

# Research on Perceived Usefulness & Perceived Ease of Use and Online Shopping Intention

Jinfeng Zhang\*

*School of Accounting, Guangzhou College of Commerce, Guangzhou, Guangdong, China*

*\*Corresponding Author.*

**Abstract:** With the progress of development, majority students prefer to shopping by internet instead of entering physical store. About shopping online intention, we should know what the students think about it and how it is affected. The study examines how the two elements which are Perceived Usefulness & Perceived Ease of Use influence online shopping intention of consumers in college. We have surveyed students among us who take use of shopping via internet. We choose 70 questionnaires to analyze. By using IBM SPSS software and AMOS software, we perform many tests. The results show that online shopping intention is positively affected by their Perceived Usefulness and Perceived Ease of Use and the relationships are significant. The discovery of this paper can give managers and retailers some advice about how they enhance online shopping intention by increasing the usefulness and ease, along with also giving some thought to students about how to consume reasonably.

**Keywords:** Perceived Usefulness; Perceived Ease of Use; Online Shopping Intention; Consumers in College; Advice

## 1. Introduction

Shopping online has become one of the most popular shopping strategies as the media has advanced[1]. Nowadays, students' consuming level in shopping online attracts the attentions of the researchers. On the one hand, they have fashionable avant-garde consumption concept. On the other hand, they have no jobs so that they only get money from their parents. Based on these conditions, they prefer shopping online because of simpleness and convenience and so on. To make students spend their money more rationally, this paper decides to

study the students' online shopping intention among us.

Some students enjoy shopping online so much that they choose to take their most time of the day to purchase online. Through the years, we find that the number of consumers and the revenue from shopping online have increased constantly. While some students don't have much time or much money to do online shopping. So, we want to know what the students' online shopping intentions are? Or what the students think about shopping online? This paper on the one hand can lead to perfecting the existing theory on online shopping intention of students by studying the correlation relationships, and on the other hand it also can provide some references for the existing literature review for examining the situation of why the students prefer to shopping online. So, in this study, Online shopping intention is explained as a student's inclination to purchase through the internet. Perceived Usefulness is a level where a person thinks that a different way would promote their efforts [2]. By using the online shopping, perceived usefulness acts as a level to which an independent buyer sees that purchasing online may heighten the results of their purchasing. So, in my study, Perceived Usefulness is defined as a level where a student sees that lying on online to purchase can improve his shopping effectiveness. Based on the same principle, Perceived Ease of Use is defined as the extent where a student sees that it is simple to be good at shopping by internet.

This essay wants to study shopping online intentions of the students among us, such as if online shopping intention are affected by some factors, and what the factors are and how the factors influence the online shopping intention. Online shopping has several advantages over traditional buying methods because of the internet, such as conserving time [3,4];

offering a broad variety of goods [5]; gettable anytime or anywhere; and lowering expenses at lower prices by buying things online [6]. In this study, we choose two factors, namely Perceived Usefulness & Perceived Ease of Use. How do Perceived Usefulness & Perceived Ease of Use influence the online shopping intention? And this is this paper's research questions.

In this study, we hope to understand the two factors' strong relation with online shopping intention more well, namely Perceived Usefulness & Perceived Ease of Use. As a result of these discoveries, we can understand why more and more students purchase online and can make them think about how to consume reasonably.

## 2. Review of Online Shopping Intention and Its Factors

Students may possess various intentions, including online shopping intention and so on. There have been already many papers to explore the intention of the students. And researchers explore the elements which can take an effect on online shopping intention. Since now, these factors are including not only Perceived Usefulness and Perceived Ease of Use, but also some others, such as Perceived Risk. Some factors have positive impact on their shopping intention. While some factors have negative relationship with online shopping intention.

### 2.1 Online Shopping Intention

Online shopping intention is one factor which can take an effect on the purchasing act of the consumers. As far as Delafrooz et al can see, they can define intention to shop online as the power of a consumer's intentions to engage in a given purchasing activity via the online [5]. Former papers on the basis of Technology Acceptance Model - TAM [2] show that the advantages through shopping online are one of the most actively and significant contributing elements to intention [1]. Along with TAM, numerous publications use the Theory of Planned Behavior - TPB to investigate purchasers' online shopping intentions. According to TPB, subjective norms and perceived behavioral attitude influence consumer purchasing intentions.

