

THE IMPACT OF ENVIRONMENTAL RESPONSIBILITY ON GREEN CONSUMPTION BEHAVIOR

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ABSTRACT

Nowadays, people are overwhelmingly aware of the major challenges for the planet and begin to accept and make gestures toward the environment. Environmentally friendly consumer behavior is increasingly popular. China will increase its Nationally Determined Contributions, adopt more powerful policies and measures, strive to peak carbon dioxide emissions by 2030, and strive to achieve carbon neutrality by 2060. To achieve this goal, from the perspective of consumers, green consumption behavior is the point.

Based on the VBN theory, this paper establishes and studies the green behavior of consumers in Kunming, China, with environmental responsibility as the independent variable, green consumption cognition as the mediating variable, and green consumption behavior as the dependent variable. A total of 326 valid questionnaires were collected, and the empirical results found that environmental responsibility positively affects green consumption cognition; environmental responsibility positively affects green consumption behavior; green consumption cognition positively affects green consumption behavior; green consumption cognition is related to environmental responsibility and green consumption. There is a partial mediation effect between behaviors. To improve the green consumption behavior of consumers, three suggestions are put forward.

Key Words: Environmental Responsibility, Green Consumption Behavior, Green Consumption Awareness.

1. INTRODUCTION

The vigorous rise of the second industrial revolution has promoted further economic development (Sae-Lim & Jermsittiparsert, 2019). In the context of the rapid accumulation of material wealth, people have formed a lot of consumption and hedonistic values. Large-scale centralized production and a large-scale consumption lifestyle have seriously damaged the natural environment, and problems such as excessive resource consumption and environmental pollution have become increasingly prominent (Wang et al., 2019). Britain, Germany, and other countries have been caught in the dilemma of air pollution and water pollution, and it took Western countries nearly 100 years to deal with them (Ge et al., 2018). The history of environmental pollution and governance in Western countries shows that human understanding of nature has gone through a process from ignoring nature to attaching importance to nature, which is also the transformation of human environmental values from unscientific to scientific.

Under a lifestyle centered on green consumption, enterprises can be forced to transform their production methods to green, and ultimately achieve environmental governance and sustainable

economic development (Sivapalan et al., 2021). Green consumption is a new type of consumer behavior that focuses on sustainable development. It refers to the consumption behavior in which consumers strive to protect the ecological environment and minimize the negative impact of consumption on the environment in the process of purchasing, using, and disposing of goods (Yue et al., 2020). To a large extent, the greening of lifestyles can be measured by the green consumption behavior of residents, which has become an important way for residents to participate in environmental co-governance in their daily lives (Lin & Niu, 2018). Under the background of the construction of a beautiful China and the environment of waste sorting and recycling, how to attract consumers, change their lifestyles to green, and stimulate residents' green consumption behaviors will become a hot topic of research.

Therefore, how to effectively guide consumers, promote the greening of public lifestyles, and explore the internal mechanism of consumers' green consumption behavior has become the focus of thinking in today's academic circles (Alagarsamy et al., 2021). This paper will use a comprehensive and in-depth questionnaire to understand the green consumption of consumers and attempt to comprehensively consider environmental responsibility, green consumption cognition, and consumers' green consumption behavior from the multi-disciplines of environmental psychology and consumer behavior, and explore its inherent. The mechanism of action is expected to serve the green consumption problem in China under the background of green development, and provide a theoretical and empirical basis for relevant decision-making.

Value-Belief-Norm Theory (VBN) is a theory developed by Stern (2000) based on Value Theory, The New Environmental Paradigm, and Norm-Activation Theory. The theory is a causal chain containing five key variables: Personal value→new environmental paradigm→consequence awareness→responsibility attribution→environmental protection behavioral norms. This causal chain moves in a relatively stable direction, from personal environmental values to specific beliefs about people and nature, and then to the central elements contained in beliefs, the awareness of consequences and the attribution of responsibility, and then activating people's willingness to act in environmental protection, ultimately leading to environmental protection. the occurrence of a behavior.

