

# MOTIVATION OF VIRTUAL GOODS TRANSACTIONS BASED ON THE THEORY OF GAMING MOTIVATIONS

ZHAOHUI LI

Department of Economics and Management, Dezhou University, Dezhou 253023, Shandong, China

## ABSTRACT

In recent years, there is an increasingly growth in the transactions of virtual goods among online game players. Few studies have examined the perceived values of virtual goods and how gaming motivation drives the purchase of virtual goods. In this paper, we took one popular online game “World of Warcraft” as a case study, using structural equation model, and explored the relationship between gaming motivations and virtual goods’ multi-dimensional values, as well as the inter-relationship of multi-dimensional values of virtual goods. Results showed that achievement motivation and discovery motivation had a positive effect on the perceiving of virtual goods’ functional value; self-expression motivation and the perceiving of social value were positively related. Among the multi-dimensional consumption values, the perception of functional values has a weak positive effect on the perception of emotional values; the perception of social values plays as a significant intermediate variable between the perceiving of functional values and emotional values.

**Keywords:** *Virtual Goods, Gaming Motivations, Consumption Values*

## 1. INTRODUCTION

Massively Multi-Player Online Role Playing Games (MMORPG), more simply a virtual world, is an internet-based game that can be accessed by large number of players at the same time, in which players choose a physical self, an avatar, and then spend their time running about in the game world, chatting with others, undertaking various tasks, purchasing, producing and consuming goods. In such virtual worlds, transactions of virtual goods such as characters, items, currencies and tokens have become a new source of revenue for online games [1]. According to DFC Intelligence (2008), the online game market will reach \$13 billion and over 40% of the revenues will be produced by trading virtual assets by 2012 (i.e., over \$5.2 billion).

A new economy has been emerged in the virtual world [2]. It has not drawn much attention until people used real money to buy virtual goods or what we call real-money-trade (RMT) happened. However, we know little about consumer’s psychology and behavior in RMT. Why do people buy virtual goods? Will different players tend to purchase different virtual goods? Shelton [3] has argued that gaming motivations of players directly influence their consumption behaviors on some specific virtual goods. However, many studies have demonstrated that motivations are related with perception values [4] and perceived values have a

direct and significant effect on consumption behaviors [5]. In this paper, we tried to make a more logically reasonable and accurate explanation on the purchase of virtual goods from the point of view of consumption values theory.

Our framework of gaming motivations and consumption values made three main contributions to the existing literatures. Firstly, products are believed to represent “a complex cluster of value satisfactions” [6]. Sheth, Newman & Gross [7] developed a theory of consumption values to explain why consumers make the choices, in which the consumption values were materialized into five aspects, namely functional values, social values, emotional values, epistemic values and conditional values. But whether virtual goods have value is seldom discussed, and has been controversial among the existing limited literatures [8].

This study would investigate what kind of consumption values of virtual goods motivate and attract players to purchase. Secondly, some scholars questioned about the independence hypothesis of the multi-dimensional consumption values and believed that they were inter-related [9]. But few empirical studies were taken on this issue. In this paper, we also tried to explore the inter-relationship of multi-dimensional consumption values existing in the virtual goods in order to enrich the theory of consumption values. Thirdly, virtual goods are indispensable for players with different gaming motivations to accomplish corresponding tasks. So, gaming motivations will influence players’



importance perception of different virtual goods with different consumption value dimensions. For example, a player with high self-expression motivation will be more sensitive to virtual goods' social values, thus is more likely to buy an attractive pet with high social values and low functional values. Nevertheless, few researchers examined the relationship between the gaming motivations and all the perceived consumption values. This paper tries to explain the inherent reasons of virtual goods purchasing behavior by examining the relationship between gaming motivation and consumption values.

In this paper, we used the structural equation model, taking one popular MMORPG World of Warcraft (WoW) as an example, to explore the relationship between the gaming motivations and the perceived consumption values of virtual goods, and the inter-relationship among the multi-dimensional consumption values. Following the introduction, this paper reviewed the literatures on the gaming motivations and the theory of consumption values. Section 3 extracted the gaming motivations of attending WoW and the consumption values of virtual goods in WoW, and then hypotheses were proposed. In Section 4, the study introduced research method and data collected. In Section 5, hypotheses were tested based on questionnaires. Conclusions which included managerial applications, research limitation and future prospect were listed in Section 6.