### 2.2 The Factors

To start this research, we are given 7 factors to investigate online shopping intention among students. According to Davis [2], the consumer's perception of usefulness can take an effect on the shopping intention. With the consumer's viewpoint of usefulness, the consumer's perception ease of use also influences consumers' shopping preferences by online in some studies which applies TAM of Davis et al. [2]. Therefore, in this research we choose the two factors, namely Perceived Usefulness & Perceived Ease of Use.

### 2.3 Hypotheses Development

Some evidences show that perceived usefulness can influence online shopping intention significantly. Thus, the first proposed hypothesis is:

H1: Perceived utility influences online shopping intention positively.

Besides, in some studies we can see that Perceived Ease of Use can also influence online shopping intention. So, we put forward the second proposed hypothesis as follows:

H2: Perceived Ease of Use has a favorable relationship on the Intention to buy something online.

This chapter provides an overview of previous research on internet shopping intentions. There are many studies which have found that there are many factors which can affect online shopping intentions including Perceived Usefulness & Perceived Ease of Use. In this study, the number of Independent Variables is two, namely Perceived Usefulness and Perceived Ease of Use. This paper tries to explore the relationships between Perceived Usefulness & Perceived Ease of Use and Online Shopping Intention respectively, based on the up two assumptions. To obtaining the studying results, we choose to use some methods which will be showed in the next contents.

## 3. Research Methodology

In this study, we choose to use a questionnaire way to gain some data. Questionnaire is created according to the above theory and let it adaptive for the students who will be surveyed. Through answering them some related questions about Online Shopping Intention, we can know how they feel about Online Shopping Intention. For Perceived Usefulness, we can also set some related questions so that

we can know that how they feel about this Perceived Usefulness factor by purchasing online. At the same time, we use some related questions to ask the chosen students how they feel about Perceived Ease of Use by shopping online.

### 3.1 Research Framework

This study's framework contains three variables, namely one dependent variable (online shopping intention) and two independent variables (Perceived Usefulness & Perceived Ease of Use). The article attempts to determine the links between dependent and independent variables. That is to say, maybe we will find the two factors whatever Perceived Usefulness or Perceived Ease of Use both have a favorable impact on students' internet shopping intentions.

Based on the aforementioned hypotheses, the research model is as follows such as Figure 1:



**Figure 1. Proposed Research Hypothesis**

### 3.2 Research Design

For make a perfect questionnaire, we need to set some questions separately about online purchase intention and Perceived Ease of Use & Perceived Usefulness. For the purpose of internet shopping, we set up 7 questions, with 5 questions for the usefulness and the ease respectively.

### 3.3 Population and Sampling

The research subjects which are required are students. So, this study' questionnaire's population is position as students. After finishing this questionnaire in "wen-juan-xing", I sent the questionnaire to the students among us by we-chat. Since this is a mini project, the target sample size is between 30 and 100 respondents. So, this paper decides to choose 70 students to answer the questionnaire about their online shopping intention. Besides, in order to make simple diversify, we sent my questionnaire to different grades including six grades students. The students' gender is evenly divided, with female and male. Along with the items of grade and gender, there also are the three questions to describe the traits of the respondents, including "how often do you

shop online?" "how much do you spend on online shopping each month?" and "how old are you?".

### 3.4 Instrumentation

Online Shopping Intention (Dependent variable) (Y) are designed in the questionnaire according to David [2] with Cronbach's alpha 0.79. Perceived Ease of Use (X1) is designed in the questionnaire according to Cronbach's alpha 0.85 according to Khalil and Pearson (2008). Perceived Usefulness (X2) is designed in the questionnaire according to Pedersen (2005) with Cronbach's alpha 0.91. In this mini project, the software used are IBM SPSS software and Smart-PLS 3.0 software.