Based on relevant literature review and VBN theory, environmental responsibility may affect consumers' green consumption behavior through a series of psychological variables (Stern, 2000). Therefore, this paper uses environmental responsibility as an independent variable, and the paper mainly discusses the green consumption behavior of urban residents, so it is used as a dependent variable. At the same time, according to existing research conclusions, it can be known that there may be mediating effects of other variables in the path of "environmental responsibility → green consumption behavior", such as environmental values through attitudes, group pressure, beliefs, subjective norms, and perceived behavior control, etc. The mediating variable in turn affects green consumption behavior (Yue et al., 2020). Meanwhile, Zhang et al. (2019) believed that cognition is a higher-level psychological variable than values. Therefore, this paper selects green consumption cognition as the mediating variable. The construction of the model in this paper mainly draws on the value→belief→norm theory constructed by Stern.

2.THEORETICAL ANALYSIS AND RESEARCH HYPOTHESIS

2.1 Environmental Responsibility and Green Consumption Behavior

Looking back at the existing literature, many scholars have explored the impact of environmental responsibility on people's environmental protection behavior (Lin & Niu 2018; Ansari et al., 2021). Stern (2000) believes that a strong awareness of environmental protection can make individuals feel responsible for protecting the environment, and ultimately decides individuals to engage in more green consumption. Individuals have a strong sense of social norms, and they have correct values and behavioral judgment standards. The protection of the environment has vital interests, and it is also obliged to make more efforts and contributions to environmental protection. Therefore, the stronger the sense of environmental responsibility, the more green consumption behaviors will be carried out. Based on Stern (2000)'s research on environmental responsibility, Suganthi (2019) found that the impact of environmental responsibility on environmental behavior was significantly and positively correlated. Based on the above literature review and VBN theory, the following hypotheses are proposed:

H1: Environmental responsibility has a positive impact on green consumption behavior.

2.2 Environmental responsibility and green consumption awareness

Boesen et al. (2019) proposed that consumers' understanding of resource and environmental problems and their perception of environmental problems are the embodiment of green consumption cognition, and through learning green product knowledge, they actively undertake the psychological process of environmental protection obligations in the process of consumption. A series of cognition processes of environmental issues and product information are also cognitive processes of green consumption, and cognition is the premise of green consumption behavior (Arli et al., 2018). Green consumption cognition includes environmental knowledge, environmental Awareness, and perception of environmental issues (Szabo & Webster, 2021). In summary, this paper proposes the following assumptions:

H2: Environmental responsibility has a positive impact on green consumption cognition.

2.3 Green consumption cognition and green consumption behavior

Most of the current studies agree that there is a positive relationship between green consumption cognition and green consumption behavior (Trudel, 2019; White et al., 2019), and consumers without green cognition will engage in green consumption. The behavior is significantly lower than that of consumers with green consumption cognition (Sun et al., 2019); green consumption behavior affects consumers' perception of green products and services and green consumption cognition (Morone et al., 2019). In summary, this paper proposes the following assumptions:

H3: Consumers' green consumption cognition has a positive impact on green consumption behavior.

2.4 The mediating role of green consumption cognition

Green consumption awareness affects purchasing behavior through green consumption attitudes (Lin & Niu, 2018). The more sensitive consumers are to resource and environmental issues, the more they pay attention to environmental protection issues in their daily consumption process, which leads to a tendency to green consumption (Yue et al., 2020). For consumers, environmentally friendly products are their priority. Based on the relevant literature review and the VBN theory of Stern (2000), this paper proposes the following assumptions:

H4: Green consumption cognition has a mediating effect between environmental responsibility and green consumption behavior.

3. RESEARCH METHODOLOGY

3.1 Research Materials and Methods

Green consumption behavior adopts the measurement scale of Biswas (2016), with a total of 10 items on the scale, which are still reserved for 10 items after expert validity. The point scale is used for evaluation. $KMO=0.96$, $\chi^2=2951.23$, $df=45$, $p<0.001$, A total of one factor was extracted, the extraction sums of squared loadings were 71.89%, and the factor loading was .77-.89.

Environmental responsibility is measured by Horvat and Voelker (1976), with a total of 9 measurement items, and is evaluated by the Likert five-point scale. $KMO=0.95$, $\chi^2=1890.43$, $df=36$, $p<0.001$; A total of one factor was extracted, the extraction sums of squared loadings were 63.12%, and the factor loadings were .68-.85.

