

The Analysis of the Factors Affecting of College Students' Network Consumption Behavior

Kang Anan¹, Guo Qian²

Institute of Information, Beijing Wuzi University, Beijing, China

Abstract

Online shopping allows people to get on the emancipation of space and time, is a topic worthy of study. This large group of college students are able to quickly adapt to a very good reception and shop online form. At present, the network consumption of college students is becoming more and more mature, and already has the commonality of network consumption. Therefore, it is necessary to study the network consumption behavior of college students.

This article, by reading the relevant literature and related theories statistics, consumer behavior, etc., design of the questionnaire on the impact of college students on the network of several aspects of consumer behavior, that is, individual factors, commodity factors, shop factors, consumer psychological factors and consumer's future online shopping situation. According to the collected questionnaire data, descriptive statistical analysis was carried out, while, the data be analyzed using the statistical analysis software SPSS. Through the use of binomial Logistic regression analysis, factor analysis and correlation analysis, I finally concluded that in the network shopping college students are most concerned about the price of goods, while concerned about the reputation of the shop; the contrary, consumers are concerned about less the store design.

Keywords—College students online shopping; Questionnaire; Binomial Logistic Regression Analysis; factor analysis

I. INTRODUCTION

Now the community is full of the taste of science and technology, people's lives and the development of science and technology has undergone tremendous changes, life is more convenient, especially the development of e-commerce has a great impact on us.

Internet users now have a large group, August 4, CNNIC^[1] published the 40th "China Internet Development Statistics Report", it shows that as of June 2017, the number of Chinese Internet users has reached 751 million, the highest proportion of Internet users are students up to 24.8%. College students as students in the high activity of the group, the scale is also very impressive. The age of college students is mainly between 18 and 24 years old. The

ability of them to receive and recognize new things is far more than that of middle-aged and old consumers. Their shopping behavior has distinct characteristics and has great influence on the development of network consumption. When these people out of school, will still be the main force of online shopping. Because of this, online consumer behavior of college students is particular important.

The Internet consumer behavior is actually all the activities that people want to do online shopping,^[2] including a series of activities that make decisions based on different shopping platforms for goods or services. This series of activities will be affected by many factors.

Jinyao Li, Feng Liu^[3] (2007) analyzes the impact of consumer behavior, based on TRA theory, from the psychological factors and external factors to analyze. Huang et al.^[4] (2010) argue that consumer behavior is related to human character. At the same time, Min Huang^[5](2012) argues that online consumer behavior is related to income, education and gender, and low-income and low-educated people account for the majority of Internet consumers, and the gender will greatly affect the consumer's consumption category and purchase behavior. Hcc-woong Kim et al.^[6] (2012) analysis shows that trust has a greater impact on consumer behavior than price, and the higher the trust, the more people are willing to make a second purchase.

I put the factors that can have an impact on consumer online shopping behavior of students grouped into the following four categories, personal factors, product factors, factors stores, consumer psychological factors. The online commodity factors include price, quality, brand, personalized design; network shop factors include reputation and reputation, interface design, discounts, delivery speed, logistics types, quality of service; consumer psychology, including online shopping, online shopping Influence, online shopping worries.

Through the research of this paper, we analyze the factors that affect the behavior of college students' network consumption, and analyze and compare the influence of different factors on college students' network behavior. Ultimately, the findings will provide advice to the network of shops.

This paper carries out the research work according to the following ideas:

First study the knowledge associated with consumer behavior and read the literature of the study, and put forward their own choice of factors affecting the network consumption of college students. Then according to the factor to look for designing the questionnaire, a questionnaire Star open recruitment of college students fill out the questionnaire, the questionnaire organize data analyzed by validity and reliability, using SPSS statistical software for data some analysis results of the analysis to the network shop offers some advices.

The qualitative and quantitative analysis of the data collected from the questionnaire was carried out. The qualitative analysis was mainly based on the descriptive statistical method. The problem was analyzed according to the mean of the subject score. In the quantitative analysis, the binomial logistic regression analysis was performed by SPSS software, Factor analysis, correlation analysis of the impact of college students' online shopping analysis.

