

THE EFFECT OF ENVIRONMENTAL KNOWLEDGE ON GREEN PURCHASE INTENTION

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ABSTRACT

This paper analyzes the influence of environmental knowledge and environmental attitude on individuals' green purchase intention based on the theory of planned behavior and the theory of knowledge-attitude-behavior. In this context, green consumption has attracted much attention as a positive response to environmental challenges. A review of the literature shows that an individual's level of environmental knowledge is closely related to his/her awareness of environmentally friendly products, and individuals with high environmental knowledge are more inclined to choose green products. Meanwhile, positive environmental attitudes are also positively related to green purchase intentions, i.e., individuals with positive attitudes toward environmental protection are more likely to adopt environmentally friendly behaviors. This research provides essential theoretical guidance for understanding the influence of environmental knowledge and attitudes on green purchase intentions. It provides valuable insights for promoting sustainable consumption and environmental protection.

Keywords: environmental knowledge, environmental attitude, green purchase intention, mixed research methodology

INTRODUCTION

Since the inception of Earth Day, public awareness of ecological issues has broadened significantly over the past few decades. In 1992, the United Nations Conference on Environment and Development, held in Rio de Janeiro, Brazil, adopted Agenda 21, which identified inappropriate human production and consumption as the leading causes of environmental degradation. At the same time, the United Nations Conference on Environment and Development delineates sustainable development as "development that meets the needs of contemporary people without compromising the ability of future generations to meet their needs." The Paris Agreement, adopted at the 21st United Nations Climate Change Conference in December 2015, proposes that the world should be "carbon-neutral," i.e., emissions of greenhouse gases (GHGs) should be balanced with their absorption by the middle of this century. Overconsumption and overproduction are frequently identified as primary contributors to environmental degradation (Chanda et al., 2023). In pursuing a sustainable economy, individuals increasingly recognize that environmental issues, such as water and air pollution, land degradation, and climate change, stem from elevated

unsustainable consumption levels (Cong Doanh et al., 2021). Consequently, people are initiating shifts and adaptations in purchasing patterns to safeguard the natural environment and ecosystems. Green consumption focuses on improving human life quality and the ecological environment. It is a consumption method that conforms to future development trends and is a crucial way to achieve sustainable social development. Therefore, studying how to change the existing single consumption structure that pursues economic benefits and increases people's demand for green products is significant for achieving environmental protection.

To achieve sustainable environmental development, countries have implemented a series of policies on green consumption. Goal 12 of the 2030 Agenda for Sustainable Development aims to ensure sustainable consumption and production patterns and states that countries should fundamentally change their social production and consumption patterns. The notion of sustainable consumption and production was subsequently acknowledged in the Johannesburg Plan of Implementation, ratified in 2002 during the World Summit on Sustainable Development. On that occasion, Sustainable consumption and production were defined as the practice of reducing the utilization of natural resources and harmful substances across the entire lifespan of goods or services, all while fulfilling basic requirements, enhancing the quality of life, and mitigating waste and emissions to safeguard the needs of future generations. In December 2019, the European Union released the Green Deal, actively building a production and certification system for green products, highlighting the green attributes of products, and guiding consumers to purchase green products. In the United States, policies and initiatives related to green consumption are mainly jointly promoted by the federal, state, and local governments, including the Clean Air Act and Clean Water Act, vehicle emission standards, recycling, and waste management. In the future, with the increasing social concern for environmental issues and sustainable development, green consumption will be promoted on a global scale.

The Chinese government has developed a set of policies aimed at nurturing environmental awareness and encouraging green consumption. In February 2016, the State Council issued the "Guiding Opinions on Promoting Green Consumption," which explained the critical significance of green consumption and proposed a series of measures to promote green consumption for enterprises, governments, residents, public institutions, and other units and groups. It outlined precise and explicit institutional structures to foster environmentally sustainable consumption. In March 2021, the Outline of the 14th Five-Year Plan further proposed to "build a green consumption system, lead the reshaping of the supply system, and advocate the common action of green consumption among the whole population (Ren, 2020)." In January 2022, the National Development and Reform Commission, along with seven other departments, issued the "Implementation Plan for Promoting Green Consumption," which clearly stated that by 2025, the concept of green consumption will be deeply rooted in people's hearts, and by 2030, green consumption methods will become a conscious choice for the public. Since then, green consumption has grown from an initial initiative to an important strategy for national economic development. These important policies and statements show that China attaches great importance to green consumption. Scholars have conducted extensive research on green purchase intentions and behaviors, and the results show that due to differences in cultural and economic development levels, green purchase intentions and behaviors may vary in different countries (Bong Ko & Jin, 2017). By 2022, China's population accounts for approximately 21.5% of the world's population and implementing green consumption in China is crucial for environmental improvement. Therefore, in the context of China's

economy and society, understanding how environmental knowledge affects green purchase intention needs to be deeply discussed at the theoretical level.

