CONSUMERS' IN-GAME PURCHASES IN ONLINE GAMES: EXPLORING ANTECEDENTS AND MOTIVATING FACTORS[*]

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ABSTRACT

Today, one of the most important advances which came to our life with information technologies is online games. Market cap of online gaming industry increases day by day. Users in-game purchases is one of the most important sources of revenue for game companies. The aim of this study is to investigate the factors and motivators effecting consumers' in-game purchase decisions. The study is conducted on undergraduate students who are playing online games on regular basis. Convenience sampling method was used in this research. The research model examines the effect of factors need for advancement, satisfaction with the game, perceived playfulness, and social self-image expression on online game players in-game purchase intention using structural equation modeling. The results indicate the positive effect of satisfaction with the game, perceived playfulness, and social self-image expression have a positive effect on purchase intention while need for advancement has a negative effect. This study contributes current literature on virtual purchase behaviors of gamers as consumers in today's world. Game companies and publishers must understand the factors driving users to spend real money on a virtual world.

Keywords: Online games, in-game purchase, virtual goods, in-game items, purchase intention

1. INTRODUCTION

Despite the fact that it is almost as old as human history, game concept has not been regarded as a serious and important matter for a very long period of time with the effect of the 'economic-based climate', which is created by the intense influence of the industrial revolution and surrounds all aspects of our lives. Today, individuals play online games to have good time, relieve stress and immerse into something 'fun' (Park and Lee, 2011). Players use social virtual worlds as an escape mechanism from real world, play games to satisfy their social and hedonic needs and as members of a virtual community while constantly seeking unique activities (Jung and Kang, 2010).

The concept of game started to be a subject for academic studies after 1960s and video games, which can be considered as the core of this study, started to be subject to academic research in the 90s after becoming an important element of the global economy. Video games are softwares which game concept is adapted to digital technology, allowing users to play games. A game called 'SpaceWar!' which was developed by a group of

[*] The research part of this study was presented at the international congress named "2nd Eurasian Conference on Language and Social Sciences, ECLSS 2017b" held in Antalya-Turkey between 29 September 2017-1 October 2017.

MIT students in 1962 is considered as the first digital computer game ever. Following, PCs and game consoles have entered our houses with the production of smaller hardware equipments and a video game called Pong became the first commercial video game (Glancey, 1996; Juergen, 2010).

With the rapid growth of the information technologies, online environment is an indispensable part of our lives which helps online gaming industry to reach an enormous amount of users. Today, online games offer players around the world the opportunity to play the same game together. The estimated market cap of the video game industry is 99.6B $ for 2016. Mobile phone market has grown by %23,7 in 2016 and smartphones which emerge as a new platform for the expansion of online games are expected to be the most growing segment of the next decade (Newzoo Global Games Market Report, 2016).

Day by day competition in the online game industry grows and game publishers constantly seek new ways to push players to spend money and purchase in-game items. Today steam platform reaches more than 15 million active concurrent steam users at a time. (http://store.steampowered.com/stats). Selling virtual goods is a major factor for online game providers to generate income so identifying factors and consumption values that affect purchase intention plays a key role to success (Ho and Wu, 2012) and is increasingly popular with the most common example of this Massively Multiplayer Online Role Playing Games (MMORPG) where a players character levels up throughout the process (Hamari and Lehdonvirta, 2010).

This study contributes to the understanding on the motivating factors of consumers' in-game purchases and explore the antecedents. The study consists of four parts: First, an extensive literature review about motivations for in-game purchase was made. Second, the research model was constructed based on the hypothesis. Third, the research model was tested and analyzed. Lastly in the conclusion section, study results discussed with suggestions for the future research.

2. LITERATURE REVIEW

Today, online games are the most popular entertainment tool in the virtual world (Shui and Chen, 2010) and selling virtual goods is a vital activity for game companies (Jung and Pawlowski, 2014a). In the game industry, game types/business models to generate income can be divided to subscription-based games which require a monthly/yearly fee to continue playing and free-to-play games. (Lee et al., 2015; Park and Lee, 2011). In these games, users can purchase various game items to enhance the powers or appearance of their characters (Park and Lee, 2011). The existence of players who spend money and time on games is crucial for sustainability and success of an online game (Cheung, 2015). Virtual purchases may enhance the user experience, reinforcing the sense of in-game presence for user and may be about building an identity or status amongst others similar to the real-life experiences (Mäntymäkia and Salo, 2013). Consumer value, satisfaction, and familiarity are important factors to formate a habit and thus relevant with the repeating purchases (Chao-Min Chiu et al., 2012).