II. AN INVESTIGATION AND ANALYSIS OF COLLEGE STUDENTS' NETWORK CONSUMPTION

A. The Basic Situation of the Questionnaire

According to the above analysis of the factors affecting the network consumption of college students, combined with the purpose of this study to design the related questionnaires. The questionnaire does not involve personal privacy, and has a certain degree of confidentiality, will not disclose the personal information of the respondents. Through the study of the predecessors' literature, I have adopted the multiple choice for the basic situation of the individual, and taken the Likert scale to do investigation and analysis for three aspects of the influencing factors of the consumers' behavior and the future purchase of theirs.

B. Questionnaire Survey

Before the questionnaire analysis, we need to analyze the data collected by the questionnaire through reliability analysis and validity analysis to ensure the reliability and validity of the questionnaire and questionnaire data. There are many methods of reliability analysis, and the Cronbach's alpha is more applicable and more practical than other alpha coefficient. Because of this, we choose the Cronbach's alpha for the measure of questionnaire.

Cronbach's alpha reliability coefficient is the most commonly used reliability factor, its formula see (2.1):

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \hat{\sigma}_i^2}{\hat{\sigma}_t^2} \right) \quad (2.1)$$

By using the SPSS software and using the consistency coefficient α to check the questionnaire reliability, we get the following results, which can be seen in the Table 2-1:

Table2-1 Reliability Statistics

Cronbach's Alpha	N of Items
.852	25

From Table 2-1, the value of α is 0.833. The greater the coefficient of the questionnaire, the higher the consistency of the questionnaire data. If the coefficient is greater than 0.7, the reliability of the questionnaire is very high and can be used for analysis.

The purpose of the validity analysis is to test the questionnaire's item explains whether the variables are same and the classification of the project are reasonable. The validity analysis can usually use factor analysis. In this paper, we use the SPSS to carry out the spherical test of KMO and Bartlett. The results are shown in Table 2-2:

Table2-2 KMO and Bartlett's Test

KMO Measure of Sampling Adequacy		.783
Bartlett's Test of Sphericity	Approx. Chi-Square	1033.198
	df	300
	Sig.	.000

From the analysis results were $KMO > 0.5$, and the Bartlett spherical test $Sig = 0.000 < 0.001$, so the validity of the questionnaire can be accepted.

C. Descriptive Analysis

Firstly, a simple descriptive analysis of the recovered questionnaire data is carried out. The problems of people concern were summarized as external factors and psychological factors.

1) The External Factors Affecting College Students' Network Consumption :

In this paper, the influence of product factors and shop factors on the online shopping of college students is summarized as the influence of external factors on the online shopping behavior of college students. The degree of influence increases with the scores of 1-5. According to the analysis of the respondents, the following tables are given. The Table 2-3 and Table 2-4 are respectively for product factors and shop factors on the impact of consumers.

Table2-3 Product factors

Category	Price	Quality	Brand	Individual requirements
Score average	3.84	3.84	3.32	3.62

Table2-4 Shop factors

Category	Reputation	Interface design	Discount	Delivery speed	Type of logistics	Service quality
Score average	4.11	3.01	3.66	3.59	3.17	4.03

Table 2-3, Table 2-4 can be seen in my investigation of product factors and shop factors involved in the ten content, the higher average score consist of shop reputation, quality of service and goods, commodity prices, that is, while college students online shopping, these factors have a greater impact on them. The same time, the average score of the store design is low, you can see the shopper might be more value quality and cost-effective, rather than shop design.

2) Psychological Factors Affecting College Students' Network Consumption :

The psychological consumption of college students' network consumption is analyzed as psychological factors, which as Table 2-5.

Table2-5 Statistics

Category	Convenience	Affordable	Friend recommended	Affected by past experience
Score average	3.93	3.80	2.93	3.77
Category	Evaluation of the product	Quality cannot be guaranteed	Password leaks and economic losses	
Score average	3.97	3.72	3.25	

From Table 2-5, we can see that the highest score for the psychological impact of online shopping in college students is the product evaluation of purchaser, which has a great impact on the consumer groups of college students. The Followed scores are the convenience and affordable options. From these, we can see a great reason for consumers online shopping is convenient, but also very valued price benefits.

D. Logistic Regression Analysis

This section uses Logistic regression analysis method to analyze the basic information of consumers on the impact of whether online shopping or not, that is, consider the relationship between whether college students online shopping and the sex (X1) living expenses(X2), computer life(X3), the length of time on the Internet(X4). After the corresponding data were collected, set y = 0 for online shopping, y = 1 for no online shopping; gender male=0, gender female=1; other factors according to the actual fill in the data input SPSS, and use SPSS analysis software to get the following table analysis results.

