

DETERMINANTS OF ONLINE SHOPPING ADOPTION BY UNIVERSITY STUDENTS IN CHINA

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Abstract: Online shopping has become a new way of shopping, providing companies with new sales channels. In China with the popularity of the Internet and the rapidly development of e-commerce, more and more consumers started to prefer online shopping. In China university students is one of the groups of online consumers with great buying potential. Therefore, this study tries to assess online shopping behavior of university students in China and make suggestions to marketers based on study findings. This research focuses on determining factors that influence university students' online shopping adoption. In this research perceived ease of use, perceived risk of use, trust and perceived enjoyment were treated as independent variables. On the other side, perceived usefulness, attitude and behavioral intention were treated as dependent variable. Out of seven proposed hypotheses, six hypotheses were supported. Just one hypotheses, which proposed positive relationship between perceived usefulness and attitude toward using online shopping platforms was rejected. This study makes recommendations to marketers based on the study findings.

Keywords: online shopping, universities students, determinants.

AMOS: Analysis of a Moment Structures

ATT: Attitude Toward Using

AVE: Average variance extracted

CFA: Confirmatory Factor Analysis

CR: Critical Ratio

E-Commerce: Electronic Commerce

ENJ: Perceived Enjoyment

INT: Behavioral Intention

PEOU: Perceived Ease of Use

PU: Perceived Usefulness

RMB: Ren Min Bi Yuan

SEM: Structural Equation Modeling

SPSS: Statistical Package for the Social Sciences

TAM: Technology Acceptance Model

USD: The United States dollar

I. INTRODUCTION

The development of online shopping in China only has been use a few decades from none to now. Due to the constraints of China's relatively backward logistics and payment systems, the early development of online shopping is not that fast. It began to appear on a large scale at the end of 1999 (Liu, 2013). In recent years, e-commerce has broken the restrictions of time and geographic to a certain extent, reducing the cost of commercial operations. The rapid development of e-commerce has brought about tremendous changes in business activities (Hu, 2015). At present, online shopping has become one of the main ways to shopping for consumers, especially the younger generation of consumers, providing unlimited business opportunities for enterprises.

As of December 2017, the number of Internet users in China reached 772 million, and the penetration rate of it reached 55.8% of all the population, has exceed the global average (global average: 51.7%) 4.1 %. A total of 40.74 million new internet users were added throughout the year, with a growth rate of 5.6%. The scale of netizens in China continues to grow steadily.

Li (2014) reported that 81% of online buyers have got undergraduate education, and also shows that online consumers have got at least high school education (Li, 2014). So far, 16.8% of online shoppers in China are college graduates, and 76.7% are undergraduate and above. The online market has a variety of commodities and relatively low prices, and with the development of various express delivery companies, makes online shopping more convenient, and the sense of identity of university students at this point, it makes the university students be the main part of online shopping and this groups have their own preferences for the way of online shopping, the performance of goods, especially for the choice of website, payment mode, delivery methods and so on. Understanding and mastering the factors that influence university students' online shopping behavior can influence their purchasing decisions.

This study aims at investigating and studying the basic current status of online shopping adoption by university students in China and to determine the determinants of online shopping adoption by universities students in China, and also exploring the influencing level of each determinates and how it influence the development of E-commerce in China. To meet this end, the researcher decided to utilizing a questionnaire as an assessment instrument, data collected from university students in China and then were analyzed to finalize the results. This study's findings will help the Chinese online marketer understand the determinants that influence Chinese university students' online shopping adoption. Also, some critical points were suggested to Chinese online marketers to improve and expand their businesses.

II. ONLINE SHOPPING

Online shopping is to search product information through the websites, and send a shopping request through an electronic order form, and then fill the personal check account number or credit card number for payment, then the manufacturer sends the goods by mail order, or delivers the goods through the express company. Some scholars have described that online shopping is equivalent to putting traditional stores online, and consumers can directly complete purchases through webpage clicks. Scholar Wang (2001) described that online shopping is the networking and electronization version of traditional transactions, that online consumers and online sellers directly trade goods or services through the internet platform. Ling (2014) redefines online shopping from a legal point of view, pointed out that online shopping refers to the seller provides the goods or services on request through the online media offer, a commodity transaction method in which buyers and sellers make commitments and pay prices as required.

