

A Cause-effect Analysis of the Relationship between Game Use Motives and Continuous Intention: Mediated Effect of the Attitude toward the Shutdown System

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Abstract

The purpose of the present paper is to identify if there is any cause-effect relationship between online game use motives and their continuous use intention with a mediating parameter of their attitude toward the shutdown system. To that purpose, a survey was conducted to a group of 328 game users and a covariance structure analysis was performed. First, it was found that challenge/accomplishment and attack motives had a significant influence on the users' attitude toward the shutdown system. Second, it was found that entertainment; fellowship and attack motives play a significant influence on their intention to continue playing. Third, it was also found that their attitude toward the shutdown system was found to have a negative effect on their continuous use intention. Finally, a complete mediating effect was found between challenge/accomplishment motive and their continuous intention with the shutdown system being a mediator, whereas attack motive was found as playing a partial mediating effect. As adolescents tend to use games for entertainment, fellowship and attack motives, they should rather be provided with other forms of leisure activities than simply prohibited from playing games. Also, measures should be taken that will help the users have a positive perception of the shutdown system.

Keywords: Continuous Intention, Game, Game Use Motives, Shutdown System

1. Introduction

Adolescents make an active use of internet to gather necessary information, create their unique culture and confirm their identity. Playing games is an aggressive form of satisfying their desires and escaping from the intensive pressure of reality. Their choice of a medium to meet their desires is based on a variety of motives and reasons for enjoying online games. In other words, various motives underlie their internet game behavior.

Online games have been a more important part of their leisure activities than watching TV¹. It is expected that online games will be an important area of employment or life in the future. Apart from their perception of

online games, discussion throughout society of regulating their playing games has been in full swing. The issue of game addiction has been a controversial issue along with attempts to legislate against free use of online games. The youth now spend more time playing online games than ever, which is considered serious social problem.

A variety of problems resulting from excessive use of the games and insufficient sleep have recently attracted social attention: addiction, violence, lack of socialization, and a set of health problems from lack of sleep. A national policy called 'Shutdown' has been implemented to protect these young people but controversy still goes on. Thus, it is our expectation that researches on the relationship between their attitude toward the shutdown system and

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their behavior would help prevent them from getting addicted with online games.

Continuous intention refers to an individual's intention to continue to use the same product or service by being satisfied with it from comparison with similar products or services. That is, it means probability for a consumer to repeat using the same product or service in the future^{2,3} claimed in their empirical investigation on continuous intention for mobile internet that perceived usefulness, perceived pleasure, subjective norms and spontaneity are influential factors. Continuous intention has so far been analyzed in the area of information technology services including internet and web portal sites. There seems to be an agreement that users' satisfaction is a crucial prerequisite for continuous intention. Thus, adolescents' continuous intention is closely related with their pleasure from playing games and it might naturally follow that game use motive would affect their continuous intention.

The goals of the present research are as follows: (i) to identify how their game use motives (challenge/accomplishment, entertainment, fellowship, and attack motives) affect their continuous intention, (ii) to see if their attitudes toward the shutdown system depend on their game use motives, (iii) to see if game use motives affect their continuous intention with the shutdown system being a mediator. Identifying the relationship between the attitude toward the shutdown system and their continuous intention and that between game use motives and their continuous intention is expected to be the basis to protect the youth from game addiction or excessive immersion.

2. Theoretical Background and Hypotheses

2.1 Game Use Motive

Adolescents often get immersed in playing games in order to meet the needs. The use gratification theory claims that users do not simply accept delivered messages but actively use and evaluate them according to their desires⁴. That is, users show goal-oriented behavior by selecting and use messages with active motives and try to satisfy their psychological and social desires in their use of media.

Previous researches slightly differ in their definition of concepts and classification of game use motives, but mostly agree that adolescents use online games for the fol-

lowing reasons: challenge/accomplishment, escape from reality, sensation-seeking, personal interaction, information searching, time-killing and entertainment. They expect to reduce stress and seek pleasure and fun and by playing games. It was reported that they are more likely to be exposed to violent games when seeking to escape from reality^{5,6} investigated the relationship between game use motives and immersion.