As public virtual worlds continue to evolve, virtual goods become a business model and companies are developing business strategies based on them (Jung and Pawlowski, 2014b). For example, users of Second Life game can decide their workplace and where to live and what to sell and purchase in order to satisfy their needs. Today, in-game activities like consumption occur in much the same way with real world (Shelton, 2010). Individuals may see virtual consumption equal to real-world consumption activies as virtual consumption reflects some economic aspects of real-world consumption like business activity, consumer activity, currency and economy (Jung and Pawlowski, 2014b). Here the purchase of virtual goods are tightly connected to the platform; the value of virtual goods are equivalent with the environment where they are usable in, so the service design is an important factor for game developers to increase in-game purchases (Hamari and Keronen, 2017). Ho and Wu (2012) found game type itself is a moderating variable that affects intent to purchase virtual goods. Game developers are no longer trying to create the best game they can, instead, they constantly customize games in various ways that would motive players to purchase in-game content as frequently as possible to generate more revenue (Hamari et al., 2017).

Motivations involving identities like customization and role playing will be high on purchasing accessory and apparel products –decoratives- (Shelton, 2010). If a gamer perceives an item to be valuable, they will have an increased chance to purchase that item. The emotional and social values of digital items were key dimensions of customer value (Kim, Gupta and Koh, 2011). Park and Lee (2011) defines factors to describe perceived value of in-game items as (a) enjoyment, to increase fun related to game (b) character competency, to increase characters strength and power (c) visual authority, to show off their characters with their appeal and (d) monetary values, because the purchase is reasonably priced at time. Monetary values were also rated as the most important factor for in-game purchases overall by Hamari and colleagues (2017). Hamari and Keronen

(2017) also divide virtual goods into two categories: "Functional" goods which improve performance or progression and "appearance-based goods" altering the look of the virtual character which do not grant any functional benefits. Another categorization was made by Lin and Sun (2007) which divides purchasable items into two categories: (a) functional props to strengthen the character or the characters items, pets etc. And fasten the process to level or (b) decoratives to change and enhance the appearances of characters like cosmetics and transmogrifications.

Gamers purchase in-game items to increase their character's competence, to have a better appeal appearance, or enhance their relationship with others in game (Ho and Wu, 2012). In gaming context, powerful characters are more valuable than less powerful ones for sure. But as Lehdonvirta (2009) states "Performance is a positional attribute: if everyone has high performance, no one has high performance". Besides performance in many games, there are decorative items and services like Christmas trees and Halloween masks (Lehdonvirta, 2009). Here appearance, sounds, and cultural references serve as hedonic attributes whereas performance and functionality serve as functional attributes.

Just like motives for playing the game, individuals might have different motivations for virtual purchases so different in-game purchase behavior (Shelton, 2010). Wu, Wang and Tsai (2010) identifies achievement, enjoyment and social interaction as the major initiative motivations for playing online games. Immersion plays a key role to increase gamers' loyalty to the game and with that in-game purchases (Teng, 2010), when people are in a state called 'flow', they become absorbed in their activity and only focus to the activity itself which 'time flies' (Merhi, 2016). Hamari and Keronen (2017) state that purchase behavior is affected by factors such as network effects, enjoyment, ease of use and flow.

Stickiness and social identification significantly influence a users' intention to make in-app purchases (Hsu and Lin, 2016). Mäntymäki and Salo (2011) found a strong relationship between continuous usage and purchasing. Yee (2006) groups motivations for playing online games into three groups with 10 subcomponents (achievement: Advancement, Mechanics, Competition; social: Socializing, Relationship, Teamwork; and immersion: Discovery, Role-Playing, Customization, Escapism). Players who spend more time playing the game will consequently spend more money so attracting players to play often is crucial for both online game publishers (Wu, Wang and Tsai, 2010). Mäntymäkia and Salo (2015) also found that decoration, status, and boosted enjoyment found as the most common reasons for teenagers' purchasing virtual items.

Players who identify themselves more with the in-game character will have a higher intention to purchase game items. So, service providers should offer more customized and unique items for purchase (Park and Lee, 2011). Cheung et al. (2015) found that psychological engagement stimulates game players' spending in online games. If a player engages more with an online game, they are likely to spend more time with the game and purchase in-game items frequently. Uniqueness is also strongly linked to the higher-level goal of self-expression. Through virtual consumption, users seek a unique and desired self through their avatars' appearance (Jung and Pawlowski, 2014b).