Green consumption awareness is based on the questionnaires compiled by Tripathi and Singh (2016). Evaluated by Likert five-point scale. $KMO=0.75$, $\chi^2=544.82$, $df=3$, $p<0.001$; A total of one factor was extracted, the extraction sums of squared loadings were 67.41%, and the factor loadings were .89-.91.

3.2 Survey Object and Sampling

Issued through the Internet, 336 questionnaires were returned, 326 valid questionnaires were obtained, and the effective rate was 97.02%. Men accounted for 53.37%. 19-25 years old (28.83%) and 26-30 years old accounted for the most (28.53%). Among them, the youngest was 18 years old and the oldest was over 61 years old. More than 57.8% of the respondents had green consumption behavior. 97.86% have a technical secondary school degree or above. In terms of occupation, students account for 15.03%, government officials account for 11.04%, and business personnel accounts for 49.39%, indicating that young people's consumption concepts are more fashionable and environmentally friendly, and it also reflects China's current education level of the nationals is at a relatively high level, and it also shows that the respondents of this survey are people with a certain educational and cultural background. In terms of average monthly income, 29.75% of the total is over 3,501-5,500 yuan, and 49.39% of the respondents are company employees. The sample distribution is mainly in China. Since the sampling method is convenience sampling, the main distribution area is Kunming City, Yunnan Province.

4. RESULTS AND DISCUSSION

4.1 Common Method Bias Test

In this study, measures such as anonymity were used to control the test (Aguirre-Urreta & Hu, 2019). In the process of data analysis, the Harman factor test was used to examine the common method biases. All observational variables were put together for exploratory factor analysis. The first principal component obtained without rotation is 24.36%, which is far less than the critical value of 40%. Therefore, the homology deviation problem in this study is not serious.

4.2 Confirmatory Factor Analysis

In this study, SPSS Amos 24.0 software was used to test the structural validity of each variable by adopting confirmatory factor analysis. First, a three-factor model is set up; Then, χ^2 , RMSEA, CFI,

GFI, NFI, and other indicators are used to illustrate the fit of the model (see Table 1). It can be seen from table 1 that the fitting index $\chi^2(130) = 101.59$ ($p > 0.05$), RMSEA = .05, CFI = .98, GFI = .90, NFI = .90 in the three-factor model, which shows that the model fits quite well. This study also validates four alternative models simultaneously: Model 2, combining Environmental Responsibility and Green Consumption Awareness into one factor; Model 3, combining Green Consumption Behavior and Environmental Responsibility into one factor; Model 4, combining Green Consumption Behavior and Green Consumption Awareness into one factor; And model 5, combining all variables into one factor. According to the comparison of the fitting indices of the five models, model 1 fits the data better than the other four models. Lukacs et al. (2010) propose the exponents in model comparison and model selection: $\Delta AIC = AIC - AIC_{min}$, AIC_{min} in the formula is the smallest of the different AIC values of a range of related models. This transformation shows that the best model has an ΔAIC value of 0 and all the other models are positive. In a range of relevant candidate models, the ΔAIC can provide sufficient evidence for the comparison between the models. The following interpretation rules for AIC are: It is most supported at $\Delta AIC \leq 2$; Less support for this model at $4 \leq \Delta AIC \leq 7$; and $AIC \geq 10$ is no longer supported. The ΔAIC value of model 1 was 0. Thus, the uniqueness of the 3 variables in this study is well supported (Lukacs et al., 2010).