She set up four categories of game use motives: challenge/accomplishment, entertainment, escape from reality and attack motives and found that there was a positive relationship between use motives and game immersion. She also found a highly significant interrelation between challenge and entertainment motives on one hand and their continuous intention on the other hand⁷ in turn, found that entertainment and pleasure motives led to higher risk of game addiction. Identification of major game use motives would, then, help us figure out how we can prevent adolescents from being addicted to online games.

2.2 Attitude Toward the Shutdown System

Discussion of the shutdown system began in 2005 and has been a controversial issue since then. Researches on the side effects of online games have found that easy accessibility, immersion, and durability of the games might result in excessive use and addiction, which might eventually lead to violence, maladjustment, and isolation. The shutdown system, which enforcedly prevents adolescents from using online games, was legislated in May, 2011 and went into effect after 6 months' grace period. Online game service providers have to block adolescents' use of online games during a certain time of a day by checking the users' personal information including age. Thus, every game requiring personal information is subject to the system.

Supporters of the shutdown system argue that adolescents' right to sleep and to lead a healthy life should be protected by stopping their late-night use of games, whereas others claim that the system infringes on their right to enjoy and their parents' right to guide them.. The intended goal of protecting the youth is very valid and solid, but the controversy still goes on. The current paper is based on the assumption that users' shutdown system of assent or dissent would be closely related with their continuous intention.

2.3 Continuous Intention

Continuous intention refers to a consumer's post-purchase behavior after being satisfied or dissatisfied with a product or service and it signifies planned future behavior^{8,3} found that usefulness, pleasure, subjective norms and spontaneity had a significant influence on continuous intention⁹ in turn, found that internet use motives of entertainment and pleasure would lead to a high risk of game addiction.

Continuous use of media has a close relationship with satisfying users' psychological motives^{10,4}. Thus, it might be safe to believe that game use motives can provide a consistently plausible account of game immersion or addiction. What it might mean is that accurate identification of game use motives would lead us to prevent them from being addicted. Also, it is expected that the attitude toward the shutdown system would play an important role of a mediator to their continuous intention.

Based on the results of previous analyses, the current research has established the following hypotheses. The research model for the cause-effect relationship between the game use motives and their continuous intention with the attitude toward the shutdown system being a mediator was presented in Figure 1.

Hypothesis 1: Game users' challenge/accomplishment motive would affect their attitude toward the shutdown system.

Hypothesis 2: Game users' entertainment motive w-

ould affect their attitude toward the shutdown system.

Hypothesis 3: Game users' fellowship motive would affect their attitude toward the shutdown system.

Hypothesis 4: Game users' attack motive would affect their attitude toward the shutdown system.

Hypothesis 5: Game users' challenge/accomplishment motive would affect their continuous intention.

Hypothesis 6: Game users' entertainment motive would affect their continuous intention.

Hypothesis 7: Game users' fellowship motive would affect their continuous intention.

Hypothesis 8: Game users' attack motive would affect their continuous intention.

Hypothesis 9: Game users' attitude toward the shutdown system would affect their continuous intention.

Hypothesis 10: The effect of game users' challenge/accomplishment motive on their continuous intention will be mediated by their attitude toward the shutdown system.

Hypothesis 11: The effect of game users' entertainment motive on their continuous intention will be mediated by their attitude toward the shutdown system.

Hypothesis 12: The effect of game users' fellowship motive on their continuous intention will be mediated by their attitude toward the shutdown system.

Hypothesis 13: The effect of game users' attack motive on their continuous intention will be mediated by their attitude toward the shutdown system.