3. RESEARCH HYPOTHESIS AND MODEL

User activities heavily depend on defined themes produced by the game designers in online games which include virtual worlds. In MMORPGs, users mainly aim to level-up through quests rather than interactions with other players (Jung and Pawlowski, 2014b) which need for advancement and achievements are high. Players may worry about the beliefs that money is enough for the success in this 'money games' as Lin and Sun (2007) suggest. Therefore;

H₁: Need for advancement has a negative effect on in-game purchase intention.

The underlying idea of this hypothesis is that players with a high level of involvement want to achieve certain achievements with the in-game efforts rather than purchasing certain items and visuals with money since their in-game need for achievement is at a high level. Cheung (2015) defines game satisfaction is defined as a positive affective state resulting from game players' overall evaluation of their experience within an online game which is positively related to engagament. Also, ease of use is an important driver in the adoption of computer games and so in-game purchases of users. That is if a game is too easy to master may result in boredom and if a game is too difficult to learn it may not derive pleasure from gaming so there may be a 'sweet spot' of ease of use as Davis and Lang (2012) states. Here we define Hypothesis II as:

H₂: Players satisfaction with the game has a positive effect on in-game purchase intention.

Consumers' are more likely to pay for in-game items as they enjoy the game more (Domina, Lee and MacGillivray, 2012). It's a great pleasure for the player to have an achievement progress for a specific goal while upgrading the level of the character with a 'seamless experience' without interruptions or in-game bugs (Lee, 2010). So gamers are really want to have joyful experiences. So Hypothesis 3 is:

**H₃:** Perceived playfulness has a positivele effect on in-game purchase intention.

Consumers are more likely to pay for in-game items as they enjoy the game more (Domina, Lee and MacGillivray, 2012). Merhi (2016) also revealed that the effect of enjoyment was crucial for adoption. Users want to show themselves off to their community and other players with values that in-game items provide because in gaming world items are important criterias to compare players (Park and Lee, 2011). The consumption of a digital item has symbolic meanings and related to how they want others to view them as a social self-image expression and it influences purchase decision (Kim, Gupta and Koh, 2011). So we define Hypothesis IV as:

H₄: Social self-image expression has a positive effect on in-game purchase intention.

Shelton (2010) states that people who are high on motivations involving socialization and entertainment will be high on purchasing. Self-efficacy and social influence, may significantly influence players' intentions to play online games (Liu, 2016). A player who has an effective personal interaction with the system or pleasant social interactions with others will be more likely to continue playing online games (Choi and Kim, 2004).

Five dimensions were determined in terms of need for advancement (ADVANCEMENT), satisfaction (SATISFACTION), playfulness (PLAYFULNESS), social self-image expression (SOCIALSELF) and purchase intention (INTENTION) in line with the hypotheses established in the study. Driven from all hypothesis, the research model can be seen in Figure 1 below.

Figure 1. Research Model
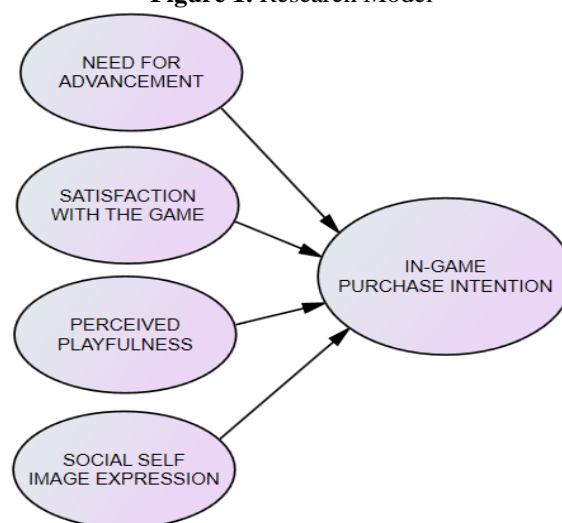
4. METHODOLOGY

Games are one of the areas where consumers spend most of their online time. One of the important sub-segments within the gaming industry is in-game virtual goods. The aim of this study is to investigate the factors that affect in-game purchase intention of players who act as consumers. The determination of these factors and their effect on the purchase intentions will have significant contributions to the success of the game developers and service providers. The research was conducted on the students of Uludağ University. Student sample was chosen because young consumers are the target segment of the gaming industry. Because of limitations such as cost and effort, convenience sampling method was used in the research. The research data were collected by face-to-face survey method. 182 students participated in the survey. Before processing to further analysis, outlier analysis was made to determine extreme cases and 42 cases were removed. The remainder of the analysis was conducted with the remaining 140 valid cases.