## 2. LITERATURE REVIEW

### 2.1 Online Gaming Motivations

Motivation refers to the processes that lead people to behave as they do, and it occurs when a need is aroused that the consumer wishes to satisfy [10]. Some researchers explored the gaming motivation. Bartle [11] identified four approaches to playing Multiple User Dimension (MUD), which are Achievers, Explorers, Socializers and Killers. Su [12] discovered 5 motivations that drive people to join MUDs which were entertainment, self-affirmation, anonymous company, social learning and escaping social belongs. Kim & Ross [13] examined motivational dimensions underlying sport video game playing, and seven motivation dimensions were identified-knowledge application, identification with sport, fantasy, competition, entertainment, social interaction and diversion. Yee [14] transferred the research object to MMORPGs, and established a five-factor model of people joining MMORPGs which are relationship,

immersion, grief, achievement and leadership. In a latter further study, Yee [15] concluded motivations for MMORPGs into three main components containing ten specific sub-components, which are achievement motivation including advancement, mechanics and competition, Social motivation including socializing, relationship and teamwork, and immersion motivation including discovery, role-playing, customization and escapism.

Above mentioned studies show us that the motivation driving people to play video games changes with the features of games. World of Warcraft (WoW) is one of the most popular MMORPGs around the world, in which players control the avatars to finish tasks which is pre-set by the game developer and obtain rewards. With reference to [14], [15], this studies preliminary concluded that people join WoW for the following three motivations: (1) achievement, such as pursuing progress and liking challenges; (2) self-expression, such as pursuing individuality and liking socialization; (3) discovery, such as pursuing novelty and liking strangeness.

### 2.2 Theory Of Consumption Values

Consumption value, first proposed by Tse, Wong, & Tan [16] in the theory of consumption values, was defined as the consumer's perceived attribute importance of a product or service. A consumer's perceived attribute importance could reflect his/her motivation behind the market choice. Based on this, Sheth, Newman & Gross [7] conceptualized a model to explain the market choice behavior of consumers, in which they believed that consumers would attach different types of values to product groups and market choices were often determined by multiple consumption values, rather than multiple product attributes. They classified consumption values into five categories, which are functional values, emotional values, social values, epistemic values and conditional values.

When it comes to MMORPGs, it is logically reasonable that the consumption values of virtual goods derive from player's perceived attribute importance of virtual goods. Nevertheless, Martin [8] argued that virtual goods have exchange value and symbolic value but no use value, because use value could not meet people's physical need, and exchange value may also be determined in the context of sign and symbolic value, or social values. Lehdonvirta [1] studied virtual good's values in the view of sociology of consumption, which is much closer to the concept of consumption values, and concluded three types of values drive players to buy virtual goods which are functional values, social



values and hedonic values. No other literature investigates the consumption value of virtual goods and its relationship with gaming motivation, except Shang, Chen & Huang [17] which focus on the effect of self-expression motivation on the perception social values and emotional values of decorative virtual goods.

In this paper, we mainly take into account of [1], and believe that virtual goods have three types of consumption values: functional values, social values and emotional values. Functional values of virtual goods derive from the perceived utility of virtual goods in improving gaming efficiency. In WoW, growth and competition is the eternal theme. The main feature of virtual good is to enhance the avatar's offensive and defensive ability. In addition, some game props also have the assisting functions of location transferring, accelerating actions, collecting loots and so on. These all reflect the functional values of virtual goods.

Social values of virtual goods exist when the virtual goods could be associated with the owner's social status, class, personality and self-recognition, or some other symbolic meanings. In 1899, U.S. economist Veblen commented in his "the Theory of the Leisure Class" that the purpose of consumption was not only to obtain the functions but also to show off power and social status of the owner [18]. Today's society has gradually turned into a virtual-value-oriented society especially for the psychological needs. This trend is even more obvious in the virtual worlds. In WoW, some game props without functional values, such as attractive horses and pets, are eagerly sought after by many players. Online game play is essentially a kind of experience consumption during which the player is always experiencing the emotional satisfaction. Campbell [19] described consumption as a process of happiness seeking. Virtual goods could arouse player's emotional feelings, such as excitement, happiness or warmth, so it does have emotional values.

### 3. HYPOTHESIS

#### 3.1 Gaming Motivations Influencing Consumption Values Of Virtual Goods

Based on the foregoing discussion and literature review, several hypotheses were developed for empirical research of the relationship between gaming motivations and the perceived consumption values of virtual goods.

