Green Consumption Behavior Study of College Students Based on the Theory of Planned Behavior--Taking Hubei Polytechnic University as an Example University as an Example

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Abstract. This study analyzes the causes and influences of green consumption behaviors with students of Hubei Polytechnic University as the target, and constructs an extended model based on the theory of planned behavior and the introduction of psychological vitality variables. Through questionnaire survey and analysis, it is found that attitude, perceived behavioral control, psychological vitality and subjective norms positively affect green consumption intention. Finally, suggestions for promoting green consumption are proposed.

Keywords: Theory of Planned Behavior, college students, green consumer behavior, psychological vitality.

1. Introduction

With the acceleration of urbanization in China, urban economic prosperity is accompanied by increased environmental pressure, and consumption behavior is closely linked to environmental issues. This study focuses on green consumption, takes students of Hubei Institute of Technology as the target, explores the formation mechanism and influencing factors of their green consumption behaviors, analyzes the consumption characteristics and the current situation, and aims to promote the popularization and development of college students' green consumption behaviors.

2. Literature review

Green consumption behavior has received extensive attention from scholars, and the research mainly focuses on both individual factors (such as attitudes, values, environmental responsibility, and personal characteristics) and situational factors (such as subjective norms, perceived behavioral control of green consumption, etc.). Zhang Yiwei [1] and others showed that green consumption attitude affects consumption willingness more than green literacy; Chen Weidong [2] and others and Tian Zhenlian [3] found that social and ecological values can promote green consumption; Ma Liqiang [4] found that a sense of environmental responsibility affects green consumption willingness through subjective norms and perceived behavioral control; and in the study of individual characteristics. Ren Shengnan [5]and others found that consumers are more willing to buy products that are consistent with gender attributes. And when studying external social pressure, Gao Chenling [6] et al. found in their study that the stronger the consumer's attitude towards green consumption and the stronger the perceived social pressure, the more likely they are to implement green consumption behavior. Guo Lian [7] as well as Li Xingju [8] found that green product logos can also enhance green consumption behavior.

Scholars at home and abroad have conducted a lot of research on the personal and situational factors affecting green consumption behavior. There are fewer studies on the relationship between “psychological vitality” and green consumption behavior. Therefore, in this paper, the psychological vitality factor is taken into account in the traditional TPB model to study the green consumption

behavior of students in Hubei Polytechnic University, which expands the application of the TPB model.

3. Research content and hypotheses

3.1. Content of the study

Green consumption behavior still has the characteristics of general consumption behavior, such as the phenomena of difference in consumption concepts, guidance of consumption habits, and influence of consumption psychology. Based on the TPB theory, this paper broadly classifies the factors influencing green consumption behavior into four categories: attitude, perceptual behavioral control, subjective norms and psychological vitality, and constructs a framework diagram for the basis of the theoretical model. Information propaganda and personal consumption expectations are taken as antecedents of attitude, IWOM and green culture as antecedents of subjective norms, online shopping, product price and product logo as antecedents of perceptual behavioral control, and psychological vitality is introduced as a new antecedent variable, and health and safety awareness and sense of environmental responsibility are taken as antecedent variables of psychological vitality. The green consumption behavior model is shown in Fig.1.