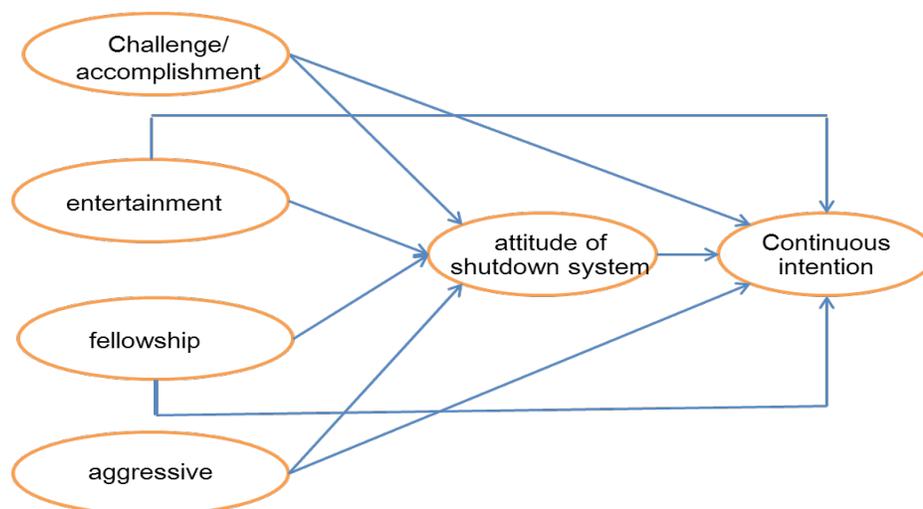


Figure 1. Research Model.

3. Research Methods

3.1 Subject and Data Analysis

The survey questions were intended to see if there is any relationship between game motives and their intention to continue playing games. A cause-effect research model was established and its validity was tested. A total of 328 surveys were gathered from online game users for a couple of weeks: Oct. 13 to 24, 2014. The software SPSS/PC+ Windows 20. used to analyze the collected data.

3.2 Measurement Tools

3.2.1 Game Use Motives

A slightly modified version of 11 measurement scales was adopted; it consists of 4 categories of challenge/ accomplishment, entertainment, fellowship and attack motives containing 17 survey questions. Each item was measured on a 4 point Likert scale (1 = strongly disagree, 4 = strongly agree). The reliability index for the scales is presented in Table 1.

3.2.2 Attitude toward the Shutdown System

The attitude toward the shutdown system shows how much they agree to the shutdown system. The subjects were given the statement “The shutdown system is an attempt to prevent adolescents younger than 16 from getting addicted to online games by disallowing them to use online games between midnight and 6 am”, and were asked to answer on a four-point scale: 1 for strongly disagree and 4 for strongly agree.

3.2.3 Continuous Intention

Continuous intention implies whether a user intends to continue to use a product or service and it predicts future behavior. It argues that the success of a product or service in marketing or management clearly depends on consumers’ continuous intention. Based on 12,13, three items on a four-point likert scale were measured: 1 for strongly disagree and 4 for strongly agree.

3.3 Data Analysis

The collected data was analyzed by using SPSS/PC+ Windows 20.0 programs. An exploratory factor analysis was conducted to examine the validity of the scales for the game use motives, the attitude toward the shutdown system and continuous use intention. To that end, principal component analysis and the VARIMAX rotation were utilized. Cronbach α was employed in order for reliability analysis of each scale. Moreover, covariance structure analysis was performed to analyze the relationship among the factors.

4. Result

The research model was established to identify the cause-effect relationship between game use motives and continuous intention with the shutdown attitude being a mediator. To that purpose, a covariance structure analysis was conducted by using AMOS 18.0 version. The goodness-of-fit of the model was tested first and the test result is illustrated in Table 2.

Table 1. Reliability of measurement tools

Measurement tools		Cronbach α
Game use motives	Challenge/accomplishment	.862
	entertainment	.753
	fellowship	.747
	attack	.819
Attitude toward the shutdown system		.934
Continuous intention		.926

Table 2. Goodness of fit of the research model and the revised model

	χ^2	df	p	RMR	RMSEA	GFI	AGFI	NFI	CFI	TLI
Research model	686.221	284	.000	.043	.066	.863	.830	.873	.921	.909
Finalized model	248.739	155	.000	.029	.043	.931	.906	.939	.976	.970
Acceptability criterion			>0.5	<0.5	<0.8	>0.9	>0.9	>0.9	>0.9	>0.9

Of the goodness indexes, GFI=.863, AGFI=.830, and NFI=.873 were found not meeting the acceptability criteria. Therefore, the items of challenge/accomplishment (8 & 12), entertainment (16), fellowship (17) and attack (5) were eliminated in order to increase the goodness-of-fit: those motive items were found as the observation variables of measurement errors with big MI(modification indices). As a result, all the goodness indexes of the revised model were found as meeting acceptability criteria. In sum, the current research adopted the revised model to test the hypotheses, as shown in Figure 2.

