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An Exploratory Study of Influence Factors about Consumers' Online Group Buying Intention

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Abstract: As a new kind of purchase behavior, online group buying is becoming more and more popular in China. However it is difficult for online group buying websites to attract consumers and keep them and relevant empirical studies are still few in China. The current study answers calls for research into the factors that can enhance online group buying intention, by exploring influence factors and their effect on online group buying intention. Based on the literature review, the influence factor scale was developed by the method of factor analysis, using survey data collected from Beijing college students. Then, a multivariate regression analysis was performed to test the impact of six extracted factors on the online group buying intention. The analysis results indicate that only three factors, namely experience of online group buying, website quality and online retailer quality, were demonstrated had significant positive effect on online group buying intention. Therefore, improvements in these factors would enhance online group buying intention and marketing implications of the research findings were proposed at last.

Key words: Online group buying, buying intention, influence factors, consumer behavior

INTRODUCTION

Since 2010, online group buying websites have been increasingly popular in China. According to the data released by China Internet Network Information Center, the population of online group buying consumers had reached 18.75 million by the end of 2010. In fact, China's online group buying has a broad market prospect. However, under the intense competition circumstance, an urgent problem which needs to be solved is that how the online group buying websites can find a way to attract consumers, keep consumers and achieve long-term development.

Online group buying means that a group of potential consumers could get products and services at significantly reduced prices through the online purchase, because their willingness to buy the same product improve their bargain ability by forming union. (=). Therefore, this kind of purchase behavior could be viewed as online collective buying. There is something about online group buying that distinguishes it from the traditional e-commerce patterns, such as B2C (Business to Customer) or C2C (Customer to Customer). As a newly-emerged pattern of e-commerce business, online group buying is kind of a B2T (Business to Team) pattern. Based on the previous research, the current study, by use of the empirical methods, explores the factors that influence consumers' group buying intention.

Lots of scholars have studied on the relationships of consumer attitude, consumer intention and consumer behavior and built different theoretical models. The most popular theoretical model that was applied to the research on customers' purchase behavior of online shopping is the theory of reasoned action. It was originally put forward in 1975, indicating that individual's attitude and subjective norm affects individual's behavioral intention (Fishbein and Ajzen, 1975). Fraj and Martinez (2007) found that individual's attitude and subjective norm influence behavioral intention directly and influence behavior indirectly. Because behavioral intention is the key factor that influences behavior it is reasonable to infer that consumers' online group buying behavior can be predicted by online group buying intention.

A number of scholars, by using the theory of reasoned action, the theory of planned behavior and other behavioral models, analyzed the influence factors of consumers' online shopping and establish behavioral models. Yin *et al.* (2008) found that consumer intention of online shopping was profoundly affected by consumers' educational level, computer skills and perception of risk of online shopping. According to extant research, influence factors also include the website characteristics, the features of online retailers and the personalities of consumers. Based on technology acceptance model, (An and Wang, 2007) built a comprehensive conceptual

model of online shopping intention, which comprised external variable and intervene variable. The former includes consumer personality, perception of website characteristics and perception of online retailer feature, while the latter includes perceived usefulness, perceived easiness and credibility. Both external variable and intervene variable have significant effect on consumer intention of online shopping. These studies are mainly about consumer behavior on online shopping. Since there are some differences between online group buying and traditional e-commerce patterns, the current work aims to explore the influence factors of online group buying intention and further test the impact of them on the online group buying intention.

METHODOLOGY

Questionnaire design and samples: Based on extant research, the authors set up a large pool of items and selected 32 items which had passed the evaluation of three scholars to measure 11 variables. Then, five online group buying consumers were interviewed to find out any ambiguity or other difficulties they felt in responding to those items. This procedure included modifications, supplement and elimination of items, so as to clear the meaning of items. The items are measured on a 5-point Likert scale from 1 = totally disagree to 5 = totally agree.

According to the convenience principle, 300 respondents from six universities were surveyed, including Beijing Forestry University, Beijing University of Aeronautics and Astronautics, Beijing Institute of Technology, Beijing University of Posts and Telecommunications, China Agricultural University and Central University of Finance and Economics. The number of valid questionnaires was 256 and the effective rate of the questionnaires was 85.3%.