Table2-6 Variables in the equation

		B	S.E.	Wals	Df	Sig.	Exp (B)
step 1 ^a	X1	-1.415	1.376	1.058	1	.304	.243
	X2	-2.480	1.265	3.845	1	.050	.084
	X3	1.350	1.105	1.492	1	.222	3.858
	X4	.461	.716	.415	1	.520	1.585
	constant	-1.709	3.294	.269	1	.604	.181
		EXP(B)'s 95% C.I.					
		Lower limit	Upper limit				
	X1	.016	3.601				
	X2	.007	.999				
	X3	.442	33.654				
	X4	.390	6.447				

From the above table available, the regression equation is,

$$p(y) = \frac{1}{1 + e^{1.709 + 1.415X_1 + 2.48X_2 - 1.35X_3 - 0.461X_4}}$$

(2.2)

From equation 2.2, we can get the relationship between the value of ,X1,X2,X3,X4 and y to take 1, that is, the probability of not making the online shopping, so we can see that X1 and X2 are inversely proportional to the probability of y=1, X3 and X4 are proportional to the probability of y=1. Combined with the practical significance of the value, we can get women online shopping more likely, the online shopping college students who have more living expenses are more likely to take online shopping. The computer life and the longer on the Internet every day, the less the possibility of online shopping.

E. Factor Analysis

Jianping Zhu^[7] (2006) define factor analysis is a technology that can reduce dimension and simplify data. Factor analysis studies the internal structure of data by studying the internal dependencies of many variables and uses a few abstract factors to represent the structure of the data. The original variable is a significant variable that can be observed, and the extracted factor is generally a potential variable that cannot be observed. In this paper, the

impact of college students online shopping consumer behavior factors, there are many indicators, but too many indicators will complicate the analysis process. A proper approach is to extract several major factors from these complex indicators. Each of the main factors can reflect the common effects of the factors that affect the student's online shopping. It is possible to help us in-depth analysis by grasping these key factors.

The effect of factor analysis is mainly to extract the factor verification hypothesis with common characteristics from a large amount of data. In this paper, we extract the common factor which will greatly reduce our workload. This section will focus on the factors that affect college students' network consumption behavior on product factors, shop factors, college consumers' psychological factors and the future consumption of college students in the case of factor analysis, summed up a representative of the common factor.

Table 2-7 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Initial Eigenvalues		
	Total	% of Variance	Total	% of Variance	Total	% of Variance	Total	% of Variance	Total
	1	5.303	31.194	31.194	5.303	31.194	31.194	4.019	23.641
2	1.985	11.677	42.871	1.985	11.677	42.871	2.238	13.166	36.807
3	1.667	9.808	52.678	1.667	9.808	52.678	2.144	12.609	49.417
4	1.373	8.079	60.757	1.373	8.079	60.757	1.928	11.340	60.757
5	.941	5.537	66.294						
6	.802	4.721	71.014						
7	.728	4.282	75.296						
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮

The variance explained by the analysis results of SPSS Table 2-7 shows that the 17 categories can be classified into four categories to analyze the factors that affect the behavior of college students' network consumption. Then we use the rotation component matrix to take the nature of these four factors and report factors into further analysis, to explore the impact of college students' network consumption.

Table2-8 Component Matrix

	Component			
	1	2	3	4
Price	.758	.123	.185	-.061
Quality	.671	.093	-.058	.201
Brand	.305	.271	-.029	.651
Meets the individual requirements of self	.473	.112	-.032	.413
Shop reputation and reputation	.850	.125	.190	.052
Online shop interface design	-.096	.390	.024	.721
discount	.604	.581	.168	.021
Delivery speed	.444	.698	.089	.092
Logistics types	-.101	.811	.182	.206
service quality	.667	.478	.111	.160
Convenience	.592	-.253	.063	.360
Affordable	.515	-.139	.359	-.171
Friends recommended	.034	-.123	.250	.667
Subject to past experience	.266	.203	.646	.177
Focus on the purchaser's evaluation of the product	.387	-.202	.610	.234
Online shopping can not touch the product, so the quality can not be guaranteed	.153	.091	.697	-.004
Online payment to the bank card password leaks and economic losses	-.261	.250	.718	.017

