CONSUMER’S PURCHASING BEHAVIOR OF VIRTUAL PRODUCTS IN SNS

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ABSTRACT

Based on the combination of social networking sites (for short SNS), the study involves the trading of virtual product development status, collates and summarizes the research results in China and abroad consumers buying behavior on virtual products. The researchers attempt to explore factors influencing consumers to buy SNS virtual products by using questionnaires to collect personal information of SNS customers. In addition, the theory of Planned Behavior (for short TPB) has been selected as theoretical model and the empirical analysis uses structural equation modeling method to analyze the factors affecting several different groups of users of SNS who will be the consumers or potential consumers of virtual products. The findings are as follows: (1) the passionate export-oriented consumer attitudes towards virtual product of SNS will clearly and directly affect the type of the behavioral intention (for short BI) of buyers of virtual products; the perceived behavioral control can even affect directly on the final actual purchase behavior. (2) The subjective norm (for short SN) of traditional inward-oriented consumers has a significant impact on virtual product purchase behaviors and will also directly affect the final purchase behavior. (3) The SNS under self-supporting consumers on virtual product attitudes and purchasing attitudes of virtual products mainly affected their BI.

Keywords: Social Network Sites (SNS), Consumer Behavior, Virtual Products

1. INTRODUCTION

July 2012, the 30th China Internet Development Statistics Report shows that the number of Internet users reached 538 million and the Internet penetration rate of 39.9% in China. Social networking sites have become the new age of the Internet of which the power of its impact on the network life and real life cannot be ignored. However, the profit model of social networking sites has been questioned since the number of Internet users reached 538 million and the Internet penetration rate of 39.9% in China. Social networking sites have become the new age of the Internet of which the power of its impact on the network life and real life cannot be ignored. However, the profit model of social networking sites has been questioned since the profits based advertising revenue model for social networking sites is not a stable and sustained profit mode. However, the profit model of social networking sites has been questioned since the profits based advertising revenue model for social networking sites is not a stable and sustained profit mode. However, online shopping sites developed in China is more mature and profitable. In this environment, social networking sites will be e-commercialized to motivate consumers shopping through social networking sites directly or indirectly. This model will become effective tools of social networking sites quest for profit. In view of this, the operators of social networking sites should be a better understanding of consumer motivators and constraints of the online shopping, based on these characteristics make strategic decisions, technology decisions and marketing decisions.

Although with the rapid development of SNS the number of users is increasing, and a lot of investors are attracted, the profit model of SNS has been doubted by some researchers (Calburn, 2006). Currently, the major Chinese and overseas SNS profit from advertising revenue (Williamson, 2007). For example, Friendster income entirely came from advertising (Hopkins, 2003); more than 85% annual income of Facebook is from advertising. In general, advertisers are in favor of attractive sites for consumers, but the Internet industry is a rapidly changing industry and the development of information technology can make a website “crowds” to “few”, so advertisers in the network investment are with greater mobility. In 2008, the proportion of MySpace advertising revenue fell by 11.2% and Facebook 12.5% (Nicole, 2008). The data suggests that advertising-based profit revenue model for SNS was not stable and sustained.

American Marketing Association's survey shows that there are as high as 29% American consumers easily accepting social web shopping (Horovitz, 2006). As a new profit-making model, it has been used by such companies as Facebook,
Cyworld.co.kr and other SNS, which have achieved some success. SNS has a large users base and online shopping has been to the mature situation, so if combine two of them, through the SNS platform for sales goods, a stable and lucrative profit model can be established.

In this article, the section 2 presents the literature review; in section 3, we proposed 5 hypotheses; section 4 was the questionnaire and data collection; we analyzed the data in section 5 and Section 6 gives a conclusion to the whole paper.

2. LITERATURE REVIEW

Consumer behavior research began in the late 19th century and early 20th century, the purpose of which was to find out the typical difference between individual consumers, analyse consumer behavior in the purchase decision consistency and various situations influencing factors (Ausra Skrudupaita, 2006).

Glock and Nicos (1963) defined consumer behavior as the concept to describe or explain the choice and buying behaviors of consumers in a specific time or some time taken. Demby (1973) pointed out that consumer behavior was the individual assessment, access to and use of goods or services, the decision-making process and the actual action. According to Engel (1986), consumer behavior that directly involved in the access to goods, use of goods and handling of goods or services in the economy, a series of activities, including the decision-making process before deciding on these behaviors. W.G.Zikmund and M.d Amico (1992) pointed out that consumer behavior was a series of activities involving selecting goods, obtaining merchandise and using them to meet their needs and desires. Kotler (1995) asserted that the consumer behavior of individuals or groups select, purchase, use, or handle products, services, ideas or experiences to meet the needs and desires of the process. Virvilaite (2000) understood that consumer behavior was the individual problem, searching for goods or services that can solve the problem, access and use goods and then the feedback process. Obviously, most scholars regarded consumer behavior as a process for research.

