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Study on the Influence of Negative Anthropomorphic Image on Green Consumption Intention

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Abstract: *In order to investigate the relationship between negative anthropomorphic image and green consumption intention, constructs a theoretical model between negative anthropomorphic images, perceived threat and green consumption intention, uses a questionnaire research method, and analyzes the results using structural equation modeling. The results show that negative anthropomorphic images negatively affect consumers' green consumption intention; negative anthropomorphic images positively affect perceived threat, perceived threat positively affects consumers' consumption intention, and perceived threat plays a mediating role in the influence of negative anthropomorphic images on green consumption intention.*

Keywords: *Negative anthropomorphic images, Perceived threat, Green consumption intention*

1. Introduction

Environmental problems such as climate warming, rampant haze, resource pollution and shortage have stimulated the inherent requirement of harmonious coexistence between human and nature. Green consumption is considered to be an effective way to mitigate the adverse impact on the environment without affecting the quality and quantity of consumption [1]. Most of the current research discusses the influence of environmental factors on green consumption in terms of environment-related variables. However, green consumption is not only generated through the contact between consumers and the environment, but it is also important to establish a psychological connection between consumers and the environment to promote green consumption, that is, to establish a close emotional connection between consumers and the environment, and anthropomorphism is an effective way to establish this connection. In fact, anthropomorphism is often used in the environmental field. For example, the slogan "Don't step on me, I'm afraid of pain" is a better protection for lawns than non-anthropomorphic slogans. Anthropomorphism can increase consumer empathy and thus change consumer attitudes towards the product [2]. The composition dimension of anthropomorphism is divided into external level embodiment and internal level embodiment. The external level of anthropomorphism refers to the anthropomorphization of the product in appearance, but the external level of anthropomorphism cannot convey the deeper meaning of the brand. So in addition to this, researchers and companies have also focused on the internal level of anthropomorphism, such as classifying anthropomorphism into positive and negative anthropomorphism according to emotions. At present, the application of anthropomorphism in the marketing field is mostly focused on brand anthropomorphism, and the influence of anthropomorphism on green consumption is less. Based on this, this study will investigate the influence of negative anthropomorphism on consumers' intention to purchase green, and enrich the theory of anthropomorphism and green consumption by studying the mediating mechanism of negative anthropomorphism on green consumption intention.

2. Theoretical Background and Hypotheses

2.1. Negative Anthropomorphism and Green Consumption Intention

Green consumption refers to the consumer behavior that can reduce environmental hazards by considering the environmental impact in the process of purchasing, using and disposing of green products. In addition, in the process of exploring green consumption, academics have proposed the concepts of low-carbon consumption and sustainable consumption to describe this environmentally friendly consumption behavior that does not harm the natural environment and can satisfy consumers' needs [3].

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What distinguishes it from ordinary consumption is that purchasing green products requires some personal sacrifices, such as bearing the cost of green product premiums or product switching costs [4]. The anthropomorphic image design in green product marketing, which infuses human characteristics into non-human objects, can make people perceive them as human and thus bring them into the scope of morality. Moral compensation theory suggests that when people behave more morally in subsequent activities after previously behaving immorally, where guilt mediates between immoral behavior and subsequent moral compensation behavior [5][6]. The negative anthropomorphic image presents a state of being hurt, from which people associate the previous behaviors they have done that are detrimental to the environment, consider themselves responsible for this state, and thus develop guilt and finally make pro-environmental behaviors to compensate. In addition, from the perspective of information processing, the use of anthropomorphic images to convey product information can improve consumers' information processing fluency: on the one hand, by increasing consumers' perception of self-pattern consistency, which in turn improves consumers' perceptual fluency [7]; on the other hand, by simplifying the information conveyed, it reduces consumers' processing. On the other hand, by simplifying the information conveyed, consumers' conceptual fluency is improved by reducing the complexity of processing information [8]. If consumers feel fluent in processing product information, they will give a more positive response to the product or brand [9], which in turn will increase their willingness to purchase. This leads to the following hypothesis:

H1: Negative anthropomorphic images positively influence green consumption intention.