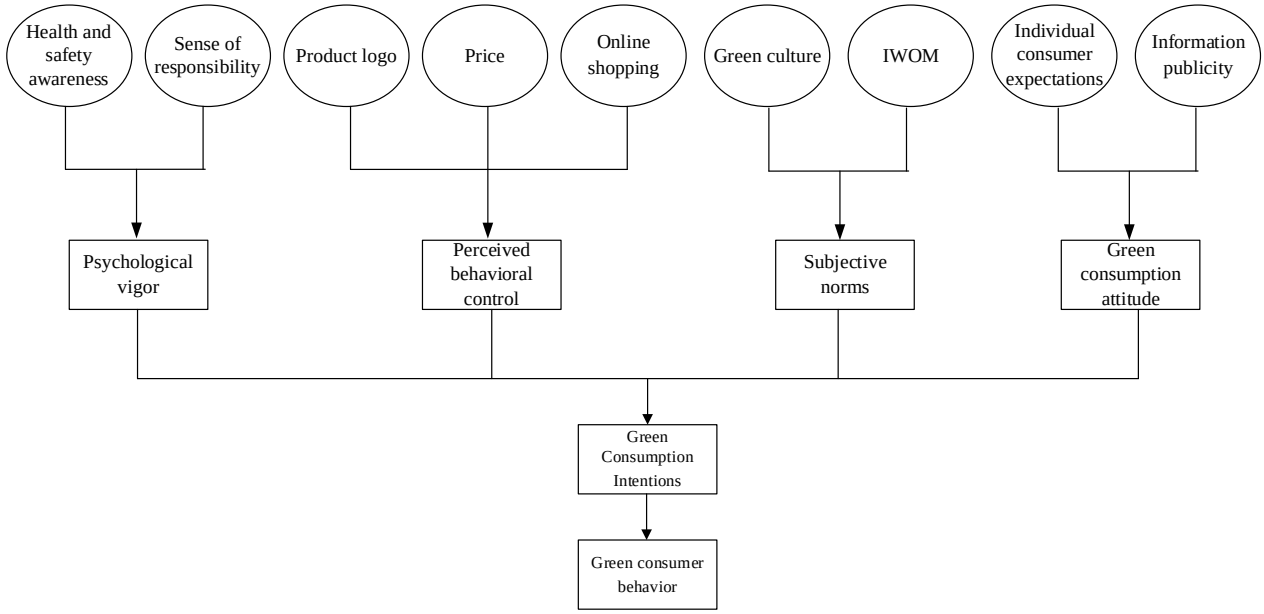

Figure 1. Green Consumption Behavior Model

3.2. Research hypothesis

The research hypotheses are shown in Table 1.

Table 1. System of research hypotheses

Number	Research hypothesis
H1	Information campaigns have a positive effect on attitudes
H2	Individual Consumption Expectations Positively Influence Attitudes Toward Green Consumption Behavior
H3	Attitudes have a positive intention towards green consumption intentions
H4	IWOM positively influences consumers' subjective norms
H5	Green culture positively influences consumers' subjective norms
H6	Subjective norms can have a positive impact on green consumer behavior
H7	Individuals' perceptions of online shopping positively influence individuals' perceptual behavioral control
H8	Green product price acts as a reverse inhibitor of perceptual behavioral control
H9	Environmental signs positively influence perceptual behavioral control
H10	Perceived Behavioral Control Positively Influences Green Consumption Intentions
H11	Health and Safety Awareness Positively Influences Green Consumption Psychological Vitality
H12	Responsibility positively affects the psychological vitality of green consumption
H13	Psychological Vitality Positively Influences Green Consumption Intentions

4. Data collection and analysis

4.1. Data collection

A total of 100 questionnaires were distributed on a small scale, 34 invalid questionnaires were removed and 66 questionnaires were actually valid. After revision and adjustment, 350 questionnaires were distributed on a large scale, with a recovery rate of 60.57%; 138 invalid questionnaires were eliminated, and 212 questionnaires were actually valid.

4.2. Reliability and validity analysis

4.2.1. Reliability analysis

In this paper, SPSS26.0 was used to analyze the reliability of the questionnaire overall and each dimension separately, and the results are shown in Table 2.

Table 2. Questionnaire Scale Reliability Analysis

Variant	Number of measurement questions	Cronbach α coefficients
A	5	0.809
SN	4	0.723
PBC	8	0.894
PV	6	0.846
IN	4	0.834
BE	5	0.865
umbrella	32	0.965

As can be seen from Table 2, the KMO values of each dimension are higher than 0.72, and the overall KMO value is 0.964, which is much larger than the critical value of 0.6, so this questionnaire has a very good level of reliability.