Attitude intentional behavior theory is important results of the study of consumer behavior. The consumer attitude behavioral intention will lead the actual behavior (M.Fishbein, 1967); behavioral intention refers that consumers take some kinds of behavior for subjective possibilities (S.Taylor 1995). Attitude intention behavior theory has been widely used in the field of network consumer research.

There were very popular consumer behavior models such as the Theory of Reasoned Action (for short TRA, Ajzen &Fishbein1975); Technology Acceptance Model (for short TAM, Davis, 1989); Theory of Planned Behavior (for short TPB, Ajzen, 1991).

Consumers attitude directly affect the network consumption which is depended on the characteristics of online shopping (Davis, 1993). The online shopping feature of consumer recognition function, for example, ease to use and usefulness, can also be emotionally cognitive, such as interests (Menon, and Kahn, 2002; Childers, 2001; Mathwick, 2001). Some network consumers can be described as simple to solve the problem, while some can be considered to be the pursuit of entertainment, fantasy, motivation, sensory stimulation and fun (Hirschman and Holbrook, 1982). "Problem-solving" online consumption is only limited to specific goods or services, in which regards shopping as just a task or work (Babin, 1994), in which the only concern is the in time and effective manner to buy goods. By contrast, the second online consumption which take it as a kind of entertainment, enjoy the pleasures lying in the process of pursuit(Holbrook, 1994). Therefore, the study of consumer behavior on the network need to take into account the two dimensions of the "functional" and "emotional".

Boyd and Ellison (2007) pointed out that the SNS are web-based service, users of public or semi-public information within a bounded system.
providing a platform to establish a connection between users which can create himself or by others to achieve the purpose of interacting with other users. Won Kima, K-Ran Jeong and Sang-Won Lee (2010) suggested that SNS is an online community where users can share their original content in the community.

The network virtual product is a catch-all concept, narrowly, the virtual goods in online games, online communities, such as game currency, electronic music, theme dress (Yang, 2004; Meng, 2006). However, generally, the network virtual products were enterprises developing commerce online and putting product online, such as transforming physical products to 3D image and providing consumers picked up on the network (Zheng, 2008).

Animesh and Alain (2011) used SOR model to analyse technology environment and the impact of the space environment on the behavior of consumers to purchase virtual products in a virtual environment. The study pointed out that the technical environment, including interactive and social space environment density and stability. Nerad (2010) pointed out that the virtual consumer behavior and consumer desire to self-expression are highly correlated, which means the consumers with stronger desire are more likely to purchase network virtual product.

3. HYPOTHESES

In the field of psychology, TPB model is a theoretical study of the relationship between attitudes and behavior, which was initially proposed by Ajzen in 1991 on the basis of TRA when a behavior was not completely controlled by the individual willing. Ajzen introduced perceived behavioral control variables in the TRA, which can be very good to make up for this shortcoming of TRA. TPB personal behavior has three considerations, first, the possible consequences of the behavior and the consequences of the evaluation, the second is the power of the expectations of the behavior of others, and to follow these expectations can promote or hinder the behavior a series of factors affecting the intensity. Thoughtful, when individuals feel that they have enough capacity to control the behavior, they will show some behavioral intention. This is the most direct impact on the actual behavior factors. However, some of the behavior of the implementation will create obstacles for personal intention to control, so sometimes perceived behavioral control can act directly on the actual behavior (Ramayah, 2009).

Ajzen’s TPB model has been widely used and proven to be effective in previous researches on e-commerce. Fusilier and Durlabhji (2005) took a study of Indian college acceptance of new information technologies by using TPB. They clearly expressed that the basis of TPB was a very effective model to study online consumer behavior. So here, TPB is selected as the main theoretical models for the basic hypotheses of this paper.

The attitude will raised the level of behavioral intention than subjective norm, more positive consumer attitude is relatively less affected by the subjective norm or the views of others (Fusilier and Durlabhji, 2005).

Hypothesis 1: the attitudes of SNS virtual products are significantly related to SNS virtual products purchase intention.

Subjective norm refers to an individual behavior which was considered by himself. He perceived around the most important for him whether or not to support him to take this behavior for real (Fishbein, and Ajzen 1975).

Hypothesis 2: the virtual subjective norm of SNS is significantly related with virtual product purchase intention.