The questionnaire consists of two parts. First part there are categorical questions about the demographic data of the participants and in the second part, there are scale items to determine each factors effect on in-game purchase intention. Scale items for the factors satisfaction, playfulness, socialself, and intention were taken

from Ho and Wu (2012) and the items for advancement were taken from Yee (2006). Questionnaire items were first translated to Turkish and then re-translated back to English for the accuracy. A five-point Likert scale was used to assess the answers given to scale questions (1 = strongly disagree, 2 = disagree, 3 =undecided, 4 = agree, 5 = strongly agree).

5. ANALYZE AND FINDINGS

54,3 percent of the respondents are female and 45,7 percent are male. Age frequencies of the respondents are 34,2% for 18-20, 60,8% for 21-23 and 5% for 24-26 ages. IBM SPSS 23.0 and IBM SPSS AMOS 23.0 softwares were used to analyze the data. First reliability analysis was made and a satisfying Cronbach's alpha value was obtained (,914). Then, exploratory factor analysis (EFA) was conducted to determine the factors affecting consumers' in-game purchase intention and if each item is grouped with the related factor. EFA is a statistical method used to group variables into groups by examining the relationship between those items (Saruhan and Özdemirci, 2013, p.203) which reveals common characteristics underlying relationships between variables in the data set (Bayram, 2009, p.199). Also, the results indicate that the KMO value which indicates the adequacy of the sample measurement value was found 0,882 (> 0,50) and a sig level of .00 within the valid accepted values in the literature. The total variance explained by these factors related to the scale was 78,479%. Items with a factor loading below ,50 and items do not represent related factor are removed from the analysis. The factors resulting from the EFA are named as follows: Factor 1: Playfulness, Factor 2: Satisfaction, Factor 3: Purchase Intention, Factor 4: Advancement and Factor 5: Social self-image. The results of the exploratory factor analysis; the factors, their factor loadings, and Cronbach's alpha value and total variance explained of each factor can be seen at Table 1 below.

Table 1. Results of Exploratory Factor Analysis

	Component					Cr. α	Total Variance Explained (%)
	1	2	3	4	5		
ADV3: It is important for me to become powerful in the game				,792			
ADV4: It is important for me to accumulate resources, items, or money in the game				,748			
ADV5: It is important for me to be well-known in the game				,679		0,811	17,887
ADV6: It is important for me to be part of a serious, raid/loot-oriented guild.				,754			
SAT1: I am satisfied with this game.		,835					
SAT2: I think that this game is very good.		,847					
SAT3: I am satisfied with my decision to play this game.		,867				0,887	16,519
SAT4: My choice to play this game is a wise one.		,749					
PLAYFUL1: When I use the virtual goods sold here, I enjoy the game more.	,776						
PLAYFUL2: When I use the virtual goods sold here, I find the game more exciting.	,807					0,915	15,436
PLAYFUL4: Using the virtual goods sold here stimulates my curiosity.	,764						
SOCIALSELF2: When I use the virtual goods sold here, I can make my game characters look better.					,755		
SOCIALSELF3: When I use the virtual goods sold here, I am more noticed by others.					,761	0,857	14,617
SOCIALSELF4: Using the virtual goods sold here enhances my self-image to others.					,744		
INT1: The probability that I will consider buying virtual goods from this game in the future is high.			,815				
INT2: My willingness to buy a virtual good from this game in the future is high.			,900			0,937	14,020
INT3: The likelihood of my purchasing a virtual good from this game in the future is high.			,915				
						0,914	78,479

Extraction Method: Principal Component Analysis, Rotation Method: Varimax with Kaiser Normalization, Rotation converged in 6 iterations.

After conducting exploratory factor analysis, confirmatory factor analysis and default measurement model fit were tested. First the validity of the measurement model consists of five factors was tested and results indicate acceptable model fit values. Figure 2 shows the results of measurement model fit analysis.