The results of testing the hypotheses were summarized in Figure 2 and Table 3. First, Hypothesis 1 states that game users' challenge/accomplishment motive would affect their attitude toward the shutdown system. The standardized path coefficient was obtained at $-.480(t=-2.634, p<.001)$, which indicated negative influence. Thus, the hypothesis was adopted.

Hypothesis 2 states that game users' entertainment motive would affect their attitude toward the shutdown system. The standardized path coefficient was obtained at $-.032(t=-.174, p>.5)$, which identifies no significant influence. Thus, this hypothesis was rejected.

Hypothesis 3 was to identify the effect of game users' fellowship on their attitude toward the shutdown system. The standardized path coefficient was obtained at $.238(t=1.326, p>.05)$. No significant relationship was found, rejecting the hypothesis.

Hypothesis 4 states that game users' attack motive would affect their attitude toward the shutdown system. The standardized path coefficient was obtained at $.235(t=1.931, p<.05)$. Thus, the hypothesis was adopted.

Hypothesis 5, in turn, was to identify the effect of game users' challenge/accomplishment motive on their continuous intention. The standardized path coefficient was obtained at $-.182(t=-1.329, p>.05)$, which meant no significant influence. Thus, the hypothesis was rejected.

Hypothesis 6 states that game users' entertainment motive would affect their continuous intention. The standardized path coefficient was obtained at $.464(t=3.265, p<.001)$, adopting the hypothesis.

Hypothesis 7 was to identify the effect of game users' fellowship on their continuous intention. The standardized path coefficient was obtained at $.333(t=2.497, p<.01)$, which meant that there is significant influence. Thus, Hypothesis 7 was adopted.

Hypothesis 8 of the relationship between game users' attack motive and their continuous intention was adopted, since the standardized path coefficient was obtained at $.217(t=2.413, p<.01)$.

Hypothesis 9 states that game users' attitude toward the shutdown system would affect their continuous intention. The standardized path coefficient was negatively obtained at $-.111(t=-2.529, p<.01)$, adopting the hypothesis.

Hypothesis 11: The effect of game users' entertainment motive on their continuous intention will be mediated by their attitude toward the shutdown system.

Hypothesis 12: The effect of game users' fellowship motive on their continuous intention will be mediated by their attitude toward the shutdown system.

Hypothesis 13: The effect of game users' attack motive on their continuous intention will be mediated by their attitude toward the shutdown system.

Hypotheses 10 -13 were to identify the mediated effect of the attitude toward the shutdown system on the relationship between game use motives and their continuous intention. The statistical significance of the path coefficients was the crucial criterion to test the hypotheses. First, Hypothesis 10 was to identify whether challenge/ accomplishment motive was mediated. The direct path coefficient from the challenge motive to continuous intention was found at $-.182(t=-1.329, p>.05)$, which was insignificant, and the path coefficient to the shutdown system was found at $-.480(t=-2.634, p<.01)$, which was significant. Also, the direct path coefficient from the shutdown attitude to continuous intention was obtained at $-.111(t=-2.529, p<.01)$, which signified significant influence. The Bootstrap test to identify statistical significant showed significant result ($p<.01$), Thus, a complete mediated effect was identified for Hypothesis 10.