### 3.5 Data Analysis

Data analysis should be gave with IBM SPSS software and Smart-PLS 3.0 software. In this paper, the methods to analyze the data contains 6 kinds of tests as the below showed for us. For this study, we set up a questionnaire and sent to 70 students to answer based on the research framework. Of course, the chosen students involve many aspects, including gender, grade frequency, expense and age. For making a perfect questionnaire, we set some questions separately about online shopping intention and Perceived Usefulness & Perceived Ease of Use. There exist seven questions for a desire to shop online, there are five questions for Perceived Usefulness and there are five questions for Perceived Ease of Use. For data analysis, we use IBM SPSS software and Smart-PLS 3.0 software with many tests methods as showed in the fourth chapter.

## 4 Analysis of Results

This parts are the progress of this study after using IBM SPSS software and Smart-PLS 3.0 software to analyze the collected data. We can divide this chapter into seven kinds of results as follows.

### 4.1 Respondent Demographic Profile

In this part, the demographic traits include Gender, Grade, Frequency, Expense, and Age. The traits of research samples are Table 1 and Figure 2:

From Table 1 and Figure 2, we can see in the 70 questionnaires, the number of female

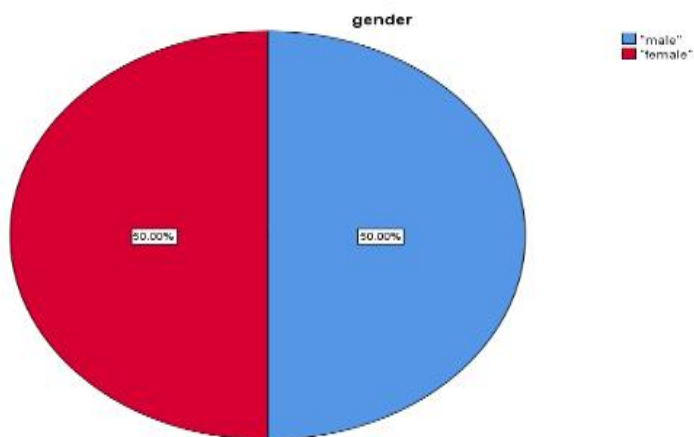
students and male students is the with 35 people respectively.

involved, the majority of students are junior student and senior student.

From Table 2 and Figure 3, in my respondents, though every grade in the university is

**Table 1. Gender 1**

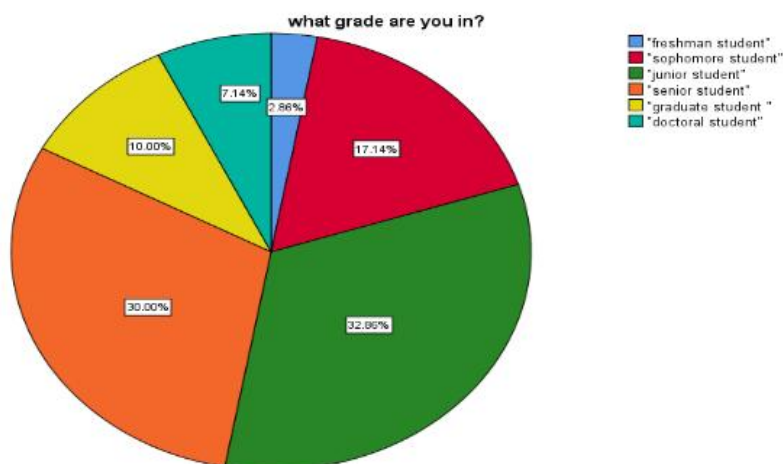
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	35	50.0	50.0	50.0
	female	35	50.0	50.0	100.0
	Total	70	100.0	100.0	



**Figure 2. Gender 2**

**Table 2. Grade 1**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Freshman student	2	2.9	2.9	2.9
	sophomore student	12	17.1	17.1	20.0
	junior student	23	32.9	32.9	52.9
	senior student	21	30.0	30.0	82.9
	graduate student	7	10.0	10.0	92.9
	doctoral student	5	7.1	7.1	100.0
	Total	70	100.0	100.0	



**Figure 3. Grade 2**

**Table 3. Frequency 1**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	four to five times a week	2	2.9	2.9	2.9

once a week	12	17.1	17.1	20.0
five to six times a month	29	41.4	41.4	61.4
once a month	18	25.7	25.7	87.1
less than once a month	9	12.9	12.9	100.0
Total	70	100.0	100.0	

Besides, from Table 3 and Figure 4 as below, we can see the changes about frequency:



Figure 4. Frequency

For the frequency to purchase online, most of them choose to shopping online five to six times a month.