This study summarizes on the basis of previous studies and believes that online shopping has the following characteristics:

- Online shopping is enjoyable

According to the survey, 70% of online shopping consumer choose online shopping, mostly because they want to know more like-minded friends through this new shopping channel, not just to save time and satisfy demand consumption (Sun,2016). In the process of online shopping, consumers can obtain more and more real information about the product through feedbacks and evaluations of other buyers, so that it can more accurately determine whether the product can meet their own needs. In addition, buyers can join the interest group to share the experiences and other information of online shopping with other buyers. Moreover, due to the flexible payment method and home delivery service, online shopping can bring consumers spiritual pleasure and let consumers enjoy this shopping process.

- Online shopping is personalized

Customized services have begun to appear slowly. Nowadays, consumers' consumption is no longer following the public, but moving towards personalization. Consumers can not only purchase the products that have already been produced, but also can make personal requests to the sellers through the network and even produce the products they want (Wang, 2001). Through the information given by consumer, sellers are likely to satisfy consumers' unique consumption. Therefore, consumer behavior will no longer under restrictions of traditional shopping.

- Quickly updates of products

In modern society, the traditional sales model is difficult to adapt to the rapid of the updates of product. It takes a long time for the product to be produced and sell to the consumer, the basic process be like: manufacture-advertising – display-sell (Xiao, 2001). However, online sales can effectively overcome this shortcoming, sellers only need to upload pictures and related information of new products to the online store page, to make new product information deliver to consumers as quickly as possible. And consumers also can get product information quickly through searching on websites. The online sales channels make sellers to adjust their selling strategies in a fast-changing environment, saving a lot of time and energy for sellers.

- Breakthrough time limitation

In real life, except for a few businesses that operate 24 hours a day, the majority of merchants have business hours, so the consumer's shopping time is limited to a certain period of time. However, online shopping has broken through this limitation. As long as there is a network environment, consumers can make purchases at any time. Even when the merchant is not online, consumers can order products themselves, after the merchant sees the order, will arrange the delivery for the buyer (Liu, 2016).

- Breakthrough geographical limitation

In traditional shopping, consumers generally buy products in their own area, but the online platform is a virtual electronic platform. Consumers across the country or even the world choose the products they need through mouse, and make order and deliver them through logistics. Therefore, you can go to the world to purchase without leaving your home (Efraim et al., 2012). For example, the 8th generation of I phone is came in to the market in the US, for buyers in China can order directly from the official website and then receive through logistics.

- Consumers are more initiative

The online shopping consumption model enables consumers not only to obtain information of the appearance, material and performance of the product from the seller's websites, but also to communicate directly with the sellers to gain a deeper understanding of the specific information about the product that they want to know. In the online shopping model, the consumer clicks on the product because of the strong desire to purchase that product. Since it is not face-to-face communication, consumers can ask the seller about the product whatever they what to know, and after consideration consumer will decide to buy or not. Compared with the traditional purchase model, consumers are more initiative in the online purchase model.

- Less spending of money

Consumers often want to spend less money, when they are doing purchase the prices always have an important impact on consumer psychology. E-commerce reduces the cost of network marketers, zero rent, low marketing costs, and less administrative expenses, which makes online sellers have more profit margins, and can attract online shopping consumers with low-price strategies (Liu, 2012). Especially for university student consumer groups with large consumption potential but low consumption level, their demand for brand and quality is far greater than other consumer groups. Due to the price elasticity is large, even small price changes can cause fluctuations in university students' consumption behavior?

- There is a difference between the online and reality

The difference between online shopping and traditional shopping is that consumers can only see and touch the products when products are delivered to their hands through logistics. So online shopping also has risks. For example, there are differences in the quality of the products, and there are differences in color. And the damage of the goods in the process of logistics or the logistics time is too long, etc. All will affect consumers' attitude towards online shopping, which may lead consumers to stop shopping online (Liu, 2012).