Figure 2. Model fit values of the Measurement Model
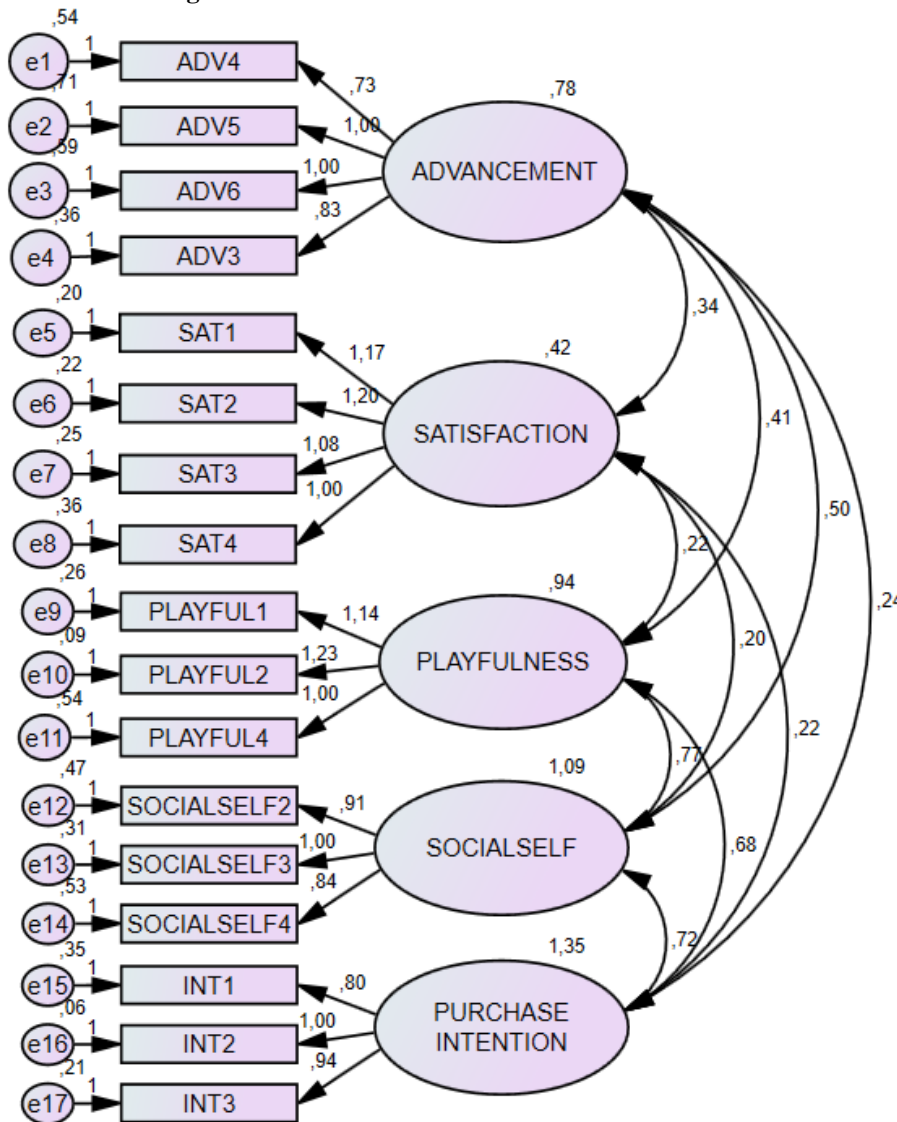
The values obtained for the measurement model were compared with accepted good-fit values (Schermelleh-Engel, Moosbrugger and Müller, 2003) in the literature. Table 2 below shows the comparision results and it can be seen that most the results indicate that the measurement model has good fit values and only RMR and AGFI values are at the acceptable fit level.

Table 2. Model Fit Values

Model Fit Criteria	Good Fit Values	Present Study Values
p value	$.05 < p \leq 1.00$	.080
$\chi2/df$	$0 \leq \chi2/df \leq 2$	1,196
RMSEA	$0 \leq RMSEA \leq .05$	.038
RMR	$0 \leq RMR \leq .05$	.069
CFI	$.97 \leq CFI \leq 1.00$	.987
GFI	$.95 \leq GFI \leq 1.00$	.909
AGFI	$.90 \leq AGFI \leq 1.00$, close to GFI value	.872

In order to test research hypotheses, the effect of independent variables, which are expressed as advancement, satisfaction, playfulness and social self factors, on the dependent variable (consumers in-game purchase intentions) was examined via regression weights as a result of structural equation model analysis. The standardized estimates of each factor on the dependent variable can be seen in Table 3 below.