In WOW, players with achievement motivation are eager to upgrade their character levels or equipment performance, and keen on challenges

and competitions with others. Their common target is to win social status and respect through power exhibition. Virtual goods with functional values meet such needs. In WoW, the functional values are reflected by the value of such virtual goods properties as the power of attack, defense power and durability. Compared to virtual goods with low level of such properties or functional values, virtual goods with high level of properties could better meet their motivation of making progress and competition. Based on the above discussion, we hypothesize as follows:

H1: Achievement motivation of the player will positively influence the perceived functional values of virtual goods.

Players with discovery motivation are eager to explore novelty, such as searching unknown regions and manufacturing scarce equipment. Virtual goods with functional value could help players to save time and energy in the process of online exploration. Based on the above discussion, we hypothesize as follows:

H2: Players with high discovery motivation are more likely to perceived functional values of virtual goods.

Self-expression refers to expressing one's views and feelings through behavior, words and choice [20]. In the real world, consumers use symbols, logos, brands, or behavior to convey information that they desire others to know in addition of the way of language or words [21]. In virtual worlds, avatar is more like a virtual personality or virtual ego providing players the chance to try different personalities and identities [22]. Social values help people communicate with others or define and expand self-concept. Through virtual good's social values, players could transfer to others the unique personalized information to show their social class belongs, personalities, style of consumption and life. Based on the above discussion, we hypothesize as follows:

H3: Self-expression motivation will positively correlated with people's perceived social values of virtual goods.

#### 3.2 The Inter-Relationship Of Multi-Dimensional Consumption Values Of Virtual Goods

Like real products, virtual goods often have multi-dimensional consumption values, and they might be inter-related. Sweeney & Soutar [9] gave an example of emotional values being increased by functional values. The purchase of an attractive carpet is likely to increase the chances of a favorable emotional as well as a favorable

functional response. Thus, for the virtual goods, a series of hypothesis with inter-relationship among multi-dimensional values could be predicted.

For items or goods in real world and the virtual world, a notable difference is that virtual good's properties can be identified. Not only the owner of equipment and props could see their attributes and attribute values, but also other players through easy mouse click. When functional values are perceived by other players through notes and numbers, the virtual goods also obtain a kind of invisible social values. In addition, virtual goods with higher functional values will represent more social values. For example, compared to common equipment, top-level one could show the owner's qualifications and standards, horse with higher speed is much more conspicuous. Therefore, the following hypothesis is offered:

H4: Perceived functional values of virtual goods will have a positive effect on player's perceiving of virtual good's social values.

Emotional values of virtual goods exist when they have the utility of arousing players' feelings or affective states. Players get excited and happy if they obtain a piece of functional equipment which is better than the one they already have. For example, one WOW player bought an excellent piece of armor and he/she got really satisfied and happy with its defensive power. In addition, virtual goods with social values could help the owner to convey symbolic meaning and construct the ideal ego, and they will definitely arouse player's mental feelings of happiness and excitement. For example, player gets really warm and comfortable for buying a lovely virtual puppy. The following were expected:

H5: Players perceived higher functional values of virtual goods will be more likely to perceived virtual good's emotional values.

H6: High perceiving of virtual good's social values will positively correlated with the perceiving of virtual good's emotional values.

According to the above assumptions, the paper constructs the research model shown in Figure 1.

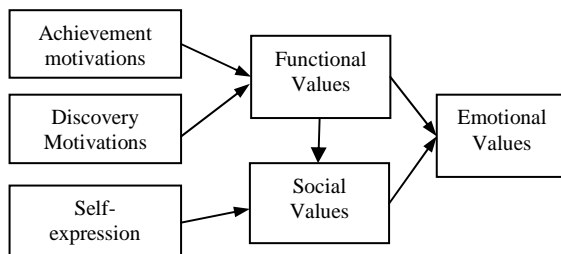


Figure 1: Research model

#### 4. RESEARCH DESIGN AND METHOD

##### 4.1 Questionnaire Design

The questionnaire consists of three sections. To begin with, the first section has one question, which is "Whether do you have the experience of playing the game 'World of Warcraft'?" This question is used to identify the respondents who must be the game players of "World of Warcraft". The second section consists of 17 scale items used to measure three types of motivations of playing WoW and three types of perceived consumption values of virtual goods. 10 items of gaming motivations were based on the research results of [14], [15] and 7 items of perceived consumption values are mainly referred to the scales of Sweeney & Soutar [9]. The third section consists of 4 items used to measure demographic variables which include gender, age, educational level and the years of playing the game of WoW.