Perceived behavioral control reflects the implementation of a behavior facing internal or external constraints (Taylor and Todd, 1995). It describes whether consumers have the necessary abilities to get resources for implement the behavior, and whether to have good control of the performance behavior perception (Lu, 2008). The TPB perceived behavioral control can influence behavior intention (Ajzen, 1991).

Hypothesis 3: SNS perceived behavioral control of virtual product purchase and virtual product purchase intention are significantly associated.

Hypothesis 4: SNS perceived behavioral control virtual product purchase can act directly on the actual behavior.
Consumers will exhibit certain behavioral intentions when they can obtain maximum benefits at little cost. Behavioral intention will directly affect consumers’ actual purchase behavior. Due to its formation process, behavioral intention is the most appropriate predictor to study actual behavior, containing all basic factors that can affect the actual behavior (Fishbein, & Ajzen, 1975). Therefore, behavioral intention of buying behavior has a significant impact (Hung, 2003; Tung, 2004; Nysveen, 2005; Amin, 2007). Hypothesis 5: Behavioral intentions to buy virtual products in SNS have significant association with actual purchase behavior.

4. QUESTIONNAIRE

In order to obtain the required data, the questionnaire has been divided into three parts. The first part is a survey of the values and lifestyles of all Renren (www.renren.com) users, where data is used in the consumer cluster analysis. The second part based on the TPB model focused on consumer attitudes, subjective norm, perceived behavioral control, behavioral intentions and actual behavior; which is the core issue of this article. The third part is about a survey of consumers' personal information on the demographic characteristics, the results of which will be used to understand the basic situation of the sample. Also, cluster analysis is used to determine clustering results whether there are significant differences in demographic characteristics. TPB test model like Fig.3 showed below is used.

![Fig.3 The TPB Test Model](image)

In this model, BB means behavioral beliefs, we use it to test weather consumer believe the behavioral will take some results. OE means outcome evaluations, which is used by consumer to evaluate the behavioral results. NB--normative beliefs, means the Consumers perception of whether important person support him to take behavior. MiC is the motivation to comply. The enthusiasm of consumers follow NB. CB is control beliefs, which indicates the resources and opportunity of Decision-makers to take some behaviors. PF, perceived facilitation, is the function of promotion or inhibition brought by the resources of the decision-makers.

The first part of the questionnaire is designed according to the reference of VALS2 segmentation system (Piirto, 1991; Kassarjian, 1986; Arnould, 2004). Originally, 30 statement are designed about the values and lifestyles of consumers. Then, we selected 10 premium users for face-to-face interviews to verify the original statements. Since the relationships between the sequences of 30 statements will mindset respondents answers, we made a random order of these statements. Since the relationships between the sequences of 30 statements will mindset respondents answers, we made a random order of these statements. Likert scale is used to collect data, in which 1 mean totally disagree, 7 mean fully agreed, and so on.

Furthermore, we randomly selected 40 students from different universities in Shanghai, with different academic backgrounds for pre-research. We used exploratory factor analysis and reliability statistics to analysis collected data, and modified them to final questionnaire eventually.

![Fig.4 Modified KMO And Bartlett’s Test](image)

**Fig. 4 Modified KMO And Bartlett’s Test**

In Formal research, we used e-mail and paper to distribute questionnaires. 250 questionnaires were distributed and 231 were returned, the recovery rate was 92.4%. Objects from Shanghai University, Fudan University, Tongji University, East China Normal University, Beijing University of Aeronautics and Astronautics, Renmin University of China, Chinese Academy of Sciences, Wuhan University, Southeast University, Tianjin University, Zhejiang University, Shandong University, more than 30 different college and research institutions; academic background
covering economic management, law, literature, science, engineering and others. We used tabulated method to delete a record when one data was missing; we found five of them were invalid questionnaires; the final valid sample size was 226.

5. DATA ANALYSIS AND HYPOTHESES TESTING

We believe that users of SNS, weather they bought the virtual product or not, all were objectives of this study. Those who did not buy are potential consumers of virtual product; after all, they spend some time browsing SNS every day, and their behaviors worth to be studied.

We used SPSS 17 to analyse the collected data by principal component analysis (PCA) and varimax orthogonal rotation method to rotate factors. The KMO 0.733> 0.6, which means the variables having a certain correlation, representing a suitable factor to analysis. Bartlett test of double-sphericity statistics significant probability was 0.000, less than 1%, to reject the null hypothesis, which showed the 17 statement was not independent and suitable to factor analysis. Initial analysis extracted four main factors; the variance contribution rate was 61.901%. The results show that the Krone Bach alpha coefficients were greater than 0.6, each factor of the statement with good internal consistency.