Table 3. SEM Results

Hypothesis			Standardized Estimates (ß)	S.E.	C.R.	P	Hypothesis Test Result
H₁	Purchase Intention	← Need for Advancement	-,210	,081	-2,617	,009	SUPPORTED
H₂	Purchase Intention	← Satisfaction with the Game	,177	,105	2,322	,020	SUPPORTED
H₃	Purchase Intention	← Perceived Playfulness	,395	,074	4,993	***	SUPPORTED
H₄	Purchase Intention	← Social self-image expression	,382	,067	4,736	***	SUPPORTED

All of the results above are significant since the P values are below 0,05. H_1 states that need for advancement has a negative effect on in-game purchase intentions. A beta value (ß) of -.210 was found so H_1 was supported. Some 'real gamers' think that in-game achievements must be earned through effort and in-game accomplishments so purchasing performance boosting items or gears is just an easy way to success. Moreover, the idea that these acquisitions may harm games competitive spirit and reduce enjoyment may be seen as an antecedent of this result. H_2 posits that players satisfaction with the game positively affects in-game purchase intention and as Table 3 shows H_2 was supported (ß= ,177). As a result of the player's overall experience with online gaming, the players' level of satisfaction also affects the players' in-game purchase intention positively. Factors such as ease of use and games' difficulty in may also determine the satisfaction level of the player.

Hypothesis 3 states that perceived playfulness positively affects consumers in-game purchase intentions and the results indicate that playfulness has a significant positive impact on purchase intention therefore, H_3 was supported (ß= ,395). Perceived playfulness of a game has a significant effect on game adoption and players willingness to progress in the game to achieve a specific goal. Analysis Results also indicate that social self-image expression has a positive impact on in-game purchase intention (ß= ,382) so that H_4 was also supported. The fact that a significant amount of games are played with a certain player group and/or between virtual communities nowadays is effective in forming the social self-image expression factor. Therefore, this factor is also reflected in the in-game consumption behavior of the players.

6. CONCLUSION

Information and communication technologies are developing rapidly in recent years. In this process, the software sector plays an important role in the economic development of countries. One of the major target sectors in the software industry, which is generally operated by technologically owned subcontractors (Özdemir and Özdemir, 2017), should be the online gaming sector. With the rapid growth of the mobile industry, the game sector has also diversified and developed. Online games play an important role in this development and understanding factors that affect in-game purchases in the online game industry is crucial for companies to generate income. As a result of this research satisfaction, playfulness and social self-image factors were found to have a positive effect on the players' in-game purchase intention whereas need for advancement factor has a negative effect. Our research suggests that service providers and game companies must maximize players' in-game satisfaction to generate more revenue and continue their operations.

Game developers and service providers can develop new games and/or revise their existing games by investigating the factors that cause satisfaction and dissatisfaction at consumers. A similar research game can also be organized for playfulness purposes and an in-game purchase recommendation can be arranged. Because the perceived sense of entertainment and playfulness of a game have a significant effect on the player's desire to achieve success in game and adoption. Here a key point for companies is to optimize the amount and significance of purchasable in-game goods with the non-purchasable ones. Sometimes buying an item with real money may cause losing the sense of fun for owning that item. Because it will be perceived as a shopping, not an achievement (Lin and Sun, 2007). There is some resistance to games where players can buy virtual capabilities with real money with the thought of fairness. Finally, as games become more social nowadays, players can compare their social self-image with those others who they meet (sometimes never see) just like the daily life. This situation is also reflected in the in-game purchase behavior of the players. To increase purchase frequency and total purchase amount of users game publishers should offer in-game items that support their in-game social self-image.

As players progress, the necessity for in-game purchases may negatively affect the purchase intentions of the players as they feel that the game directs them to spend on in-game purchases. Game developers and service providers should offer balance suggestions to encourage in-game purchases, and players should strive to pretend these negative feelings. Here, the level of gamers' discomfort can be leveled as (1) the occurence of negative feelings (2) the increase in players discomfort and finally (3) quit playing. In addition, according to different demographic characteristics and game performances, differences in these levels can be determined and the in-game purchase offers can be regulated.

This research also has some limitations as in many. The fact that this research was conducted on the student sample is one of the most important limitations and this constraint negatively effects the generalization of research results. The research on the antecedent of in-game purchase intentions can be extended to other player segments as well to have an understanding of different consumer groups. Future studies should also focus on mobile gaming as mobile internet access becomes easier and cheaper day by day.

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