III. CONCEPTUAL FRAMEWORK DEVELOPMENT AND HYPOTHESES FORMULATION

Perceived usefulness means that the user perceives its practical value when using the system. In the model of this research, perceived usefulness directly affects attitude toward using of users. So when the user perceives the value of the system, he or she will be more willing to use the system. Feng et al. (2010) used the structural equation model to test the consumer perceived usefulness in the online shopping process, which is the main factor affecting consumers' adoption of online shopping (Feng, 2010). Therefore, consumers believe that the key factor of online shopping is the perceived usefulness of consumers. Based on this factor, first hypothesis of the study can be drawn accordingly:

H1: There is a positive relationship between perceived usefulness of online shopping platforms and attitude toward using such platforms.

In the model of this research (TAM), perceived ease of use will directly affect or can indirectly influence the consumer's attitude toward using online shopping platforms through perceived usefulness (Sun,2016).And when users feel that a system is very easy to learn and operate, users will be more willing to use the system. Pires (2015) and Sun (2016) have shown that perceived ease of use can have a positive impact on consumer's attitude toward using online shopping platforms. In view of this, this study proposed the second and third hypotheses as:

H2: There is a positive relationship between perceived ease of use of online shopping platforms and attitude toward using such platforms.

H3: There is a positive relationship between perceived ease of use of online shopping platforms and perceived usefulness of such platforms.

The funds and logistics of online shopping are separated from each other, so there are many unsafe risk factors, which is one of the important reasons that affect the consumers' intention of online shopping. Miyazaki and Fernandez (2001) proposed that system security, private information outflows, and marketers' fraudulent behaviors will significantly and negatively affect online shopping behavior of online shopping users. Tan et al. (2014) verified the performance expectation, contributing factors, and consumer innovation through empirical analysis. These factors are positively promoting the online shopping behavior of online shopping consumers, and perceived risk will be related to online shopping as well but plays a negative role. Basis on these points mentioned above:

H4: There is a negative relationship between perceived risk of using online shopping platforms and attitude toward using such platforms.

Trust is an important factor affecting online shopping consumers' online shopping behavior, which can resolve the behavioral uncertainty of online shoppers to a certain extent. Sun (2016) proposed that the higher the risk level in the environment, the higher the impact of trust on online shopping consumers' attitudes and intentions. Jarcepaa et al. (1997) proposed that trust of online shopping consumers in the website has a reverse relationship with the website. For potential consumer groups, trust significantly affects the attitude to use and has no significant impact on experienced consumers. Therefore, the fifth hypothesis is developed as follows :

H5: There is a positive relationship between trust in online shopping platforms and attitude toward such platforms.

Perceived enjoyment is a positive psychology after consumers make consumption. In other words, consumers believe that this consumer behavior makes them happy (Daivs, 1992). Therefore, this research believes that in the process of online shopping transactions, the higher the perceived enjoyment is, the stronger the attitude toward using is. Hans pointed out in 2004 that perceived enjoyment is one of the strong predictor of Hedonic system.

H6: There is a positive relationship between perceived enjoyment of online shopping platforms and attitude toward using such platforms.

The attitude toward using is the psychological factor of the subjective initiative of the consumer, and it is a feeling that the consumer feels from the heart, that is, the possibility of buying a product or service. Hu's (2015) research shows that positive attitude toward using will enable consumers to have a positive behavioral and will also increase the number of products consumers buy. Therefore, it is proposed the seventh hypothesis as:

H7: There is a positive relationship between attitude toward online shopping platforms and behavioral intention to use such platforms.

As shown in Figure 1, the mentioned research model, building by the researcher includes all above-mentioned factors, which are considered as structure of this study. It shows that Perceived usefulness, Behavioral intention and Attitude toward using as dependent variables. Perceived ease of use, Perceived risk of use, Trust, and Perceived enjoyment are independent variables.