2.2. The Mediating Role of Perceived Threats

Perceived threat is the degree to which an individual perceives a threat or harm from the external environment and is an important factor influencing an individual's environmental behavior [10]. Stress perception theory suggests that threat is a stressor characterized by perceptions of danger and expectations of future harm and loss. When people encounter any type of stress, they engage in a cognitive evaluation process that includes an initial evaluation, which is a hazard assessment of the situation encountered, and a second evaluation, which is an assessment of the available methods and means to cope with the stress, with a sense of control being part of the secondary evaluation, including beliefs about available strategies and one's ability to implement them. In other words, when faced with a threat, people assess the threat and take protective actions to enhance their sense of control. The perceived severity of the threat is the key to determining what actions people will take: when the perceived threat is manageable, people will act aggressively; when the perceived threat is unmanageable, people will let it go. Many entities in this world are unfamiliar and incomprehensible to humans, and mapping familiar human concepts onto these entities through anthropomorphism can enhance people's sense of control over them [11]. Thus, compared to non-anthropomorphic images, anthropomorphic images can enhance consumers' sense of control and make them feel that the environmental threats they face are controllable and thus take positive conservation actions. In addition, response efficacy is an antecedent of people's protective actions, which refers to individuals' assessment of the effectiveness of countermeasures that can reduce threats. Reactive efficacy is related to people's motivation to avoid threats. The higher the sense of responsiveness, the greater the perceived benefits of action, and the greater the willingness to protect the environment, and thus the greater the willingness to consume green, as shown in Figure 1.

In addition to the severity of the threat, threat susceptibility is also an important factor that influences what actions people take. Threat susceptibility refers to people's judgment of whether they are vulnerable to a threat. Explanation level theory suggests that individuals interpret things differently depending on the psychological distance (e.g., temporal distance, spatial distance, social distance). Reducing the psychological distance can reduce the psychological mechanisms of individual self-defense and psychological barriers, etc., and stimulate the emotions of authenticity and trust in individuals. Negative anthropomorphic images can shorten the psychological distance of threat, which in turn enhances individuals' threat susceptibility. When environmental threats are more easily perceived, people are more likely to take action to protect the environment and the stronger the willingness to consume green. This leads to the following hypothesis:

H2a: Negative anthropomorphic images positively influence perceived threat.

H2b: Perceived threat positively influences green consumption intention.

H3: Perceived threat mediates the effect of negative anthropomorphic images on green consumption intention.

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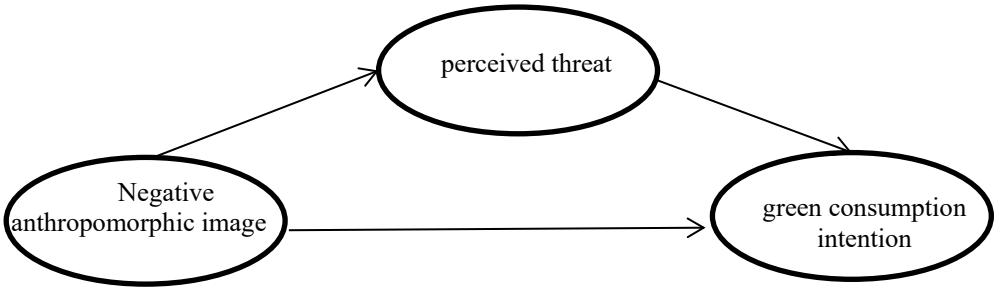

Figure 1: Theoretical model.

3. Research Methodology

3.1. Measurement of Variables

This study used a questionnaire research method, which was structured into three parts: basic information, negative anthropomorphic image pictures and variable measurement questions. In order to ensure the scientific nature of the questionnaire design, the final questionnaire was formed by reviewing the relevant literature, drawing on the existing research results and mature scales of scholars at home and abroad, and combining the specific contents of this study. The design of negative anthropomorphic images draws on Tam's 2013 study, and the scale measuring the independent variable negative anthropomorphic images draws on Pankaj and other scholars to design a total of four questions, which are “The image appears to have human-like features”; “The image has a human-like mind”; “The image has a certain emotion”; “The image appears to communicate like a human”. The scale measuring the mediating variable perceived threat draws on Workman et al. and is designed with three questions, which are “I will be threatened by the environment”; “I sense the danger posed by the environment”; “I feel like I'm going to lose”. The scale measuring the dependent variable green consumption intention draws on Chan's findings and is designed with three questions, which are “I have plans to buy green products”; “I think buying green products is a good idea”; “I'm in favor of buying the green version of an item”.

3.2. Data Collection and Procedure

The research method of questionnaire survey is used in this study. Since the target of this study is the general consumers, its investigable scope is large and its limitation is small, so the data can be collected by means of online questionnaire, and 294 valid questionnaires were obtained. Among the 294 samples, 51.7% were male and 48.3% were female, with a relatively even gender distribution; 52.4% were young people aged 21-30, which is in line with the characteristic that young people are the main force of the Internet; in terms of education, 51.4% had a bachelor's degree, which can ensure the reliability of data collection to a certain extent; in terms of occupation and monthly income, school students and those aged 3000 yuan and below accounted for the highest percentage. In terms of occupation and monthly income, school students and those with a monthly income of 3,000 yuan or less account for the highest percentage, which matches the age distribution.