Analysis from Table 2-8, the rotation of the matrix can be seen, after the rotation of the load factor has been obvious differentiation. The first public factor in the index quality, price, shop reputation, discounts, quality of service, convenient, affordable price has a larger load, indicating that these indicators have a strong correlation. You can see these indicators and commodity prices have a certain relationship. The second public factor in the index delivery speed, logistics types has a greater load. This category of two indicators and commodity logistics situation has a direct relationship. The third Public factors in the index personal experience, the purchaser of the product evaluation, worry about the quality cannot be guaranteed, worry about the card password leaks have a larger load, can be classified as a class. These indicators are subjective psychological factors. The fourth public factor in the index brand, store design has a larger load, can be classified as a class. These two indicators can be classified as the external packaging of goods. Of course, we can see that the weight of the first factor is larger, so it can be said that the larger impact for the consumer behavior of college students is cost-effective.

Table2-9 Component Score Coefficient Matrix

	Component			
	1	2	3	4
Price	.214	.001	.014	-.132
Quality	.191	-.027	-.119	.054
Brand	.018	.034	-.099	.340
Meets the individual requirements of self	.105	-.032	-.095	.199
Shop reputation and reputation	.232	-.022	.001	-.071
Online shop interface design	-.129	.117	-.040	.400
discount	.123	.251	-.017	-.130
Delivery speed	.066	.323	-.055	-.084
Logistics types	-.135	.405	.039	.015
service quality	.145	.175	-.054	-.033
Convenience	.167	-.240	-.026	.202
Affordable	.150	-.119	.159	-.151
Friends recommended	-.066	-.181	.110	.416
Subject to past experience	-.017	.016	.300	.027
Focus on the purchaser's evaluation of the product	.052	-.219	.295	.109
Online shopping can not touch the product, so the quality can not be guaranteed	-.033	-.015	.357	-.062
Online payment to the bank card password leaks and economic losses	-.180	.100	.399	-.035

By the component score coefficient matrix and Table 2-9, the factor expression can be written as Fig.1

$$\begin{aligned}
 F_1 &= 0.214X_1 + 0.191X_2 + 0.018X_3 + 0.105X_4 + 0.232X_5 - 0.129X_6 + 0.123X_7 + 0.066X_8 - 0.135X_9 \\
 &\quad + 0.145X_{10} + 0.167X_{11} + 0.150X_{12} - 0.066X_{13} - 0.017X_{14} - 0.052X_{15} - 0.033X_{16} - 0.180X_{17} \\
 F_2 &= 0.001X_1 - 0.027X_2 + 0.034X_3 - 0.032X_4 - 0.022X_5 + 0.117X_6 + 0.251X_7 + 0.323X_8 + 0.405X_9 \\
 &\quad + 0.175X_{10} - 0.240X_{11} - 0.119X_{12} - 0.181X_{13} + 0.016X_{14} - 0.219X_{15} - 0.015X_{16} + 0.100X_{17} \\
 F_3 &= 0.014X_1 - 0.119X_2 - 0.099X_3 - 0.095X_4 + 0.001X_5 - 0.04X_6 - 0.017X_7 - 0.055X_8 + 0.039X_9 \\
 &\quad + 0.054X_{10} - 0.026X_{11} + 0.159X_{12} + 0.110X_{13} + 0.300X_{14} + 0.295X_{15} + 0.357X_{16} + 0.399X_{17} \\
 F_4 &= 0.132X_1 + 0.054X_2 + 0.34X_3 + 0.199X_4 - 0.071X_5 + 0.400X_6 - 0.13X_7 - 0.084X_8 + 0.015X_9 \\
 &\quad + 0.033X_{10} + 0.202X_{11} - 0.151X_{12} + 0.416X_{13} + 0.027X_{14} + 0.109X_{15} - 0.062X_{16} - 0.035X_{17}
 \end{aligned}$$

Fig 1: The factor expression

F. Related Analysis

According to the factor expression in the factor analysis of the previous section, we analyze the common factors F1, F2, F3, F4 with whether the college students will continue to conduct online shopping Y. Then we use SPSS software to process the data and do relevant analysis, and get the following Table 2-10,