Table 4. Expenses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 100	13	18.6	18.6	18.6
	100 to 300	29	41.4	41.4	60.0
	301 to 500	21	30.0	30.0	90.0
	501 to 1000	5	7.1	7.1	97.1
	more than 1000	2	2.9	2.9	100.0
	Total	70	100.0	100.0	

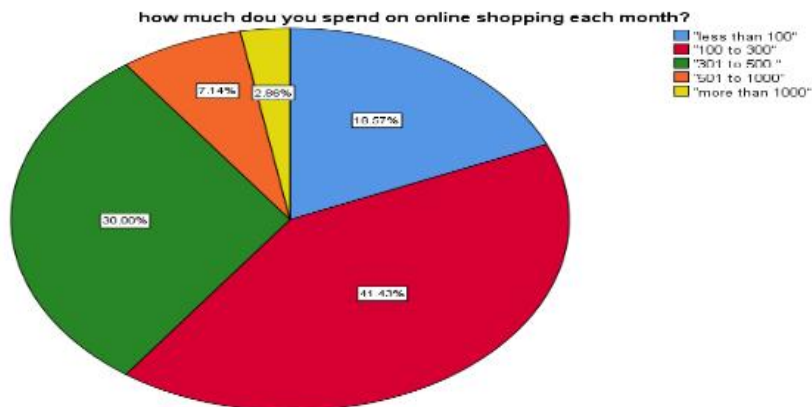


Figure 5. Expenses2

From Table 4 and Figure 5 as above, we can see that the students don't have job, so that they don't have much money to expense online, about less than 500 yuan in online shopping.

Table 5. Age1

	Frequency	Percent	Valid	Cumulative
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				Percent	Percent
Valid	under 20 years old	11	15.7	15.7	15.7
	20 to 25 years old	53	75.7	75.7	91.4
	26 to 30 years old	4	5.7	5.7	97.1
	more than 30 years old	2	2.9	2.9	100.0
	Total	70	100.0	100.0	

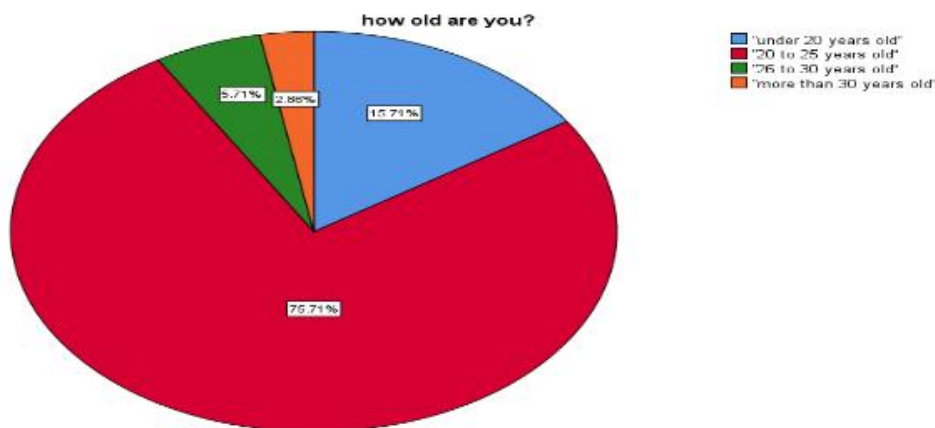


Figure 6. Age

During my respondents, from Table 5 and Figure 6 as above, most of them are undergraduate students, so they are mostly under 25 years old, account for 75.7%.