We used standardized factors as clustering variables and adopted k-means algorithm to analyze cluster. By taking the convergence criteria of 0.02, we obtained three different consumer clusters, which had 80, 27, 119 subjects respectively.

We also used Wilks lambda discriminant analysis in this study, default significance level was 5%. Discriminant analysis results showed that two Wilks lambda value were 0.189 and 0.549, accompanied probability P-values were less than 0.0001, the correct rate was 94.2% of the original cluster, indicating that the results of the initial clustering is very effective.

We also applied the Kroner Bach α coefficient method before going to the next analysis, reliability analysis showed that each scale of Kroner Bach coefficients was greater than 0.6, the data with good reliability.

Theoretical study is more important than reliable data (Browne and Cudeck, 1993) during the use of structural equation model (SEM). As we mentioned, the theory of planned behavior model has been proven to be an effective research model. Considering the effectiveness of the small sample size and TPB model, we only studies these model fitting indicators as a reference, not to correct the model based on these indicators. We delete individual unsuitable samples based on the theory, to make the model fits better.

Chi-square test value is affected by the sample size which is very large. It is not suitable as the evaluation index, the degree of freedom of the chi-square ratio $\chi^2$/df as a model evaluation. Chi-square degrees of freedom ratio of less than 3 is acceptable (Carmines and McIver, 1981). Excepted $\chi^2$/df, we select the goodness of fit index GFI, adjusted goodness-of-fit index AGFI, approximation error RMSEA, Comparative Fit Index CFI, specification fit index NFI and the Tucker-Lewis index as the
model fitting evaluation index, based on this study, and we enlarged some index standard.

We used Fig.3 model to build up this study’s SEM, like Fig.6 shows below.

We used this model to take hypothesis test of three type consumers. Tab.1 showed the Standardized regression coefficients of all types consumers.

Results from the table1, we used AMOS to analysis the passion export-oriented consumers in SNS. Attitude has a very significant impact on behavioral intention (coefficient=0.815, accompanied probability P=0.0001), support for H1; Perceived behavioral control has more significant impact on the actual behavior intention (coefficient =0.222, accompanied probability P = 0.016 <0.05), support for H4; Behavioral intentions and actual behavior was significantly correlated (coefficient=0.842, accompanied probability P<0.0001), support for H5; Although the attitude impact of behavioral intention and the perceived behavioral control on behavioral intention have large path coefficients, but the significance level not significant, reject both H1 and H3; Perceived behavioral control on actual behavior was not significant, reject both H4. In addition, there is no significant correlation between attitude, subjective norms, and perceived behavioral control.

For the low profile self-supporting consumers, Attitude has a very significant impact on behavioral intention (coefficient=0.629, accompanied probability P <0.0001), support for H1; Perceived behavioral control has more significant impact on the behavioral intention (coefficient =0.230, accompanied probability P = 0.010<0.05), support for H3; Behavioral intentions and actual behavior was significantly correlated (coefficient=0.628, accompanied probability P<0.0001), support for H5; Subjective norms on behavioral intention and perceived behavioral control on actual behavioral was not significant, reject both H2 and H4. In addition, the relations with attitudes, subjective norms, and perceived behavioral control, only attitude and perceived behavioral control has significant correlation (correlation coefficient=0.575, accompanied probability P<0.0001).
6. CONCLUSION

For passion export-oriented consumers, the attitude of SNS virtual products clearly impact their behavioral intentions, which will directly affect the actual behavior of consumers. In addition, perceived behavioral control of purchase virtual products has direct effects on final actual purchase behavior. A strong relationship between attitudes and perceived behavioral control, consumers tend to impulse buy virtual product once a certain SNS generate a positive attitude, if they have the purchase necessary resources and capacity of the commodity, those consumer purchase behavior will be taken as soon as possible.

Subjective norms of traditional inward-looking consumer had a significant impact on buying behavior intention of virtual product; behavioral intention will also directly affect the final purchase behavior. Obviously, this group of consumers put more emphasis on SNS virtual product reputation, and they want to get advices of others.

For the low profile self-supporting consumers, attitudes and perceived behavioral control of purchase virtual products in SNS were major effects of their behavior intention, while perceived behavioral control does not significantly affect the final purchase behavior. This indicates that this type of consumer buying behavior is very rational. They will consider their own favorite of a virtual product and own resources, and then build up their behavioral intentions. Cluster analysis shows that these type consumers have a higher score on the self-reliance factor, they always have a plan and own ideas, like to solve their own problems, which also explains why the degree of influence of subjective norm on behavioral intention was not high.

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