

Perceived Value of Game Items and Purchase Intention

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Abstract

The study examines the effect of perceived values of online-game items on purchase intentions of items. It also explores how item purchases are related to playing game. Consumers' multi-dimensional perceived values are used to test hypotheses: functional, emotional, social, and financial value. The paper suggests that the more gamers perceive values of items the higher probability they will tend to purchase items. It also shows that the purchase of game items has a positive impact on playing game.

Keywords: Online Game, Online Game Items, Perceived Value, Purchase Intention, Virtual Item

1. Introduction

The online game market has been globally growing. Online gamers have to pay to the game company for access to its games. However, gamers in the free-to-play game are free of charge for playing, instead they are driven to purchase virtual accessory items such as weapons, clothing, and so forth with real money⁷. The trend of free online games first emerged in Japan. Many game companies particularly in Asia have switched from paid games to free games as new business model has demonstrated its profitability; the examples include GREE and DeNA in Japan, Nexon and NC Soft in Korea, and TenCents in China¹². Virtual items in online game are becoming the main revenue generator in the online game industries. Selling virtual goods for real money become a common revenue model not only for online games and virtual worlds⁵.

What factors drive game player to spend on virtual items? Relatively little research has explored the buying behaviors of gamers so far while majority of studies have focused on what makes gamers continue playing or even addicted to online games. Individual experiences of gamers or addictive features of online games have been

examined through TAM (Technology Acceptance Model) or other behavioral models (e.g. theory of planned behavior)⁶. This study explores what makes free-to-play gamers to purchase game items, using the theory of consumers' perceived value which provides the well identified frame to the previous results explaining the reasons of purchasing items (e.g. fun, competency, authority, decoration and so forth)⁷. The model assumes that consumers' purchasing decision is a function of multiple consumption values such as quality, enjoyment/emotional, social, and value for money. According to theory of consumption value, gamers make a purchase decision after considering multiple value dimensions because it costs for game items, thus game players are required to consider various range of utility tradeoffs. The study also examines the relationship between purchase of game-items and continuity of playing game as it is important for game companies to understand whether acquisition of game items makes game users continue to play.

The study utilizes survey data on free-to-play game users in China. There are popular free-to-play online games and increasingly lots of adolescent gamers spend a significant amount of time playing online games in

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China¹. Thus, China can be said to be very suitable for analyzing the research questions. The first question examined in this research is to identify factors affecting game players' intentions to purchase game items by employing the model of consumers' perceived value. Second is to examine the relationship between the purchase intention of game items and likeliness to keep playing the game.

2. Theory and Hypotheses

2.1 Online Game Items and Perceived Value

The most popular genre of free-to-play online games is Massive Multi-Player Online Role Play Games (MMORPG), in which each player assumes a character in a virtual world and interacts with others. In the virtual world, networked participants can grow and develop their characters and enjoy rich virtual lives through crafting weapons, slaying dragons, decorating virtual houses⁸. However, if gamers in the free-to-play game want to enhance their powers or appearance of their characters and lead virtual lives, they are required to purchase various game items including clothing, swords, guns, and so forth⁷. Virtual goods are understood as referring to objects such as characters, items, currencies and tokens that exist inside online games. Generally, accessory items in free-to-play games such as MMORPGs can be classified into two categories: weaponry and decorative tools. Weaponries are offensive tools and are directly related to the players' in-game performance such as swords and guns. Decorative tools are esthetic or hedonic items, such as clothes, vehicles, and pets¹². Selling virtual goods has become a major source of revenues for a free-to-play online game industry⁵.

Game items are regarded as one providing a user hedonic value rather than utilitarian value. Hedonic products tend to be symbolic in nature. The users of hedonic products pay for them, and in exchange are provided with benefits involving emotional enjoyment. For example, users do not expect utilitarian gains, if any, when they are playing an online game or purchasing game items. This is similar when users are downloading an MP3 song, watching movie-on demand over the Internet. ITs that exclusively offer such enjoyment-oriented environments are termed hedonic digital artifacts. The consumption process of hedonic products requires emotional involvement. Therefore, utilitarian-focused approaches are not sufficient to explain hedonic goods^{5,11}.

Present study employs the model of consumers' perceived value to embrace and organize previous findings. Consumers' perceived value, introduced by reference⁹, is defined as a multidimensional construct consisting of functional, emotional, social, epistemic, and conditional values. Reference¹⁰ suggested modified dimensions: performance/quality, emotional, value-for-money, and social. The performance/quality dimension was a functional value that captured the utility resulting from quality perception and performance expectation. Emotional value was the utility derived from the feelings or affective states generated by a product. Value-for-money was a functional value dimension that encapsulated the utility derived from the product due to the reduction of its perceived short term and longer term costs. Social value was defined as the enhancement of a person's self-perception provided by the product.