4.2.2. Validity analysis

In this paper, KMO values and Bartlett's sphericity test were performed on all measured variables using SPSS26.0, and the results of the test are shown in Table 3.

Table 3. Questionnaire scale KMO values and Bartlett's spherical test

KMO metric		0.964
Bartlett's test of sphericity	approximate chi-square (math.)	3449.661
	(number of) degrees of freedom (physics)	435
	significance	0.000

According to the data in Table 3, it can be seen that the statistic of KMO is 0.964, the partial correlation is very weak; the p-value of Bartlett's test of sphericity is less than 0.01, and the structural validity of the questionnaire is good.

5. Model Solving and Analysis

5.1. Model solving and Correction

In this paper, Amos 23.0 statistical software was used to solve the established structural equation model, the data obtained from the questionnaire were imported and run, and then according to the results of the factor analysis, the measured variables with factor loading coefficients lower than 0.48 or with unclear attribution were deleted. The model is shown in Fig.2.

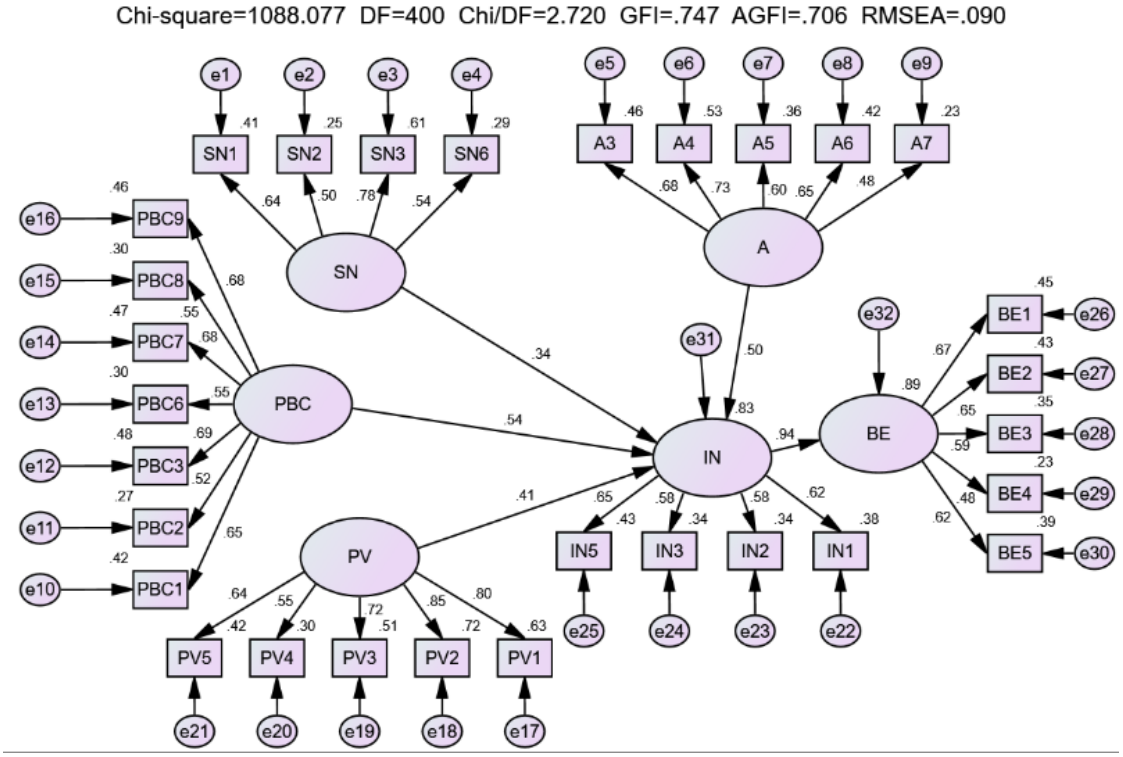

Figure 2. Modified structural model

5.2. Validation factor test

Amos was applied to fit the model to obtain the fitted parameters and fitted values of the model.