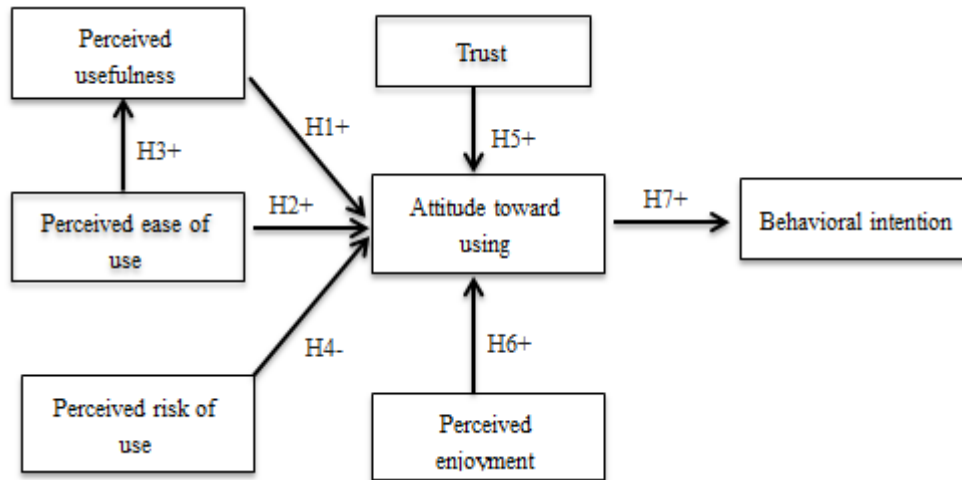


Figure 1: Conceptual Framework of the Study

IV. RESEARCH METHODOLOGY

This study tries to investigate the determinant factors of online shopping adoption by university students in China. At the same time this research requires the collection of data from a wide range of university student's customers who are currently participating in online shopping. So the current study decided quantitative study as a research design. In order to find the answer for this study, the process has to execute step by step as it showed in Figure 2. The first step of study is to decide to research idea, later based on the research idea point out the research question. Then started to search for relevant literatures and reviewed. In the next step, conceptual model was created, and also research designed based on model. Then started to collecting data for study, after did some summarization and organization for data analysis. To meet the end, data was analyzed and summarized conclusion for this study.

The online questionnaire empowered by WJX.cn (online questionnaire platform in China) was distributed among university students in China. Although this type of sampling has its own limited time, financial resources and the possibility of statistical summaries, it is the most practical for this study. Saunders et al. (2009) believed that non-probability sampling is a sampling technique, which is low-cost, quick, and suitable for most of the studies.

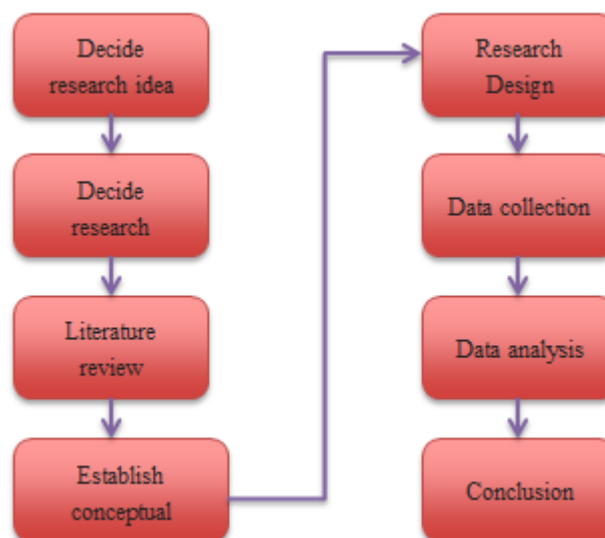


Figure 2: Flow-Process Diagram of Study

When it comes to the sample size, according to Tabachnik and Fidell (2007), When calculating the sample size, the number of independent variables should be considered and the following equation should be used: $N > 50 + 8m$ Where: N = sample size m= number of independent variables

Based on this formula and the number of independent variables of this study, the sample size to be required for this research is as follows: $N > 50 + 8 \times 4 = 82$

Which means that the sample size for this study should be at least more than 90 (number of independent variables of this study is 4).

Finally, after survey was distributed online via e-mail to targeted group which is the group of students in universities, 404 of responses were collected and defined as valid one for further statistical data analysis.

In order to test the research model and collect data to achieve the research goals, a tool was prepared as a questionnaire. In the survey method, respondents responded and decided faster than open-ended questions (Forza 2002).

In the first step, the questionnaire was created in English and the questionnaire was translated into Chinese after the qualification was confirmed because the study conducted by Chinese university students.

In this study IBM SPSS and IBM AMOS software packages were used to analyze the data obtained from the administered questionnaire. These statistical software packages were used to conduct reliability and validity analysis, confirmatory factor analysis (CFA) and path analysis.