##### 4.2 Data Collection

Data for this study is collected from people in China who have experience of playing WoW. The study adopts online surveys and used professional WoW forums to diffuse the survey web page address, so that the samples we got at the end were random. The respondents in China provide the data by means of an online questionnaire from March 5, 2012 to May 16, 2012. A total of 278 questionnaires are obtained and 254 usable responses are acquired after removing incomplete samples, yielding a response rate of 91.4%. The samples of the study are male (87.8%) and female (12.2%), aged at 20-35 with 85.8%, education degree of bachelor and above bachelor with 86.4%, above two years of playing WoW with 50.7%.

#### 5. DATA ANALYSIS AND RESULTS

##### 5.1 Reliability And Confirmatory Factor Analysis

A confirmatory factor analysis (CFA) with AMOS17.0 is used to confirm the factor loadings of the six constructs and to assess the model fit. As shown in Table I, all the standardized factor loadings of items exceed the 0.50 norm, and t-values for all the standardized factor loadings of items are found to be significant ( $p < 0.01$ ). The average variance extracted of all constructs range from 0.723 to 0.845 which exceed the critical value of 0.5, indicating evidence of acceptable convergent validity. In addition, construct reliability estimates ranging from 0.733 to 0.884, which exceed the critical value of 0.7, indicating that the

measurement of each variable has a high reliability. Therefore, the hypothesized measurement model is reliable and meaningful to test the structural relationships among the constructs.

Table I: Confirmatory Factor Analysis Results

Variables	Items	Factor loading	T value	AVE	Composite Reliability
Achievement Motivations (AM)	AM1	0.818	—	0.639	0.841
	AM2	0.810	27.31		
	AM3	0.769	18.49		
Discovery Motivations (DM)	DM1	0.827	—	0.640	0.842
	DM2	0.845	21.21		
	DM3	0.723	16.48		
Self-expression Motivations (SEM)	SM1	0.829	—	0.655	0.884
	SM2	0.771	15.28		
	SM3	0.813	22.40		
	SM4	0.824	23.08		
Functional Values (FV)	FV1	0.792	—	0.598	0.748
	FV2	0.728	14.28		
Social Values (SA)	SA1	0.743	—	0.644	0.844
	SA2	0.825	23.21		
	SA3	0.837	24.57		
Emotional Values (EV)	EV1	0.754	—	0.578	0.733
	EV2	0.767	18.23		

5.2 Structural Equation Modeling Validation and Hypothesis Testing

The structural equation model is estimated with AMOS17.0. The overall model indicates that the  $\chi^2/df$  ratio of model is 1.509 which is less than 5, indicating an acceptable fit. Furthermore, other indicators of goodness of fit are GFI=0.93, AGFI=0.90, NFI=0.94, CFI=0.95 which all are above the 0.9 and RMSEA=0.064 which is below the 0.08. Table 2 reports the results of the hypothesis tests. Totally, all six hypotheses are supported. Achievement motivation and discovery motivation both affect the functional value and self-expression motivation affects the social value. Functional value influences the social value and emotional value and social value influences the emotional value. The validated model is shown in Figure 2.

Table 2: Hypothesis tests results

Paths	Standardized Estimate	T-value	Result
H1: AM→FV	0.337*	2.631	Support
H2: DM→FV	0.360**	3.167	Support
H3: SM→SV	0.546***	4.513	Support
H4: FV→SV	0.441***	4.986	Support
H5: FV→EV	0.233*	2.040	Support
H6: SV→EV	0.540***	4.365	Support

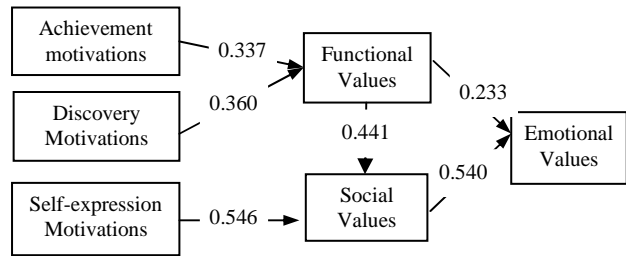


Figure 2: Validated model

6. CONCLUSION

In the relationship between gaming motivations and perceived consumption values of virtual goods, we can see that people with achievement and discovery motivation are more likely to focus on perceived functional values of virtual goods, or they emphasize the virtual goods with functional values. In addition, self-expression motivation positively influences people’s perceived social values of virtual goods, meaning that virtual goods with social values have the utility of releasing people from the unachieved self-expression motivation.