Table 1 Results of Confirmatory Factor Analysis

Mode	Factor	χ^2	df	RMSEA	CFI	GF	NF	ΔAIC
1				A		I	I	
1	Three factors (GCB, ER, GCA)	101.59	13	.05	.98	.90	.90	0
2	Two factors (GCB, ER+GCA)	124.10**	13	.06	.96	.89	.88	42.17
3	Two factors (GCB +ER, GCA)	197.42**	13	.11	.88	.84	.81	85.83
4	Two factors (ER, GCB +GCA)	145.76**	13	.08	.93	.88	.86	14.51
5	Single factor (GCB +ER+GCA)	110.16**	12	.06	.97	.90	.89	12.57

Notes: ** $p < .01$, *** $p < .001$ (two-tailed tests); GCB=Green Consumption Behavior; ER=Environmental Responsibility; GCA= Green Consumption Awareness

4.3 Descriptive Statistics and Correlation Analysis of Variables

The mean, standard deviation, correlation coefficient, and reliability coefficient of each variable are shown in Table 2. Environmental Responsibility was significantly positively correlated with Green Consumption Awareness ($r = .42, p < .01$) and Green Consumption Behavior ($r = .34, p < .01$); Green Consumption Awareness was significantly positively correlated with Green Consumption Behavior ($r = .33, p < .01$). Therefore, the results of the correlation coefficient provide preliminary evidence for hypothesis testing.

Table 2 Means, Standard Deviation, Correlation Coefficient, and Cronbach’s α value of Each

Variable

Variable	M	SD	1	2	3
1 ER	3.58	0.89	(0.95)		
2 GCA	3.55	1.04	.42**	(0.92)	
3 GCB	3.34	0.90	.34**	.33**	(0.88)

Notes: ** $p < .01$, *** $p < .001$ (two-tailed tests); GCB=Green Consumption Behavior; ER=Environmental Responsibility; GCA= Green Consumption Awareness

4.4 Testing of Hypotheses

In this section, hierarchical regression analysis is used to test the hypotheses proposed in this paper, which are described as follows.

In Model 3 of Table 3, environmental responsibility ($\beta=0.34$, $p < 0.001$) positively affects green consumption behavior, indicating that the higher the environmental responsibility, the higher the green consumption behavior. H1 was supported. In Model 1, environmental responsibility ($\beta=0.41$, $p < 0.001$) positively affects green consumption cognition, indicating that the higher the environmental responsibility, the higher the green consumption cognition, H2 was supported. In Model 2, green consumption cognition ($\beta=0.33$, $p < 0.001$) positively affects green consumption behavior, indicating that the higher the green consumption cognition, the higher the green consumption behavior. H3 was supported. In Model 4, after increasing the mediating variable of green consumption cognition, the influence coefficient of environmental responsibility on green consumption behavior is reduced from 0.34 in Model 3 to 0.24 in Model 4, this shows that green consumption cognition has a partial mediating effect between environmental responsibility and green consumption behavior. (Baron & Kenny, 1986), H4 was supported.

Table 3 Regression Analysis and Mediated Regression Analysis

IV	DV: GCA		DV: GCB	
	M1	M2	M3	M4
ER	0.41***		0.34***	0.24***
GCA		0.33***		0.21***
R ²	0.20	0.20	0.20	0.19
Adj R ²	0.15	0.14	0.14	0.16
F	65.66***	75.51***	76.50***	100.34***

Notes: β = standardized coefficients; * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests); GCB=Green Consumption Behavior; ER=Environmental Responsibility; GCA= Green Consumption Awareness

5.CONCLUSIONS AND DISCUSSION

5.1 Conclusions

Through the above research, this study found that environmental responsibility has a positive impact on green consumption behavior. Similar to the research conclusions of scholars such as Lin and Niu (2018), Ansari et al. (2021), and Suganthi (2019); environmental responsibility reflects people's sense of responsibility for environmental protection but does not necessarily lead to behavior directly. Only when people realize that their current behavior conflicts with their standards, that is, their purchasing behavior conflicts with environmental protection, consumers with a strong sense of responsibility will have a stronger tendency to consume green.

Environmental responsibility has a positive impact on green consumption cognition. Similar to the research conclusions of Boesen et al. (2019), Arli et al. (2018), Szabo and Webster (2021); Consumers' understanding of resource and environmental issues and their perception of environmental issues is the embodiment of green consumption cognition, and through the learning of green product knowledge, the psychological process of taking the initiative to undertake environmental protection obligations in the process of consumption. A series of cognition processes of consumers on environmental issues and product information is also the cognition process of green consumption, and cognition is the premise of green consumption behavior. perception of the problem.