Table 4. Overall Fitting Coefficients Table

CMIN/DF	RMSEA	GFI	AGFI	CFI
2.72	0.09	0.747	0.706	0.785

From Table 4, the value of CMIN/DF is 2.72, which is less than 3, and the fit is ideal; the GFI is 0.747 and the AGFI is 0.706, which is close to 0.9, and the fit is good; the CFI is 0.785, which is close to 0.9, and the fit is good; and the value of RMSEA is 0.088, which is less than 0.5, and close to 0.08, and the fit is better. Therefore the overall model fitness is good.

5.3. Conclusions of the study

The findings of this paper are shown in Table 5.

Table 5. Findings

Number	Research hypothesis	Verification results
H1	Information campaigns have a positive effect on attitudes	pass
H2	Individual Consumption Expectations Positively Influence Attitudes Toward Green Consumption Behavior	pass
H3	Attitudes have a positive intention towards green consumption intentions	pass
H4	IWOM positively influences consumers' subjective norms	pass
H5	Green culture positively influences consumers' subjective norms	pass
H6	Subjective norms can have a positive impact on green consumer behavior	pass
H7	Individuals' perceptions of online shopping positively influence individuals' perceptual behavioral control	pass
H8	Green product price acts as a reverse inhibitor of perceptual behavioral control	fail
H9	Environmental signs positively influence perceptual behavioral control	pass
H10	Perceived Behavioral Control Positively Influences Green Consumption Intentions	pass
H11	Health and Safety Awareness Positively Influences Green Consumption Psychological Vitality	pass
H12	Responsibility positively affects the psychological vitality of green consumption	pass
H13	Psychological Vitality Positively Influences Green Consumption Intentions	pass

According to Table 5, it can be seen that all the research hypotheses were validated except for the validation that the price of green products plays an inverse inhibitory effect on the control of perceptual behavior, which was not validated.

5.4. Analysis of results

Through the study, the author believes that the green consumption behavior of college students can be improved in the following aspects:

(1) Perceived behavior control aspect. Perceived behavioral control has a significant impact on college students' green consumption willingness, so Hubei Institute of Technology can unite with on-campus stores to carry out low-priced green consumption activities in order to enhance students' green consumption willingness.

(2) Attitude aspect. The influence of attitude on green consumption willingness is also more significant, so the school should offer more lectures on the relationship between green consumption and environmental protection to cultivate students' positive attitude and promote green consumption behavior.

(3) Mental vigor and subjective norms aspects. Although the influence of these two on green consumption willingness is weak, they still need attention. Green consumption behavior can be promoted by improving students' sense of personal responsibility and environmental awareness and setting up green consumption role models.

Overall, promoting students' green consumption behavior requires the joint efforts of individuals, schools and society. Students should enhance their awareness of environmental protection, schools should offer relevant courses, and society should create an environment that promotes green consumption. Through these measures, students' green consumption habits can be better cultivated and sustainable development promoted.

6. Conclusion

In this paper, we use research questionnaires and model analysis to reveal the influence of students' attitudes towards green consumption, perceived behavioral control, as well as psychological vitality

and subjective norms on green consumption behaviors through the study of green consumption intentions and behaviors of students in Hubei Institute of Technology. We found that attitude and perceived behavioral control have a significant impact on green consumption consumption intention, while psychological vitality and subjective norms have a lesser impact on it. The article presents a series of targeted recommendations aimed at promoting students' green consumption behaviors, advancing the development of green consumption education as well as building a sustainable consumption environment. Although this study has made every effort to ensure the accuracy of data collection and processing, a certain degree of subjectivity is still inevitable. In order to enhance the accuracy and credibility of the evaluation system, subsequent studies should endeavor to discover more objective and scientific ways of data collection.

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