V. MAIN RESULT

Table 1: Demographic Profile of Respondents.

Demographic Profile		Frequency	Percentage (%)
Gender	Male	101	25%
	Female	303	75%
Age	≤ 18	14	3.47%
	19-28	385	95.30%
	29-39	5	1.24%
	≥ 40	0	0%
Education level	High school and below	5	1.24%
	Collage degree	2	0.50%
	Bachelor degree	378	93.56%
	Master degree	18	4.46%
	Doctor and above	1	0.25%
Monthly allowances	Below 1000 yuan	93	23.02%
	1000-1500 yuan	205	50.74%
	1500-2000 yuan	46	11.39%
	Above 2000 yuan	60	14.85%

As it is presented in Table 1, the majority number of the respondents relates to female accounting for 75%, while the number of male respondents is 25%. In regards to age groups, most of the respondents aged from 19 to 28 years old (95.30%) followed by the respondents whose age below 18(3.47%) And no one is above 40 years old. As for educational level, the respondents who had bachelor degrees are in the majority (93.56%) followed by master degrees (4.46%). Furthermore, 50.74% of the respondents have monthly allowances between 1000-1500 RMB, followed by the respondents who have monthly allowances less than 1000RMB(23.02%), and there were 46 students whose monthly allowances are between 1500-2000RMB.As it is clear, most of the respondents were young and well educated, mostly undergraduate students.

According to the result, the majority percentage of the online shopping platforms that university students mainly use is Taobao.com, for 95.3%, this is followed by Tmall.com, which the proportion of usage is 49.26%. The third main online shopping platforms are JD.com, accounted for 40.59%. Wechat is the fourth main online shopping platforms, which the percentage is 33.17%. The lowest percentage of online shopping platforms that university students mainly use is yhd.com, the percentage is only 1.98%. For 93.32% of the respondents clothing, shoes, bags was items purchased online. 62.13% of students buy living goods online, this is followed by percentage of purchase cosmetics and skin care products. Next product that students mainly purchase online is school things, accounted for 48.51%. And the food came in the next, the percentage of it is 45.3%.

Table 2: Reliability and Validity Assessment

	CR	AVE	ATT	PU	PEOU	RISK	TRUST	ENJ	INT
ATT	0.908	0.711	0.843						
PU	0.846	0.524	0.641	0.724					
PEOU	0.880	0.595	0.677	0.768	0.771				
RISK	0.885	0.610	-0.187	-0.144	-0.128	0.781			
TRUST	0.860	0.552	0.681	0.558	0.558	-0.003	0.743		
ENJ	0.947	0.783	0.705	0.590	0.611	-0.106	0.570	0.885	
INT	0.852	0.659	0.889	0.663	0.686	-0.098	0.688	0.751	0.812

In order factor to be reliable CR value should be equal to or greater than 0.70 (Hair et al., 1998). In the table given below CR values for all factors are greater than 0.70. Value of 0.7 and greater for CR was suggested for factor to be considered as reliable (Hair et al., 1998). CR values in all segments were found to be well above the 0.7, which indicates that model constructs were reliable across four segments. Discriminant validity is satisfied when square root of each factor's AVE (given in the diagonal position in the table) is higher than its correlations with other factors. For all factors square root of each factor's AVE is higher than its correlations with the other factors except ATT and PU. These two factors were not considered to be problem because they are very close to the suggested threshold values.

Table 3: CFA - Unstandardized Regression Weights

			Estimate	S.E.	C.R.	P
PU1	<---	PU	1.000			
PU2	<---	PU	1.056	.087	12.181	***
PU3	<---	PU	.911	.077	11.811	***
PU4	<---	PU	1.073	.092	11.644	***
PU5	<---	PU	1.119	.085	13.242	***
PEOU1	<---	PEOU	1.000			
PEOU2	<---	PEOU	.937	.054	17.393	***
PEOU3	<---	PEOU	1.078	.072	14.899	***
PEOU4	<---	PEOU	1.172	.080	14.697	***
PEOU5	<---	PEOU	1.194	.081	14.655	***
PR1	<---	RISK	1.000			
PR2	<---	RISK	1.305	.080	16.265	***
PR3	<---	RISK	1.142	.094	12.198	***
PR4	<---	RISK	1.400	.090	15.568	***
PR5	<---	RISK	1.370	.092	14.940	***
TT1	<---	TRUST	1.000			
TT2	<---	TRUST	1.063	.062	17.056	***