4.2 Normality Test

Using SPSS, we do a normality test for each variable as follows:

Table 6. Tests of Normality for Perceived Usefulness

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Usefulness1	.221	70	.000	.849	70	.000
Usefulness2	.243	70	.000	.860	70	.000
Usefulness3	.230	70	.000	.874	70	.000
Usefulness4	.223	70	.000	.850	70	.000
Usefulness5	.214	70	.000	.861	70	.000

a. Lilliefors Significance Correction rom Table 6, we can see that Sig.<0.05. So, the factor Perceived Usefulness doesn't fit the normal distribution.

Table 7. Tests of Normality for Perceived Ease of Use

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Ease1	.231	70	.000	.801	70	.000
Ease2	.254	70	.000	.847	70	.000
Ease3	.235	70	.000	.803	70	.000
Ease4	.218	70	.000	.829	70	.000
Ease5	.233	70	.000	.805	70	.000

a. Lilliefors Significance Correction rom Table 7, we can see that Sig.<0.05. So, the factor Perceived Ease of Use doesn't fit the normal distribution too.

Table 8. Tests of Normality for Perceived Ease of Use

	Kolmogorov-Smirnov <sup>a</sup>	Shapiro-Wilk
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	Statistic	df	Sig.	Statistic	df	Sig.
Ot1	.251	70	.000	.843	70	.000
Ot2	.247	70	.000	.824	70	.000
Ot3	.256	70	.000	.809	70	.000
Ot4	.229	70	.000	.827	70	.000
Ot5	.261	70	.000	.809	70	.000
Ot6	.246	70	.000	.816	70	.000
Ot7	.257	70	.000	.789	70	.000

a. Lilliefors Significance Correction rom Table 8, we can see that Sig.<0.05. So, the factor Online Shopping Intention doesn't fit the normal distribution too.

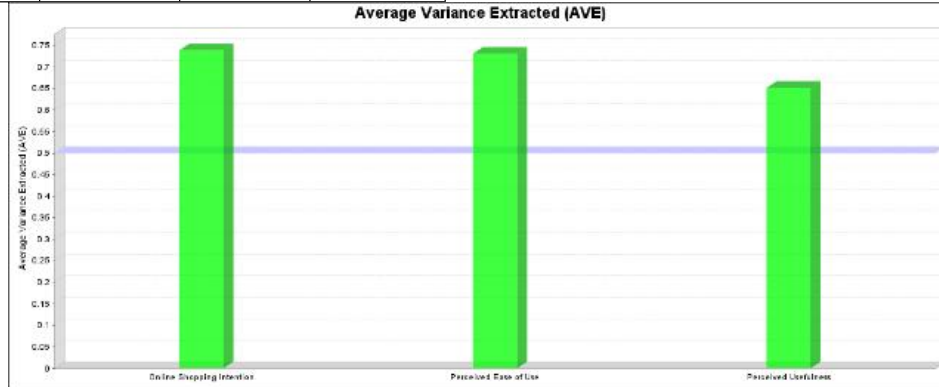
4.3 Validity Test

To examine the validity test, we can use the indicators such as VIF and AVE as follows: From Table 9, we can see that VIF=1.492<5.0, showing that Online Shopping Intention don't have multicollinearity problem.

**Table 9. Collinearity Statistics (VIF)-inner VIF values**

	Online Shopping Intention	Perceived Ease of Use	Perceived Usefulness
Online			

Shopping Intention			
Perceived Ease of Use	1.492		
Perceived Usefulness	1.492		



**Figure 7. AVE Values**

From Figure 7, AVE>0.5, showing that Validity test is accepted.

**4.4 Reliability Test**

To examine the reliability test, we can use the indicators such as Cronbach's Alpha and Composite Reliability as follows:

**Table 10. Cronbach's Alpha**

	Cronbach's Alpha	Composite Reliability
Online Shopping Intention	0.940	0.952
Perceived Usefulness	0.906	0.931
Perceived Ease of Use	0.867	0.903

Cronbach's Alpha coefficients can influence the reliability of scales. If the value of Cronbach's Alpha is larger than 0.8, the results

of reliability test is accepted. If the Composite Reliability number is greater than 0.8, the results of reliability test is accepted. Therefore, from Table 10, we can accept the reliability test, showing a very good reliability.