According to this theory, consumers make a purchase decision after considering multiple value dimensions. The first dimension is the functional value, in which gamers will purchase game items if items are perceived to give strong power to their character because being more competent against other characters is important to gamers. The second dimension, the emotional value refers to the gamers' feeling of enjoyment of games. Gamers are willing to purchase items if items can increase the fun from playing games. The third dimension, value for money or monetary value is often perceived to save time and money. If game users perceive items as being cost effective, they are willing to purchase items. Thus, monetary value is expected to have a positive effect on purchase intention of game items. The last dimension, social value of game items can be interpreted as increasing users' status or showing off in social context of the game when players have items. So, the social value of items is positively related to purchase of items.

In the online-related domains, the theory of consumption values has been used to examine the motivation to download mp3 files, user experiences with smart phones, and the adoption of ringtones in mobile phones. The values explored in previous research as gained from purchasing online games or virtual items include enjoyment value, competency value, decorative or showing off value, and monetary value. Enjoyment value means increasing fun associated with playing game then competency implies value of increasing character power in the game context. Decorative value helps a user gaining scarcity or increasing status in the game context. Monetary

value means that the items are cost effective and reasonably priced⁷. But, previous research tends to cover one or two consumption values to explore the motivation of purchasing game items. This study employs full model of consumption value to explain why a user in free-to-play online game purchase game items.

Game users will purchase game items if they become stronger, have fun, and display themselves to other users when getting items, with reasonable price. Thus, in the online game world, if gamers perceive an item to be valuable, they have an increased probability of purchasing that item. Most of the consumption values are independent; changes in one dimension may not necessarily result in changes in others. For example, an improvement in functional successfulness may not result in an identical improvement in its emotional utility. Thus, the effect of multiple value dimensions should be taken into account concurrently as predictors of behavior¹¹. Based on the reviews, the following hypotheses are developed.

- H1a. The perceived functional value of a game item is positively related to purchase intention of game item.
- H1b. The perceived emotional value of a game item is positively related to purchase intention of game item.
- H1c. The perceived value for money of a game item is positively related to purchase intention of game item.
- H1d. The perceived social value of a game item is positively related to purchase intention of game item.

2.2 Purchase of Game Items and Intention to Play Game

Prior research suggests that users' personal and social experiences in their playing game have an impact on playing hours. Personal experiences include feeling of challenge, fantasy, curiosity, control, and reward. For example, gamers are challenged to progress to another level or are rewarded with rare equipment and required to have some items to accomplish their mission. These experiences increase users' involvement to game and induce gamers to spend time on playing game³. However, gamers have to possess some instrumental items such as a sword or other arms for challenging, controlling, progressing, and reaching higher levels. Thus, purchasing items enrich users' experience, which have a positive effect on the amount of playing time.

Social experiences means competition, cooperation, and belonging to community to interact with other players. Gamers are supposed to belong to virtual communities, and compete or cooperate with other participants^{3,4}. Gamers must utilize items to interact with the system and other players and to achieve their personal and virtual social goals². Such interaction has been found to have substantial impact on users' experiences and playing time⁶.

Gamers with items feel high level of control then they will be motivated to play more. The more reward gamers receive, the more time they will spend on the game. Gamers using items compete or cooperate with other players and feel high level of belonging, which leads to stay longer and to be more satisfied with the game. Users who gained positive experience will increase their loyalty to the game. Based on previous discussions, the next hypothesis is developed.

- H2. Purchase intention of game items is positively related to game users' intention to play game.

3. Research Design

Currently, there are lots of internet users and online gamers in China. As of the end of 2012, there were 564 million Chinese using the internet. Among the Chinese internet users, 60% play online games⁸. So China is one of the best cases for analyzing topics related to online games. The main survey was conducted online over a two-week period. Four hundred game users, who have purchased game items at least once, participated. Juvenile gamers are excluded from the selection because they are not substantial consumers in China, though the juvenile users are increasing. Then 378 valid questionnaires were selected for inclusion in the analysis.

A questions of perceived value based on the related literature included "I am satisfied with the function of items" and "Items are effective when playing game" as functional value. Social value is evaluated with "I am more noticed by others" and "I can make a better impression on others". There are "I feel happier", "I enjoy the game more" as emotional value then "the prices of game items are reasonable", and "A game item is a good product given the price" as monetary value^{7,10}. Participants were asked to evaluate perceived value of items in game that they are most frequently playing. Then they respond the intention of playing game with five point scale. They com-

pleted questionnaire by answering their demographics and playing behavior of game such as playing time, hours, and purchased items.

The results of an initial analysis of the demographic information are presented in Table 1. In this sample, the distribution includes more males than females. 73.8% of respondents are from 26 to 30 years old. Then 44.2% of participants are students and 27.8% are office workers then 25.9% users are self-employed.

Table 2 shows the playing behaviors of game of the participants. Approximately 90% of participants play game more than five days a week (5~6 days, 43.7%; 7days, 45.8%). Among the respondents, 45.8% gamers play every day. In addition, more than half of users (55.0%) play game for three to four hours a day. Then 28.6% of the participants play game for two to three hours a day. Items that they have ever purchased include weaponry (71%), decorative accessories (68.5%), level up items (63.8%), and currencies in virtual world (55.8%). 37.8% of them also have purchased communication tool. Most of participants play game at house (40.5%) and PC café (46%) while some player also use office to play game (9.5%). 41.8% of participants purchase game items for less than 100 yuan (= \$16: 1yuan = \$ 0.16) by a month then 20.9% of them

buy for 100~199 yuan per a month. 12.2% of respondents buy for 200~299 yuan and 6.1 % of them purchase for 300~499 yuan. Gamers purchasing items for more than 500 yuan are 19%. In other words, approximately 60% of respondents purchase items for less than 200 yuan (= \$32: 1yuan = \$ 0.16) while 20% of them purchase items for more than 500 yuan (= \$80) per a month.