Consumers' green consumption cognition has a significant positive impact on green consumption behavior. Similar to the research conclusions of scholars such as Trudel (2019), White et al. (2019), Sun et al. (2019), and Morone et al. (2019); Their requirements will be higher, and then they will improve their green consumption behavior.

Green consumption cognition has a mediating effect between environmental responsibility and green consumption behavior. Similar to the research conclusions of scholars Lin and Niu (2018) and Yue et al., (2020), environmental responsibility will affect green consumption behavior, people with a stronger sense of responsibility are more likely to conduct more green consumption behaviors. At the same time, it can be seen that people with more green comprehensive awareness consumption have more green consumption behaviors, which shows that residents have good green awareness and can form certain social norms so that more people abide by this normative behavior and make more people engage in green consumption behavior.

5.2 Discussion

This paper focuses on the relationship between the psychological mechanism and green consumption behavior. There are still some problems with the current consumption pattern, to find out the consumption preferences of consumers, meet the needs of consumers, and provide more perspectives for green consumption. For market managers, the research results help the government to formulate corresponding policies and measures to guide and encourage consumers to conduct green consumption. In today's society, what is important is the efficient allocation and utilization of resources, and consumers' consumption habits are constantly changing. Research from the perspective of consumers' consumption psychology will help the development and development of related industries such as green environmental protection and green products. Innovation. For the country and society, having a strong sense of environmental responsibility can inspire citizens to conduct green consumption, which is conducive to environmental protection

and governance, and can save limited resources for the country and society. For citizens, it can form a good society. Atmosphere, create a green atmosphere, can set an example for future generations, can create a new consumption pattern and industrial chain, the ultimate benefit will be yourself if you can bring people around you to participate, then everyone will get from its benefit.

This study has the following suggestions on how to improve consumers' green awareness:

The government should continue to strengthen the awareness of environmental protection and carry out education and publicity on environmental protection, cultivate social altruism and ecological values, let more people develop the habit of abiding by social norms, and cultivate and enhance their sense of environmental responsibility.

Through research, we can know that environmental responsibility will directly or indirectly affect consumers' consumption behavior, and environmental responsibility will promote green consumption behavior through environmental problems. Therefore, schools, companies, or social organizations should actively promote the concept of ecological civilization, strengthen the propaganda of environmental protection knowledge, and use relevant organizations such as schools or governments to actively guide propaganda, cultivate a green consumption concept that is conducive to environmental protection, and popularize green consumption awareness. Realize the transformation of consumers' consumption concept.

Enterprises should build a high-quality green brand and formulate different marketing strategies according to different consumer groups to meet consumer needs. Creating high-quality green brands can attract more consumers to green consumption, reduce pollution and change consumers' consumption habits.

5.3 Insufficient Research

Due to the limitations of its ability and various conditions, there are still some shortcomings in this study, which need to be further improved and discussed by other scholars in future research. Here are a few shortcomings:

First of all, this study is carried out under the path of "environmental responsibility→green consumption cognition→green consumption behavior". Green consumption cognition is a relatively basic and conventional psychological variable, so the variables selected in this study are insufficient in novelty.

Second, sample selection. The sample selection in this study is relatively small, with only 336 valid questionnaires. Limited by time and energy, the sample area is relatively single and lacks certain applicability. In future research, a wider range of sample selection and verification can be carried out, such as taking Yunnan Province as a sample, which will greatly improve the number and quality of samples.

For future research, we can start from the following points. The first is to improve the design of the research method. The measurement of psychological changes can be carried out using field experiments and interviews in the street so that it has a certain external effect. The second is that green products from other industries can be selected for analysis. Consumers may have different

perceptions of green products in different industries. In the future, research can be replaced by green products with distinctive features for analysis. The third is to improve the institutional environment and regional culture. Under the influence of institutions or cultures, consumers in different regions will have different perceptions and attitudes towards green consumption. Therefore, follow-up research should try to incorporate institutions and cultures in different regions. To explore the influence of internal and external factors on green consumption behavior under different regional and cultural backgrounds. The task of building an ecological civilization is still arduous, and the situation is not optimistic, but everyone around us should consciously abide by social norms, develop good consumption habits, and refuse waste and pollution. Benefit yourself and future generations.

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