**4.5 Correlation / Measurement Model**

Because the data in this study shows a non-normal distribution, in this section we need to use Spearman coefficient to analyze the correlation. The results are as follows Table 11:

We use correlation analysis to find out the correlation among Perceived usefulness, Perceived Ease of Use and Online Shopping Intention, respectively, and Spearman correlation coefficient is used to indicate the extent of the correlation.

**Table 11. Spearman Correlation for Usefulness**

			Ot1	Ot2	Ot3	Ot4	Ot5	Ot6	Ot7
Spearman's rho	Usefulness1	Correlation Coefficient	.480**	.439**	.483**	.565**	.581**	.523**	.622**
	Usefulness2	Correlation Coefficient	.615**	.469**	.456**	.527**	.529**	.469**	.600**
	Usefulness3	Correlation Coefficient	.421**	.334**	.344**	.454**	.392**	.399**	.528**
	Usefulness4	Correlation Coefficient	.475**	.396**	.422**	.479**	.489**	.387**	.530**
	Usefulness5	Correlation Coefficient	.426**	.414**	.441**	.414**	.454**	.334**	.510**

\*\* . Correlation is significant at the 0.01 level (2-tailed).

4.5.1 Perceived usefulness has a favorable relationship with the online shopping intention From the up contents, we can use Spearman's rho to analyze the relationship between usefulness and shopping intention respectively.

Specific analysis shows that: As seen in Table 12, the correlation coefficients all have a 0.01 significance threshold, indicating a substantial positive association. Therefore, the first proposed hypothesis is been proved to be true.

**Table 12. Spearman Correlation for Ease**

			Ot1	Ot2	Ot3	Ot4	Ot5	Ot6	Ot7
Spearman's rho	Ease1	Correlation Coefficient	.494**	.530**	.511**	.621**	.552**	.548**	.588**
	Ease2	Correlation Coefficient	.290*	.515**	.429**	.452**	.359**	.423**	.438**
	Ease3	Correlation Coefficient	.508**	.593**	.450**	.564**	.505**	.586**	.560**



	Ease4	Correlation Coefficient	.468**	.639**	.531**	.580**	.569**	.504**	.613**
	Ease5	Correlation Coefficient	.414**	.546**	.518**	.567**	.536**	.497**	.556**

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\*. Correlation is significant at the 0.05 level (2-tailed).

4.5.2 The online shopping intention has a positive relationship on Perceived Ease of Use. The same theory applies with the relationship between Perceived Ease of Use and online shopping intention.

All of the five items are significant, and there is a positive correlation between Perceived Ease of Use and online shopping intention, as data shown in table above. So, the second

proposed hypothesis is also been proved to be true.

4.6 Multiple linear regression / Structural model

We shall build multiple linear regression as follows:

$$OT = \alpha_0 + \beta_1 \text{usefulness} + \beta_2 \text{ease}$$

4.6.1 the path coefficient

The Table 13 below show that the numbers of Mean, STDEV, T-Values, P-Values as follows:

**Table 13. Mean, STDEV, T-Values, P-Values**

	Original Sample(O)/ path coefficients	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics( O/STDEV )	P Values
Perceived Usefulness	0.410	0.402	0.126	3.259	0.001
Perceived Ease of Use	0.445	0.454	0.111	3.992	0.000

From Table 13, we can see that T-Values > 1.645, showing that there is a significant relationship in a confidence level of 95%, while P-Values < 0.05, so the two hypotheses are both accepted. Moreover,  $\beta_1 = 0.410$ ;  $\beta_2 = 0.445$ . The multiple linear regression is very significant.