Table2-10 Correlations

			F1	F2	F3	F4	Y
Kendall's tau_b	F1	Correlation	1.000	.047	-.143*	-.013	.315
		Coefficient					**
		Sig. (2-tailed)	.	.476	.030	.842	.000
		N	106	106	106	106	106
	F2	Correlation	.047	1.000	.004	.121	.013
		Coefficient					
		Sig. (2-tailed)	.476	.	.952	.067	.862
		N	106	106	106	106	106
	F3	Correlation	-.143*	.004	1.000	.009	-
		Coefficient					.034
		Sig. (2-tailed)	.030	.952	.	.891	.652
		N	106	106	106	106	106
	F4	Correlation	-.013	.121	.009	1.000	.191
		Coefficient					*
		Sig. (2-tailed)	.842	.067	.891	.	.012
		N	106	106	106	106	106
Y	Correlation	.315**	.013	-.034	.191*	1.00	
	Coefficient					0	
	Sig. (2-tailed)	.000	.862	.652	.012	.	
	N	106	106	106	106	106	
Spearman's rho	F1	Correlation	1.000	.075	-.213*	-.021	.397
		Coefficient					**
		Sig. (2-tailed)	.	.445	.028	.835	.000
		N	106	106	106	106	106
	F2	Correlation	.075	1.000	.017	.175	.016
		Coefficient					
		Sig. (2-tailed)	.445	.	.867	.073	.868
		N	106	106	106	106	106

	N	106	106	106	106	106
F3	Correlation Coefficient	-.213*	.017	1.000	.007	-
	Sig. (2-tailed)	.028	.867	.	.946	.673
	N	106	106	106	106	106
F4	Correlation Coefficient	-.021	.175	.007	1.000	.237*
	Sig. (2-tailed)	.835	.073	.946	.	.014
	N	106	106	106	106	106
Y	Correlation Coefficient	.397**	.016	-.041	.237*	1.00
	Sig. (2-tailed)	.000	.868	.673	.014	.
	N	106	106	106	106	106

From the above Table 2-10 available, college students on the degree of attention such as the value of cost-effective and the store design have a certain relevance with whether to continue to buy. In contrast, the correlation between the degree of logistics and whether continue online shopping to be weak.

III.SUMMARY AND DISCUSSION

Nowadays, the rapid development of e-commerce, online shopping has become a new form of consumption, by more and more college students of all ages, so the study of online shopping is becoming more and more important.

According to the above analysis, this section will discuss the market strategy of expanding college students 'online shopping from the aspects of factors related to commodity cost, logistics status, and subjective factors of college students' psychological and external packaging of goods. According to the characteristics of college students' behavior to develop the electricity business enterprise sales strategy.

Through the binary logistic regression analysis, we conclude that gender have a certain impact for online shopping. The possibility of female online shopping is greater than men, which shows female are the main network consumption.

From the relevant analysis, college students on the degree of attention such as the value of cost-effective and the store design have a certain relevance with whether to continue to buy. In contrast, the correlation between the degree of logistics and whether continue online shopping to be weak.

Through the above analysis, the cost of goods on the online shopping consumer behavior has a strong impact, and we can see that there is a great relationship between the evaluation of shoppers, quality of service and college students' online shopping behavior. So the online shops should focus on product quality problems, and strengthen to maintain the word of mouth and ensure the quality of

service. Of course, logistics is also more concerned about the people, shop business should pay attention to logistics cooperation.

Because the number of questionnaires collected is limited, the results of my analysis of the scope of application is limited, which can only give the store business reference suggestions, cannot give the exact business recommendations.

ACKNOWLEDGMENT

We thanks projects of Beijing Municipal Education Commission Social Science Program General Project (SM201710037006).

REFERENCES

- [1] CNNIC. Statistical Report on Chinese Internet Development [DB/OL].2016.
- [2] Mingsheng He. Network Consumption: Theoretical Model and Behavior Analysis [M]. Heilongjiang People's Publishing House.2002.
- [3] Jinyao Li, Liu Feng. Research Internet-based consumer behavior patterns [J]. Association for Science and Technology, 2007(2):66-68.
- [4] Huang, Designing website attribute to induce experiential encounters, Computers in Human Behavior, 2003(4), 425—442.
- [5] Min Huang. Analysis of Network Consumers' Behavior [EB/OL].2012.4.http://blog.sina.com.cn/s/blog_85f5c7fc0100zyg.html.
- [6] Hcc-Woong Kim, Xu Y Gupta. Which is more important in Internet shopping: perceived price or trust [J]. African Journal of Business Management, 2012, 6(24): 7379-7386.
- [7] Jianping Zhu. Application of Multivariate Statistical Analysis [M]. Science and Technology Press.2006.