4. Data Analysis and Results

4.1. Reliability and Validity

According to the data analysis, the Cronbach's α values of each latent variable were greater than 0.8, which indicated good internal consistency of the scale; as shown in Table 1, the standardized factor loading coefficients of each variable were obtained after validated factor analysis, and the combined reliability of negative anthropomorphic image, perceived threat and green purchase intention were calculated to be greater than 0.7, and the AVE values were greater than 0.5, indicating the convergent validity of the questionnaire is good. According to the analysis results in Table 2, the correlation coefficients between each latent variable are less than the diagonal value (AVE square root), which indicates a high discriminant validity among the variables.

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Table 1: Reliability and convergent validity analysis.

Latent variable	Observed variables	Standardized factor loading coefficients	CR	Cronbach's α	AVE
Negative Anthropomorphic Image	X1	0.676	0.8332	0.827	0.557
	X2	0.734			
	X3	0.844			
	X4	0.721			
Perceived Threat	X5	0.755	0.8469	0.847	0.649
	X6	0.839			
	X7	0.820			
Green Consumption Intention	X8	0.839	0.8613	0.860	0.674
	X9	0.801			
	X10	0.823			

Table 2: Differential validity analysis.

	Negative Anthropomorphic Image	Perceived Threat	Green Consumption Intention
Negative Anthropomorphic Image	0.746		
Perceived Threat	0.580	0.806	
Green Consumption Intention	0.659	0.707	0.821

4.2. Structural Equation Modeling Results Analysis

AMOS24.0 was used to test each path of the structural equation model. Firstly, the fit coefficient of the structural equation model was tested, and the results showed that the cardinality freedom ratio (CMIN/DF) was 2.927, which was less than 3, the GFI value was 0.943, the IFI value was 0.963, the CFI value was 0.963, which were all greater than 0.9, the PNFI value was 0.672, and The PGFI value is 0.549, all of which are greater than 0.5, indicating that the model has a good fit. The results of the model run are shown in Table 3, the path coefficient of negative anthropomorphic image on perceived threat is 0.750, the p-value is less than 0.001, and H2a's is verified, that is, negative anthropomorphism has a positive effect on perceived threat. The path coefficient of perceived threat on green consumption intention is 0.655, with a p-value less than 0.001, and H2b is verified, i.e., perceived threat has a positive effect on green purchase intention. The path coefficient of negative anthropomorphic image on green consumption intention is 0.466 with a p-value less than 0.001, and H1 is verified that negative anthropomorphic image has a positive effect on green consumption intention.

Table 3: Path analysis result.

Path	Standardized path coefficient	S.E.	C.R.	P
Negative Anthropomorphic Image→Perceived Threat	0.750	0.087	8.606	***
Perceived Threat→Green Consumption Intention	0.655	0.088	7.475	***
Negative Anthropomorphic Image→Green Consumption Intention	0.466	0.092	5.059	***

4.3. Mediating Effect Analysis

The mediating effect was tested using AMOS 24.0 software, using Bootstrap's method, selecting a 95% confidence interval and repeating the random sampling 5000 times, and the mediating effect was significant when the confidence interval did not contain zero. The test results are shown in Table 4, where the total, direct and indirect effects (mediating effects) do not contain zero within the 95% confidence interval, indicating that the total, direct and indirect effects (mediating effects) are significant, suggesting that perceived threat mediates the effect of negative anthropomorphic images on green consumption intentions.

Table 4: Mediating effect analysis.

	Effect value	Bootstrap5000 time 95%CI			
		Bias corrected		Percentile	
		Lower	Upper	Lower	Upper
Total effect	0.958	0.751	1.274	0.751	1.273
Direct effect	0.466	0.215	0.675	0.214	0.675
Indirect effect	0.491	0.281	0.893	0.279	0.887

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5. Conclusions

Based on moral compensation theory, stress perception theory and explanation level theory, this study conducted theoretical reasoning and formulated hypotheses to construct a theoretical model of negative anthropomorphic images on consumers' willingness to purchase green, and tested it using structural equation modeling, and using a questionnaire research method to draw the following conclusions.

Negative anthropomorphic images have a positive effect on consumers' willingness to purchase green. Companies can use negative anthropomorphic images for green marketing, for example, when designing green advertisements, anthropomorphic images are used as the main characters to depict their negative emotions when the environment is destroyed, triggering consumers' empathy for the environment and promoting green consumption.

The negative anthropomorphic image positively influences the perceived threat, and the perceived threat positively influences consumers' willingness to buy green, that is, the perceived threat plays a mediating role in the influence of the negative anthropomorphic image on consumers' willingness to buy green. In the marketing process, companies should focus on stimulating consumers' perceived threat, such as showing a short film about the destruction of nature, so that consumers can feel that environmental protection is closely related to their own interests, and then enhance consumers' willingness to purchase.

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