The number of respondents who had used computers for more than two years was accounted for 86.33% of all the samples. There were only 46 students who had no experience of online group buying, accounting for 17.97% of the total respondents. Ninety eight respondents had online group buying experiences from 1 to 5 times, reaching 38.28%. Respondents, who have more than 5 times of relevant purchase experiences, were 112 persons,

reaching 43.75%. Therefore, it was obvious that most of the respondents had online group buying experiences.

Reliability analysis and content validity analysis: SPSS 17.0 was applied to measure reliability, including reliability of the whole scale and the subscales of each variable. In this study, the Cronbach’s alphas coefficients of all subscales were above 0.70, which indicated that the subscales have favorable internal consistency reliability. Moreover, the total internal consistency reliability coefficient of the whole scale was 0.903, indicating that the reliability of the scale was very good. There was no need to revise the scale and each item should be reserved. Content validity, also known as face validity or logical validity, is a kind of subjective evaluation of how well the content of scale represents certain measurement tasks. In other words, it refers to the adaptability and logical consistency between scale items and measurement goals. Because most of scale items were adopted from previous research literatures and the scale also had been accepted by 3 scholars after repeatedly adjustment, it was reasonable to judge that the content validity of the scale was enough.

Factor analysis: Before carrying out factor analysis, the correlation matrix between factors should be calculated to examine the feasibility through methods of Kaiser-Meyer-Olkin (KMO) and Bartlett Test of Sphericity. The results showed that the KMO coefficient was 0.740 and the chi-square value of Bartlett Test of Sphericity was statistics significant, indicating that the survey data was suitable for conducting factor analysis.

Principal component analysis was employed to extract factors and the standard of extraction was that eigenvalue was more than 1. The method of varimax rotation had been applied to achieve factor rotation. Generally, if the total explained variance of reserved factors is above 60%, it means that the reserve factors after extraction are well enough. If it only reaches 50%, the results can be accepted narrowly (Steiger, 1990). Eventually, six factors were extracted, whose eigenvalue were all above 1, as Table 1 shows. The total explained variance of the 6 factors reached 54.58%, which was

Table 1: Eigenvalues and extraction sums of squared loading

Factors	Initial eigenvalues			Extraction sums of squared loadings	
	Total	(%) of variance	Cumulative (%)	Total	(%) of variance
1	6.574	19.922	19.922	6.574	19.922
2	3.412	10.341	30.263	3.412	10.341
3	2.586	7.835	38.098	2.586	7.835
4	2.020	6.121	44.219	2.020	6.121
5	1.879	5.695	49.914	1.879	5.695
6	1.540	4.666	54.581	1.540	4.666

Table 2: Factor analysis on influence factors of online group buying intention

New name of the factor	Original name of the variable	Items	Factor						
			1	2	3	4	5	6	
Internet experience	Internet experience	IE1	0.547						
		IE2	0.848						
Experience of online group buying	Experience of online Group buying	EOB1		0.856					
		EOB2		0.830					
		EOB3		0.788					
Perceived risk	Perceived risk	PR1			0.797				
		PR2			0.722				
		PR3			0.870				
Website quality	Usability of websites	WQ1				0.651			
		WQ2				0.749			
		WQ3				0.688			
		WQ4				0.559			
	Features of transaction interfaces	WQ5				0.673			
		WQ6				0.922			
		WQ7				0.742			
		The safety of websites	WQ8				0.676		
			WQ9				0.693		
			WQ10				0.762		
			WQ11				0.664		
Reputation of websites	ORQ1					0.460			
	ORQ2					0.571			
Credit rating of retailers	ORQ3					0.645			
	ORQ4					0.891			
	ORQ5					0.777			
Online retailer quality	Service quality of retailers	ORQ6				0.691			
		ORQ7				0.518			
		ORQ8				0.809			
	Competitiveness of products	ORQ9				0.824			
		OQ10				0.610			
The popularity of online group buying	The popularity of online group buying	POB1					0.501		
		POB2					0.638		
		POB3					0.525		

Internet Experience (IE), Experience of Online Group Buying (EOB), Perceived Risk (PR), Website Quality (WQ), Online Retailer Quality (ORQ), The Popularity of Online Group Buying (POB)

more than the critical value of 50%. This meant that the result of reserved factors after extraction was acceptable.