TT3	<---	TRUST	1.086	.083	13.150	***
TT4	<---	TRUST	1.107	.070	15.705	***
TT5	<---	TRUST	1.047	.079	13.242	***
PENT1	<---	ENJ	1.000			
PENT2	<---	ENJ	1.173	.049	23.990	***
PENT3	<---	ENJ	1.129	.044	25.898	***
PENT4	<---	ENJ	1.160	.045	26.059	***
PENT5	<---	ENJ	.964	.048	20.114	***
ATU1	<---	ATT	1.000			
ATU2	<---	ATT	.986	.047	20.924	***
ATU3	<---	ATT	.999	.046	21.534	***
ATU4	<---	ATT	1.008	.047	21.501	***
BI1	<---	INT	1.000			
BI2	<---	INT	1.137	.054	20.869	***
BI3	<---	INT	.998	.063	15.832	***

(Note: *** means the value less than 0.001)

Table 3 shows that all regression weights are highly significant with $p < 0.001$.

In the below given table suggested threshold for these metrics (Hu and Bentler, 1999; Hair et al. 2010) are also provided. By considering the metrics of CMIN/DF, CFI and RMSEA it can be concluded that proposed model is a well-fitting model.

Table 4: Model of Fit Metrics for CFA Model

Measure	Threshold	Proposed Model	Remarks
CMIN/DF	<3 good; <5 permissible	2.071	good
CFI	>0.95 great; 0.90 traditional; >.80 permissible	0.950	good
AGFI	>0.80	0.846	good
RMSEA	<0.05 good; 0.05-0.10 moderate; >0.10 bad	0.052	moderate

Table 5: Structural Model Regression Weights

			Estimate	S.E.	C.R.	P
PU	<---	PEOU	.899	.082	10.915	***
ATT	<---	PU	.103	.066	1.563	.118
ATT	<---	PEOU	.231	.089	2.603	.009
ATT	<---	RISK	-.102	.038	-2.662	.008
ATT	<---	TRUST	.373	.058	6.386	***
ATT	<---	ENJ	.330	.046	7.112	***
INT	<---	ATT	.918	.050	18.301	***

Table 5 given above shows the regression weights of structural model. Only when $p < 0.01$, it will found that there is positive relationship between two testing factors.

Table 6: Summary of Hypotheses Testing

Hypothesis	Description	Remarks
H1	There is a positive relationship between perceived usefulness of online shopping platforms and attitude toward using such platforms	Not Supported
H2	There is a positive relationship between perceived ease of use of online shopping platforms and attitude toward using such platforms	Supported
H3	There is a positive relationship between perceived ease of use of online shopping platforms and perceived usefulness of such platforms	Supported
H4	There is a negative relationship between perceived risk of using online shopping platforms and attitude toward using such platforms	Supported
H5	There is a positive relationship between trust in online shopping platforms and attitude toward such platforms	Supported
H6	There is a positive relationship between perceived enjoyment of online shopping platforms and attitude toward using such platforms	Supported
H7	There is a positive relationship between attitude toward online shopping platforms and behavioral intention to use such platforms	Supported

VI. CONCLUSION

Firstly, this study analyzed the macro online shopping background of university students, including status of online shopping markets, online shopping user scales, online shopping market shares, etc., and then established research topic, proposed purposes, research methods, and formulated research content and designed research plans at the same time, then put forwarded research significance of this study. Then, introduced the relevant theories and literature review.

Secondly, was the construction of the model of this research, included the reasons for modeling, the construction of the model and the hypothesis, also the design of the measurement indicators and the survey questionnaire, and then introduced the analysis method of the data. Through the method of empirical research, this paper defined the variables, and distributed the questionnaires to carry out the research sample data collection, the research hypothesis was verified by empirical study after data analysis.

Finally, this study combined research conclusions and related market research, and proposed strategies for development online shopping adoption by university students. Positioned and classified university students into groups, customized service strategies to different categories of customer groups.

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