

Effect of Perceived Usefulness and Perceived Ease of Use on University Students' Willingness for online purchase

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Abstract: As an emerging form of consumption, online shopping has increasingly exerted more implications on the consumer market. This paper surveys a sample of SEGI university students, examining the implication of the perceived usefulness (PU) and perceived ease of use (PEU) on the college students' willingness for online purchase. The results of the questionnaire were empirically analyzed by SPSS software. It shows that the PU can significantly and positively affects the willingness for online purchase of SEGI university students; and PEU can also significantly enhanced the willingness for online purchase of SEGI university students. Hence, this study not only enriches the theory of online consumption behavior, but also provides a scientific reference for online sellers to improve their service quality.

1 Introduction

1.1 Background of the study

With the surge of Internet and e-commerce, the consumption mode among the public presents a diversified trend. As an emerging form of consumption, online shopping has increasingly exerted more implications on the consumer market. Against this backdrop, Internet users are becoming more familiar with online shopping, with college students as the major consumer group as well as the target group of online stores. In this regard, it is of great necessity to conduct an in-depth research on the behavior of online shopping among college students.

1.2 Problem statement

This paper takes students of SEGI University as the research object, studies the existing academic literature, then examines and summarizes the factors affecting students' online consumption combined with the investigation of their online consumption behavior. In addition, the questionnaire survey method was applied to investigate the online shopping behavior of SEGI university students by means of questionnaire to explore the influence of PU and PEU on willingness for online purchase.

1.3 Research questions

Questions of this study are:

- What are the major factors affecting the willingness for online purchase of SEGI University students?
- What is the impact of PEU on SEGI university students' willingness for online purchase?

- What is the impact of PU on SEGI university students' willingness for online purchase?

1.4 Research objectives

Objectives of this study are:

- Explore the impacts of PU and PEU on SEGI university students' willingness for online purchase.
- Put forward suggestions and measures for online sellers to improve the shopping experience of college students and boost the prosperity of the online shopping market.

1.5 Significance of the research

The research in this paper not only supplements the theory of online consumption behavior, but also provides a theoretical reference for online shopping websites and merchants to develop their marketing strategies. It is helpful to improve the competitiveness and market share of the online sellers, and to promote the sound development and prosperity of the online shopping market.

2 Literature Review

2.1. Willingness for online purchase

Why do so many college students shop online? Donna McCloskey, with a sample of 138 college students, confirmed that the PU and PEU constitute the reasons for college students' online consumption[1]. A study based on a sample of Malaysian university students found that trust, perceived usefulness and subjective norms were important factors that interfered with online purchase intentions[2]. The results of the study, based on

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a survey sample of Indonesian university students, show that product range has a strong influence on students' online purchasing decisions[3]. Survey of 1,744 respondents shows that machine and human interactivity increases consumers' online purchase intentions because it affects perceived physical behaviour and trust[4]. Past experience also affects perceived usefulness and perceived ease of use, and these perceptions can influence online purchase intentions[5]. According to Jung-Hwan Kim and Minjeong Kim, female college students are emotional when it comes to shopping, and the atmosphere and environment of the website will greatly influence female college students' online shopping[6]. In the study of Gwo-Guang Lee, the layout and trust of the website will exert implications on college students' online consumption behavior[7]. Sejin Ha and Leslie Stoel applied the existing variables in technology acceptance model, and found that college students' online shopping mainly lies in trust and satisfaction[8]. Rauniar, Rawski, Yang, and Johnson modified the TAM model to affect the PU through PEU, social media status and perceived entertainment, thus affecting the intention and the actual behavior[9].

2.2 Perceived usefulness(PU) and perceived ease of use(PEU)

Fenech and O'Casey found that the PU and PEU of online consumers were significant and positively affected their shopping attitudes[10]. Yang, Pang, Liu, Yen, and Tarn conducted a research on consumer online payment, which indicated that PEU will affect consumers' intention of attitude and behavior[11]. Pikkarainen, Pikkarainen, Karjaluoto, and Pahlila studied the use of e-banking from the aspects of PU, PEU, perceived entertainment, information security and privacy, and it is concluded that PU is better than PEU, and is the most influential factor[12]. Gangwar, Date, and Ramaswamy integrated the (Technology-Organization-Environment) model to study the adoption of cloud computing by 280 enterprises, and found that the relative advantages of cloud computing was in significant positive correlation with PEU and PU[13]. Kashyap, Kesharwani, and Ponnambalam combined online banking used in perceived risk and PEU, a variety of factors affecting online banking, such as perceived risk, trust, social impact, were integrated and studied in technology acceptance model for correction, so as to explore the acceptance of Indian users to e-banking under the threat of security and privacy[14].

Overall, previous studies fail to expound how PU and PEU affect college students' willingness for online purchase, which is exactly the topic to be studied in this paper.

3 Research Methodology

3.1. Research framework

According to the technology acceptance model, the determinants of behavioral attitude are PU and PEU,

both are determined by external variables, and exert certain influence on behavior intention. As shown in Figure 1:

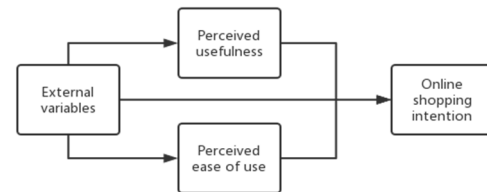


Fig. 1. Research framework diagram

3.2. Research design

This paper adopts the questionnaire survey method to collect information and conduct data survey on the student consumers of SEGI University. The reasonable and effective design of the questionnaire is critical for the whole research. The preparation of research questionnaire includes two stages. First, before the questionnaire design, a large number of literature research was conducted to refer to the previous empirical research results, through which the variables were preliminarily determined. The second stage is to learn from the design of the variables in previous empirical research, and then set the scale for each variable of the questionnaire. The final version of the questionnaire is divided into two parts: the first part involves gender, age, online shopping times, according to the survey of the basic demographic characteristics and online shopping characteristics; the second part is the measurement scale of each variable, there are 16 items of 3 variables in total. The scale was designed as shown in Appendix 1, the answer option is set from 1 to 5 points based on Likert Scale, covering five levels from very disagree to very agree.