4. Results and Conclusion

Table 3 presents descriptive statistics for the variables used in this paper. The mean value of the perceived functional value score is 3.05 with a standard deviation of 1.077. The mean of emotional value is 3.08 and social value is 3.30, then monetary value is 3.49. Table 4 shows the results that four kinds of perceived values are regressed on purchase intention of game items. Consumers' perceived values of game items seem to significantly affect purchase intention of items. The model was significant [$F(4, 373)=21.974$] and the coefficient of determination (R^2) was found to be 0.191. The analysis reveals that consumers' perception of emotional, social, and monetary value have a significant positive impact on the purchase intention of items,

Table 1. Demographic information

Measure	Demographics		
	rank	frequency	percentage (%)
Gender	Male	272	72
	Female	106	28
Age	21~25	61	16.1
	26~30	279	73.8
	31~35	38	10.1
Occupation	Student	167	44.2
	Office worker	105	27.8
	Self-employed	98	25.9
	Others	8	2.1

Table 2. Playing behaviors of game

Measure	Playing behaviors of game		
	rank	Frequency	percentage (%)
Purchase Items	Currencies	223	59.0
	Weaponry	284	75.1
	Level-up items	255	67.5
	Decorative accessories	274	72.5
	Communication tool	143	37.8
Playing days per week	3~4days	40	10.6
	5~6days	165	43.7
	Everyday	173	45.8
Amount of time per day	1~<2 hours	31	8.2
	2~ <3 hours	108	28.6
	3~4 hours	208	55.0
	More than 5 hours	31	8.2
Playing place	House	153	40.5
	PC café	174	46.0
	Office	36	9.5
	Others	15	4.0
Purchasing cost of items per a month (chinese dollar; yuan)	Beloww 100<	158	41.8
	100~199	79	20.9
	200~299	46	12.2
	300~399	16	4.2
	400~499	7	1.9
	Above 500>	72	19.0

thus supporting Hypothesis 1. It implies that when gamers purchase items, they consider the psychological value of items. If items provide gamers feeling of fun, challenging or progressing, and giving the opportunity to display themselves to others, gamers want to purchase them. It also is supported that the more gamers perceive the items as cost effective and reasonably priced one, the higher the intention of purchasing items is. However, the functional

value of items is found to have a negative effect on purchase intention. Thus, it is necessary to investigate the effect of functional value thoroughly in future research as a functional value is generally regarded as having a positive effect. The reverse effect may be attributed to the broad concept of functional value. The questions of perceived value should be modified more specifically in game context.

Table 3. Descriptive statistics

variable	mean (5point scale)	s.d
Functional value	3.05	1.077
Emotional value	3.08	0.842
Social value	3.30	0.849
Monetary value	3.49	0.655
Purchase intention of game items	3.06	0.952
Intention of playing game	3.08	1.146

Table 4. Regression results

Independent variable	Purchase intention of game items		
	coefficient	s. d	t
Intercept	1.101**	0.318	3.464
Functional value	-0.227**	0.052	-4.373
Emotional value	0.271**	0.069	3.953
Social value	0.385**	0.059	6.552
Monetary value	0.155*	0.068	2.270
F	21.974**		
R ²	.191		

* < .05 ** < .01

In order to analyze the effect of purchasing of game items on playing game, the purchasing intention of game items is set as the independent variable and intention to play game as the dependent variable. Intention to play game is regressed on the purchasing intention of game

items. As anticipated, a positive and significant relationship is found between purchase of game items and intention to play game, which supports Hypothesis 2. The model was significant ($F(1, 376)=167.674$) and the coefficient of determination (R^2) was found to be 0.308. The coefficient of purchase item was 0.668 ($t=12.949$), which means that purchase of items significantly increase the intention of playing game. Thus, it can be said that purchase of items can induce game users to play game more.

This paper theoretically contributes to examine the factors affecting purchasing intention of game items, employing the models of perceived value. The study finds that the more gamers perceive the value of items, the higher probability they will have to purchase items. In doing so, it adds to understanding of the users' psychological determinants of purchasing items. The value perception of gamers on items is significant as much as actual value. Users' experience of pleasure, interaction with others, and feeling of wise consumption through gaining items can be important factors in purchasing decision. In addition, it investigates the effect of purchasing items on the intention of playing game. It finds that the purchase of game items has a positive impact on playing game more. Practically, it can be said that increasing the value of game items can result in both purchasing items and enhancing users' loyalty to game. Therefore, game company should take psychological value of items into account when designing and developing game because game items are major source of generating revenue.

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