There are two criterions to determine which item should be omitted after varimax rotation: Loading coefficient on all factors is less than 0.4 or more than 0.4 on at least two factors meanwhile. According to the criterions, there was no item that should be omitted. Table 2 shows the results of factor analysis. On the basis of the constitute of variables, the 4th factor, which was consist of usability of websites, features of transaction interfaces and the safety of websites was named website quality. The 5th factor, was named online retailer quality, which was consist of reputation of websites, credit rating of retailers, service quality of retailers and competitiveness of products. Due to including same items, original names of variables were adopted for other factors. In this way, 6 factors were respectively named, namely internet experience, experience of online group buying, perceived risk, website quality, online retailer quality and the popularity of online group buying.

MULTIVARIATE REGRESSION ANALYSIS

Research hypothesis: Bhatnagar *et al.* (2000) found that the longer time consumers used the Internet, the stronger intention they had to do online shopping. Consumers who were more experienced on the Internet and had proficient computer skills were more likely to look through websites which offer products and services. By browsing these websites, they experienced vision enjoyment which could stimulate their online group buying intention:

H1: More Internet Experience leads to stronger online group buying intention

Consumers with rich online group buying experience tended to have deeper understanding of online group buying websites. If their previous experience of online group buying was successful, they would show stronger willingness to continue online group buying in future.

H2: More experience of online group buying leads to stronger online group buying intention

Forsythe and Shi (2003) tested the influence of risk perception on online shopping behavior and put forward that the lower the risk perception was, the more positive the consumers' attitude towards online shopping was. Kim (2012) reached the similar conclusion.

H3: Higher perceived risk leads to weaker online group buying intention

Lee and Kozar (2012) pointed out that the web designers should pay more attention to the usability of their websites since it was of great importance when they created the search engines. The unique interface and layout of the websites as well as the attractive appearance design were always eye-catching to consumers and could promote more visitors looking through the websites. Meanwhile, the reliability and safety of the websites was beneficial to improving consumers' online shopping intention.

H4: Higher website quality leads to stronger online group buying intention

Yeh *et al.* (2012) stated that the reputation of websites would stimulate consumers' online shopping intention. Consumers would deduce possible behaviors of the online retailers in the transaction, mainly based on their reputation. Positive reputations, perceived service quality and competitive advantage of products were of great help to enhance consumers' trust and motivate them to purchase products.

H5: Higher online retailer quality leads to stronger online group buying intention

During the period of consumers' accepting new emerged behavioral mode, consumers were easily influenced by reference group. When they found a certain kind of new emerged behavior was popular and got positive comments, consumers inclined to be more likely to imitate that kind of behavior.

H6: Higher popularity of online group buying leads to stronger online group buying intention

Definition of variables: The dependent variable was the online group buying intention, which was consumers' willingness to do online group buying and whether they would keep on online group buying in future. By using the concept of online group buying intention defined as

above, the study further explored the influence factors of online group buying. Based on literature review and the factor analysis, the following factors were considered as independent variables: Internet experience, experience of online group buying, perceived risk, website quality, online retailer quality and the popularity of online group buying. Table 3 shows the definition of those independent variables.

According to the research hypothesis, a multivariate regression model was set up to test the effect of 6 variables on consumers' online group buying intention as following:

$$y = \alpha + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + \beta_6x_6 + \epsilon$$

Analysis results: The maximum of online group buying intention was 5 and the minimum was 1. The mean value was 2.83, which meant that the online group buying intention of the sample data was not strong. The model was significant and explains 27.7% of the variance in the data ($R^2 = 0.277$; $F=15.88$, $p<0.001$).

Table 4 shows the regression analysis results of the model. Consistent with findings in previous studies and supporting hypotheses 2, 4 and 5, experience of online group buying, website quality and online retailer quality had significant positive effect on online group buying intention. In other words, those three factors significantly enhanced the degree of online group buying intention. While, internet experience, perceived risk and the popularity of online group buying didn't have a

Table 3: Definition of independent variable

Variable name	Variable symbol	Variable definition
Internet experience	X ₁	Familiarity of surfing the internet
Experience of online group buying	X ₂	Times of online group buying, consumption degree
Perceived risk	X ₃	Transaction exposure and individual privacy risk
Website quality	X ₄	Usability, safety and uniqueness of websites
Online retailer quality	X ₅	Credit rating, popularity, service quality and product competitive advantage of retailers
The popularity of online group buying	X ₆	Evaluation and influence of ambient environment