3.3. Population and sampling

This paper conducts a questionnaire survey on the WJX.cn platform among the students of SEGI University. Relying on direct network access, QQ, WeChat and other social tools, questionnaire collection lasted from March 25, 2022 to April 10, 2022. For the sake of the effectiveness, the invalid questionnaire was deleted, the standards are shown as follows: First, online filling time is less than 25 seconds; Second, not fulfill all questions; Third, there are obvious logical error in the questionnaire results. After deleting the invalid questionnaires, 32 valid questionnaires were acquired.

3.4. Hypotheses development

Numerous studies have proven that PEU plays a critical role in determining the intention to use. Liu and Su (2009) applied the PEU as a direct factor affecting the online purchase intention. Cai Xuesen (2016) empirically demonstrated the significant positive

correlation between PEU and PU with the intention of use in a study on online shopping.

On this basis, Hypothesis 1 was proposed:

H1: PEU significantly and positively affects the intention of SEGI university students in online shopping.

Fasita (2011) exerted the TAM model to develop users' intention to use mobile payment, verifying that PU plays a positive role on their intention. In the study of user acceptance of mobile payment, PU was taken as the mediation variable to verify the mediation effect of PU in perceived interest and PEU on acceptance intention. Venkatesh (2000), Lu (2009) et al. also confirmed the mediation role of PU.

On this basis, Hypothesis 2 was proposed:

H2: PU significantly and positively affects the intention of SEGI university students in online shopping.

4 Data Analysis

4.1. Descriptive statistical analysis

The descriptive statistical analysis was conducted on 32 samples obtained by SPSS 25.0 software, with 13 males (40.6%), and 19 females (59.4%), among which 14 person aged 15-25, accounting for 43.8%, 13 respondents aged 26-35 (40.6%), and 5 person aged over 35 (15.6%). In the "monthly online shopping times" category, 46.9% purchase online less than five times a month, 31.3% shop online 6-10 times a month, and 21.9% shop more than 10 times a month online. The detailed sample demographic information is shown in Table 1.

Table 1. Sample Descriptive Statistics Analysis Table

Variables	Item	Number of people	Percentage (%)
Gender	Male	13	40.6
	Female	19	59.4
Age	15-25	14	43.8
	26-35	13	40.6
	Over 35	5	15.6
Monthly online shopping times	Less than 5 times	15	46.9
	6-10	10	31.3
	Over 10	7	21.9

4.2. Reliability test and Validity test

As can be seen from Table 2, the Cronbach Alpha value of each variable were above 0.9, demonstrating favorable consistency and stability of the questionnaire.

Validity refers to the effectiveness of the questionnaire, that is, to conduct KMO and Bartlett spherical tests. As shown in Table 2, the KMO values were greater than 0.7, indicating effective results. The significance of the Bartlett spherical test factor was less than 0.05, which means the Bartlett spherical test was passed.

Table 2. Reliability test and Validity test

Variables	Cronbach Alpha	KMO	Chi-Square	Bartlett	
				df	P
Willingness for online purchase	0.965	0.74	207.45	15	0.00
PU	0.920	0.73	119.19	6	0.00
PEU	0.917	0.86	117.13	10	0.00

4.3. Multiple linear regression

Table 3 shows how PU and PEU affect willingness for online purchase. Firstly, the p value corresponding to F value was less than 0.05, indicating passing the F test. Second, the adjusted R2 was 0.721, which means that the model was fitted well. VIF values were less than 5, showing that there was no multiple collinearity. Third, PU was significantly in positive correlation with willingness for online purchase, with the coefficient of 0.633, which proved the hypothesis 1; PEU was significantly in positive correlation with willingness for online purchase, with the coefficient of 0.248, which verified hypothesis 2. The influence of PU and PEU on willingness for online purchase can be explained by the following regression model in formula (1).

$$Willingness = 0.584 + 0.633 * PU + 0.248 * PEU \quad (1)$$

Table 3. Multiple regression analysis

Variables	Non-standard coefficient		Standard coefficient Beta	T value	Significance	VIF
	B	SE				
Constant	0.58	0.49	—	1.20	0.24	—
PU	0.63	0.15	0.69	4.17	0.00	2.82
PEU	0.25	0.19	0.21	1.25	0.02	2.82
R ²				0.741		
Adj- R ²				0.721		
D-W				1.577		
F				38.528		
P				0.000		

5 Conclusion

This paper studies the effects of PU and PEU on university students' online purchase willingness. The questionnaire survey was conducted among the SEGI University students, and the basic information of respondents was obtained through the descriptive analysis of demographic sample. Basic use information of online shopping was acquired, through their online shopping frequency. The validity is proven according to reliability analysis and validity test. Through regression analysis, the linear correlation was showcased between the influencing factors. Finally, the hypotheses of PU and PEU on college students' willingness for online purchase were verified.

Based on the questionnaire survey of SEGI University students' willingness for online purchase, the following conclusions are obtained through empirical analysis: the better operation of the online shopping

platform, the higher the PEU, and the stronger the university students' intention of online shopping; the better sense of practice of online shopping, the higher the PU, and the stronger the university students' intention of online shopping.

For online sellers, they can publicize the usefulness of selling goods. For online shopping platforms, they can focus on designing more concise web pages. Therefore, they can enhance the willingness for online purchase of university students by improving the PU and PEU of online shopping.

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