4.6.2 R<sup>2</sup> values

From Table 14, R<sup>2</sup> = 0.575 = 57.5%, showing that Independent Variables can explain the Dependent variable in 57.5% degree. As

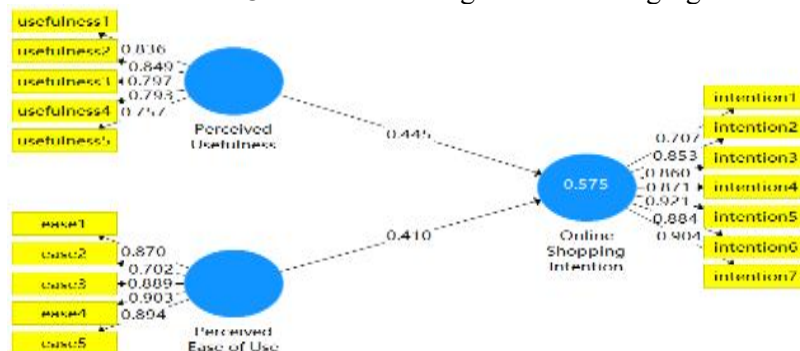
57.5% > 33%, this degree belongs to Moderate level.

**Table 14: R<sup>2</sup>**

	R Square	R Square Adjusted
Online Shopping Intention	0.575	0.562

**4.7 Current Results Discussions**

By using the software smart-pls, we can also get the following figure:



**Figure 8: the Model in Smart-PLS**

Trough Figure 8, we find that the two hypotheses are both true. Perceived usefulness and Perceived Ease of Use both have a positive relationship on the intention to shop online. Besides, the relationships are significant. To increase the online shopping ideas, we can improve the utility and convenience of online purchase.

**5. Summary and Conclusion**

In the final part, we will make a summary based on the above study. Considering the practical meanings, we will discuss how to use the paper’s results in the reality, for example, how the sellers promote their goods sold in the internet by enhancing the usefulness and ease of shopping online. Besides, there are many limitations in this paper, so we will talk about



the situations. Finally, we will give some advice for students, such as how to think about their Online Shopping Intention, along with Perceived Usefulness and Perceived Ease of Use, and how to consume reasonably.

### 5.1 Summary

According to this essay, we explore the two factors, Perceived Usefulness and Perceived Ease of Use, acting as two Independent Variables, with a Dependent variable, namely Online Shopping Intention. There are five sections in this study, with the main parts in Chapter 3 and Chapter 4. We create a perfect questionnaire to ask the students 22 questions. Some questions are about their basic traits, while some questions are about the three variables. Firstly, we describe Respondent demographic profile, finding it is designed as possible as variously. Then we analyze the data in IBM SPSS software and Smart-PLS 3.0 software. The three factors, whether the Independent Variables or the Dependent variable, don't fit the normal distribution, so that we use Spearman coefficient to analyze the correlation. As for the validity test, we apply the indicators such as VIF and AVE, indicating that  $VIF=1.492 < 5.0$ , showing that Online Shopping Intention don't have multicollinearity problem and  $AVE > 0.5$ , showing that Validity test is accepted. For the reliability test, we take use of the Cronbach's Alpha and Composite Reliability indicators, showing that a very good reliability. The correlation coefficients are all significant at the 0.01 level, indicating that a strong positive correlation exists between Perceived Usefulness and online purchasing intention or between Perceived Ease of Use and online shopping intention, proving that both hypotheses are correct. Finally, we do a Multiple linear regression test by the T-Values, P-Values and  $R^2$  values, showing that the multiple linear regression is true and significantly.

### 5.2 Conclusion

On the one hand, through the result, we can understand why more and more students choose to purchase online in some degree. Now, we may think that because of the usefulness and ease of the internet, students prefer to shopping on line. So, for enhancing

the shopping online intention, we can increase the usefulness and ease by developing the technology. On the other hand, there are some limitations in this study. Firstly, we only choose two factors in many elements which take an effect on shopping online intention. There are also some factors which are not chosen, such as Perceived Risk, Subjective Norm, Perceived Image, Personal Innovation, Perceived Compatibility, Perceived Enjoyment and so on. Therefore, the results are not full-scale. However, we still refer to the results to think about the existing theory, the previous research. As a student, we can consider some traits which are not studied, such as their less expenses on goods, acting as an important factor to consume whether online or anywhere.

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