group to Group game to college students. Generally, college students who participate in the Group to Group playing types give lower importance in any selection factors. While Group to Group is the common playing type in online games, it has not been widely accepted by college students, yet. Second, the interesting set of selection factors of reward and technical support needs to be investigated. High school students who play the Person to Person game and college students who enjoy the Person to Machine game puts more weight on reward and technical support than the college students who participate in the Group to Group game. Finally, social support is a more attractive element for the high school students in the game with human players, whether it is Group to Group or Person to Person game.

Limitations of this research call for more exploration on the topics of MSNGs. While paying more attention to the form of game opponents, reflection of mobile characteristics is somewhat limited. Considering that the mobility breaks the location barrier of game play, mobile traits should be investigated more in the future researches. We think the age can be the proxy for the level of freedom in playing the proxy MSNGs. Even though the differences were found between the high school and college students, there is no clear explanation for that gap in this study. We look forward to finding the answer in the next study.

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