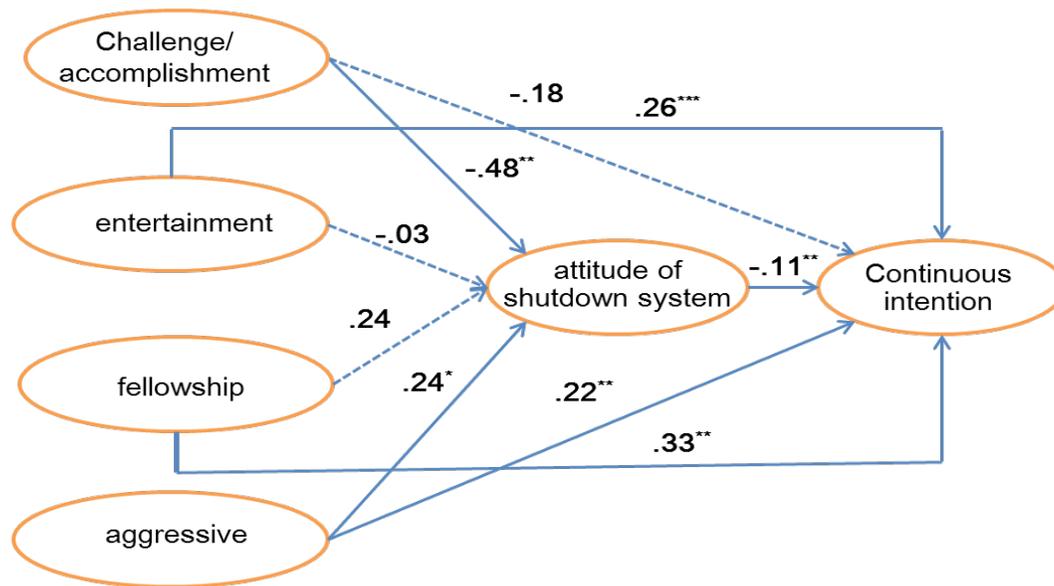
Hypothesis 11 was to identify the mediated effect of the shutdown attitude on the influence of entertainment motive on continuous intention. The standardized direct path coefficient between entertainment motive and con-

tinuous intention was found at $.464(t=3.265, p<.001)$, which was significant, and the direct path coefficient to the shutdown system was $-.032(t=-.174, p>.05)$, which was not significant. Also, the direct path between the shutdown attitude and continuous intention was obtained at $-.111(t=-2.529, p<.01)$, which was significant. Thus, Hypothesis 11 was rejected, since no mediated effect was found.

Hypothesis 12 was to identify the mediated effect of the shutdown attitude on the influence of fellowship motive on continuous intention. The standardized direct path coefficient between fellowship motive and continuous intention was found at $.333(t=2.497, p<.01)$, which was significant, and the direct path coefficient to the shutdown system was $.238(t=1.326, p>.05)$, which was not significant. Also, the direct path between the shutdown attitude and continuous intention was obtained at $-.111(t=-2.529, p<.01)$, which was significant. Thus, Hypothesis 12 was rejected, since no mediated effect was found.

Table 3. Results of test of hypothesis

Paths			Estimate	S.E.	C.R.	P	Hypothesis
attitude	<---	challenge	-.480	.182	-2.634	.008	accepted
attitude	<---	entertainment	-.032	.187	-.174	.862	rejected
attitude	<---	fellowship	.238	.180	1.326	.185	rejected
attitude	<---	attack	.235	.122	1.931	.049	accepted
Continuous intention	<---	challenge	-.182	.137	-1.329	.184	rejected
Continuous intention	<---	entertainment	.464	.142	3.265	.001	accepted
Continuous intention	<---	fellowship	.333	.133	2.497	.013	accepted
Continuous intention	<---	attack	.217	.090	2.413	.013	accepted
Continuous intention	<---	attitude	-.111	.044	-2.529	.011	accepted
challenge --->attitude --->Continuous intention			.046 (complete mediation)				accepted
entertainment --->attitude ---> Continuous intention			.003				rejected
fellowship --->attitude ---> continuous intention			-.021				rejected
attack --->attitude ---> Continuous intention			-.023(partial mediation)				accepted



“Solid lines(-)” show accepted hypothesis. Dotted lines(---)” show rejected hypothesis.

Figure 5. Revised model.

Hypothesis 13 was to identify the mediated effect of the shutdown attitude on the influence of attack motive on continuous intention. The standardized direct path coefficient between attack motive and continuous intention was found at $.217(t=2.413, p<.01)$, which was significant, and the direct path coefficient to the shutdown system was $.235(t=1.931, p<.05)$, which was also significant. Also, the direct path between the shutdown attitude and continuous intention was obtained at $-.111(t=-2.529, p<.01)$, which was significant. The Bootstrap test to identify statistical significant showed significant result ($p<.05$). Thus, a partial mediated effect was identified for Hypothesis 13.

5. Concluding Remark

Adolescents attempt to compensate for frustrated desires by getting immersed in online games, which might eventually lead to game addiction. Based on the research finding that most of their leisure time was spent in playing online games, the present research was established to identify the cause-effect relationship between game use motives and their continuous intention with the shutdown attitude being a mediator. A revised research model was established to test its validity.