Table 4: Regression results of online group buying intention

	B	SE	t	p
Constant	0.450	0.431	1.045	0.297
Internet experience	0.051	0.051	0.997	0.320
Experience of online group buying	0.226**	0.062	3.641	0.000
Perceived risk	0.059	0.073	0.816	0.415
Website quality	0.357*	0.123	2.914	0.004
Online retailer quality	0.333*	0.106	3.151	0.002
The popularity of online group buying	0.138	0.102	1.352	0.178
$R^2 = 0.277$		$F = 15.88$		0.000

* $p<0.05$, ** $p<0.001$

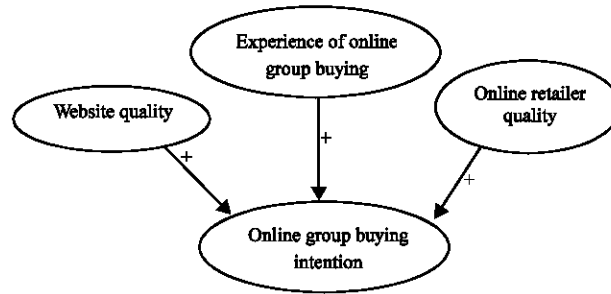


Fig. 1: Model of influence factors of consumers' online group buying intention

significant influence on the level of online group buying intention. Therefore, H2, H4 and H5 were demonstrated and H1, H3 and H6 were not.

CONCLUSION

The research focused on influence factors of the online group buying intention and explored the different factors' effect on the online group buying intention, by use of factor analysis and multivariate regression method. Six factors were extracted from 32 items and three factors which, respectively named the experience of online group buying, website quality and online retailer quality, were demonstrated that they had significant positive effect on consumers' online group buying intention. The other three factors, internet experience, perceived risk and the popularity of online group buying, were not showed significant correlation coefficient with consumers' online group buying intention. Based on the research results, the research built a model of influence factors of consumers' online group buying intention as Fig. 1.

IMPLICATIONS

Based on the research results, the following measures could be adopted to promote consumer's online group buying intention and further improve consumers' satisfaction.

The conclusion of the research indicated that the usability, uniqueness, safety and reputation of websites had important influences on consumers' online group buying intention. Hence, to enhance quality and brand awareness of group buying websites is very important for companies to enlarge market shares and increase sales volume. First, the reliability and safety of these websites should be improved so as to guarantee the consumers' property and to protect private information during the transaction process. Second, as for website design, online group buying websites should adopt certain styles

which are more convenient and efficient for consumers to browse and deal with business. Furthermore, efforts should be put on improving the reputation of the website to evoke more intention of online group buying.

The improvement of service quality should be promoted in two ways. First, the online group buying websites are responsible to provide rich and accurate product information to consumers. Under the online purchase mode, consumers mainly get knowledge of products through pictures and descriptive words and ambiguous descriptions on certain products will easily result in consumers' deviation of expectation on the products. In other words, it is a kind of expectation management, which has important relationship with customer satisfaction. Second, the online group buying companies should provide and strengthen after-sale services. Due to low prices, many online group buying companies don not offer any after-sale service to consumers, which always make the consumers disappointment. The provision and improvement of after-sale service will help to attract more consumers and stimulate consumers' online group buying intention and behavior.

The competitive advantage of online group buying products is a key factor that affects consumers' online group buying intention. Customer satisfactory is dependent on the performance of products meeting expectations, which means online group buying websites should make full use of its advantages to provide quality products with advantage price. By collecting and analyzing consumer data, online group buying companies could capture consumer's attitude and behavior and further offer accurate, personalized, valuable and interesting products and services for target consumers.

The main limitations of this research are described as following. First, the choice of samples had the limitation of under-representation. Since college students were selected as samples to explore this subject, the samples could not represent different kind of consumers. Second, based on extant research, the authors put forward the

influence factors and eventually built a model of influence factors of consumers' online group buying intention. However, the research did not exclude other factors that may possibly influence consumers' online group buying intention. The influences of the possible new factors need to be explored and analyzed in the further.

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