Empirical results show strong and monotone connection among three consumption values of virtual goods. Emotional values are the core values online games pass to players and make them release from the anxiety due to the unachieved motivations. In our final model, player’s perceived functional values and social values all ended in emotional values, which was in line with the overall consumption values of online games. As fundamental parts of online games, the perceived values of virtual goods constitute an indivisible part of the whole values online games convey to players.

From the overall perspective, players with achievement or discovery motivation is more sensitive to functional values of virtual goods and further enhance their perceiving of virtual good’s emotional values. However, such a relationship is not so significant when perceived social values work as a mediating variable between perceived functional values and perceived emotional values. People with high self-expression motivation are more likely to perceive virtual good’s social values and then the perceived emotional values increase.

6.1 Discussion And Management Implications

Different virtual goods have different portfolios of consumption value, which means they could meet the needs of different players. For a marketer, how to identify a new virtual good’s target market is a principal and difficult task. In this paper, results



show that the gaming motivations are related with consumption values of virtual goods, which provide an important way to identify the target market of a specific virtual good. To be specific, although a virtual good often has multi-dimensional values, it does have a kind of relatively prominent value, or what we called dominated value. Through measuring players' gaming motivations, markets could sell functional value dominated virtual goods to players with achievement and discovery motivations, and social value dominated virtual goods to players with self-expression motivation.

In online games, multi-dimensional consumption values could often be controlled by designers. For example, functional values could be changed by giving a different attribute value or adding codes for special utilities and social values could be changed by changing virtual goods' appearances. Holbrook [23] pointed out that different consumers emphasize different consumption values, and companies should design product or service and provide portfolios of consumption values according to consumers' needs. In the whole gaming process, game designers should provide players with achievement and discovery motivations with functional value dominated virtual goods and self-expression motivations social value dominated virtual goods. Considering the total supply of virtual goods, game designers should determine the volume proportion of functional value dominated virtual goods and social value dominated virtual goods based on the proportion of players with different motivations. According to our survey, the proportion of functional value dominated virtual goods and social value dominated virtual goods WoW should provide to Chinese players is about 6:4.

The results showed that the consumption values of virtual goods were inter-related. Emotional values that virtual goods could convey to players are the core concerns of game designers. Perceived functional values may directly improve perceived emotional values, but with a low credibility and limited impact. Perceived social values, however, played a strong role as a mediator of perceived functional values and perceived emotional values. Thus, for functional values dominated virtual good with high functional values, there is no need to design special appearance to improve its social value, because players will perceive social values when having it and will obtain mental feelings. For a social values dominated virtual good with high social values, there is also no need to attach some functional utilities. In all, the virtual goods designing principle based on our research is

“strength never goes with weakness”, meaning that virtual good with high functional values never combine with social values and vice versa. However, there are some virtual goods with both high functional and social values, they will definitely convey highest emotional values to players and become their ultimate dreams, but these virtual goods are extremely rare.

## 6.2 Research Limitations and Future Prospects

In this paper, structural equation model was used to study the relationship between gaming motivations and perceived consumption values of virtual goods, and the inter-relationship among multi-dimensional values of virtual goods. The future directions are as follows:

Firstly, this research was based on World of Warcraft, and was more like a case study. It has some limitations to draw the same conclusion to all the online games. In different MMORPGs, players will have totally different gaming motivations and consumption values of virtual goods are discriminating. Many scholars classified MMORPGs into two types: scripted and unscripted, and WoW is a typical representative of scripted MMORPGs. Future research may focus on unscripted MMORPGs.

Secondly, in this paper, gaming motivations are selected from present researches in a subjective way. Some gaming motivations such as “escapism from real world” and “team work” were neglected. Future researches could focus on the relationship between the unstudied motivations and virtual good's consumption values.

Thirdly, results showed that consumption values of virtual goods were inter-related which gives us an inspiration to explore their inter-relationship of products and service in the real world. Future researches should continue to explore whether the consumption values are inter-related for the products and service in real world.

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