Out of the 13 hypotheses presented, Hypotheses 1 to 4 were to identify whether game use motives influence the

shutdown attitude. It was found that challenge and attack motives had a significant influence on the shutdown attitude: Hypotheses 1 and 4 were adopted. Hypotheses 5 to 8 were tested in order to identify whether game use motives had any effect on their continuous intention. Hypotheses 6, 7, 8 were adopted, as entertainment, fellowship and attack motives were found having a significant influence. Hypothesis 9 was also adopted, since the shutdown attitude was found having a significant impact on their continuous intention. Hypotheses 10 to 13 tested the mediated effect of the shutdown attitude. A complete mediated effect was found between challenge/accomplishment motive and their continuous intention, adopting Hypothesis 10. A partial mediated effect, on the other hand, was found between attack motive and their continuous intention, adopting Hypothesis 13.

The results and suggestions of the current research can be summarized as follows. First, it was found that challenge/accomplishment and attack motives influence the shutdown attitude. Students with much stress from studying were more likely to get immersed in online games, especially violent games, to reduce their stress⁵. It is worthwhile to note that adolescents with challenge/accomplishment motive agree less with the shutdown system, whereas those playing violent games agree more with the shutdown system.

Second, it was found that the motives of entertainment, fellowship and attack had a significant impact on their continuous intention. According to 4 use gratification theory, adolescents' selection and use of games is meant to satisfy their psychological motives and greater motives of challenge/accomplishment lead to greater pleasure, concentration and loss of time sense. The findings of the present research are partially consistent with this theory.

These findings are also similar to those in 14, 15 who found that adolescents tend to get immersed in online games in order to escape from reality and that attack motive is an important predictable factor for game addiction. It was also found that fellowship motive is a significant factor, which is not consistent with 16 finding that fellowship motive did not influence their continuous intention. However, it might be assumed that the youth spends their leisure time in playing online games and reducing their stress together with their friends. The present research has identified which motive leads to continuous use of online games and eventually to game immersion or addiction. The research results might show that adolescents should be advised to have positive motives and control their behavior in playing online games. To meet their offensive desires, other healthy forms of expression than online games should be sought.

Hypothesis 9 was adopted that the shutdown system would influence the users' continuous intention. This finding is not consistent with KISDI's analysis that the shutdown system would not play any role in affecting the youth's playing time. It was found in the present investigation that the more users agree to the shutdown system, the less they intend to continue to play, which clearly means that the time limitation reduces adolescents' playing games. Thus, the system can be used as an effective method of controlling their behavior of playing online games and will help prevent them from getting addicted.

The analysis of the mediated effect of the shutdown attitude found that challenge/accomplishment motive showed a complement mediated effect. Challenge motive was found having direct influence on continuous intention and also significant effect by being mediated by the shutdown attitude. Hypotheses 11 and 12, on the other hand, were rejected, since entertainment and fellowship motives did not exhibit the mediated effect of the shutdown system. A partial mediated effect of the shutdown system, in turn, was found between attack motive and continuous intention. What these mean are that when

a user plays online games with challenge/accomplishment motives, his or her continuous intention would be affected by the shutdown system.

The findings of the current research might present some suggestions. The finding that entertainment, attack and fellowship motives are more likely to lead to greater continuous intention would suggest that other forms of leisure than online games should rather be presented for them to enjoy than simply limit or stop their playing online games.

Second, the effectiveness of the shutdown system should be more carefully considered. Previous researches have already found that effective education of controlling games in a family would result in effective result in preventing addiction or immersion. It was found that positive attitude toward the shutdown system is closely related with decreased continuous intention. Thus, measures should be taken in order for adolescents to have a positive view of the shutdown system, which would clearly help prevent addiction or immersion.

It is expected that these research results would let society hear that rapidly increasing activity of adolescents' playing online games should not lead to game immersion or addiction. A meaningful finding is that the controversial shutdown system was analyzed as a mediator of the cause-effect relationship between use motives and the users' continuous intention.

Especially, the current research has analyzed adolescents' game use motives and identified the influential factors for their continuous intention. Also, the effectiveness of the shutdown system was emphasized. Future researches are in order that can present practical measures to utilize the shutdown system and can identify the paths leading to game addiction or immersion depending on their game use motives.

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