Even though consumers express concern about environmental issues and hold a favorable attitude towards sustainable development and green products, the increase in purchases of green products is not significant, and the market share of green products is still limited to 7-8% of the global market(Wijekoon & Sabri, 2021). In the China Consumer Consumption Index report released by Alibaba Research Institute, it was pointed out that in 2019, the actual consumers in the green product market on the Alibaba platform accounted for about 14% of all consumers, and the total consumption of green products only accounted for 13.4% of the total sales of the Alibaba platform. These noteworthy problems have prompted scholars to explore further the driving factors of green purchase intention (Moslehpour et al., 2023). Previous studies in related literature have demonstrated that possessing advanced environmental knowledge significantly and positively influences consumer attitudes and behaviors in favor of supporting the environment(Chanda et al., 2023; Kumar et al., 2021). Nonetheless, in alternative scenarios, the association between environmental knowledge and purchase intention appears superficial and lacks significance, possibly stemming from variations in the conceptualization, dimensions, and chosen mediating variables of environmental knowledge assessed in most studies. Therefore, the following question is posed: Does environmental knowledge and environmental attitude have an impact on green purchase intention?

OBJECTIVE

To determine the influence of environmental knowledge, environmental attitude on green purchase intentions.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Underpinning Theory

Theory of Planned Behavior (TPB)

The Theory of Reasoned Action (TRA), introduced by social psychologists Martin Fishbein and Icek Ajzen in 1975, serves as a theoretical framework designed to elucidate and forecast an individual's attitude and behavioral intention concerning a specific behavior. The core concepts of TRA include attitude, subjective norms, and behavioral intentions. After conducting extensive research on the determinants of behavior, Ajzen (1991) introduced additional variables based on the Theory of Reasoned Action (TRA) to further develop the Theory of Planned Behavior (TPB). In contrast to the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB) incorporates the notion of perceived behavioral control, highlighting the practical control over behavior and acknowledgment of its challenges. Per the Theory of Planned Behavior (TPB), human behavior is shaped by behavioral beliefs, normative beliefs, and control beliefs(Bosnjak et al., 2020) . In broad terms, attitude, subjective norms, and perceived behavioral control substantially influence behavioral intention, subsequently influencing specific behaviors. The TPB model is used to explain pro-environmental behavior, which includes purchasing green or environmentally friendly products, using environmentally related services, waste disposal, and recycling. Liobikienė et al. (2016) investigated the green purchasing behavior of urban residents in Slovenia, Portugal, Austria, France, the United Kingdom, Finland, Sweden, and other EU

countries. They found that the TPB model can be well applied to consumers' green purchasing behavior in these countries.

Knowledge Attitude Behavior Model (KAB)

With in-depth research on knowledge, scholars built an extended TRA model, that is, the Knowledge Attitude Behavior (KAB) model. This model elucidates the impact of knowledge on attitudes and its indirect influence on behavior. Arcury (1990) initially established that environmental knowledge positively influences North American consumers' environmental attitudes and behavioral intentions. Following this, an increasing number of scholars focused on the interconnections among knowledge, attitudes, and behaviors (He et al., 2022). Within the realm of consumer behavior, scholars have explored the correlation between environmental knowledge, attitudes, and green purchase intention/behavior, grounded in the Knowledge-Attitude-Behavior (KAB) framework. Environmental knowledge denotes an individual's comprehension of environmental content (Sultana et al., 2022). Regarding environmental concerns, environmental knowledge has the capacity to alter environmental attitudes and individual green purchasing behavior can likewise be influenced by environmental knowledge. Understanding environmental issues can affect consumers' willingness to purchase environmentally friendly products, leading to environmental behavior.

Green purchase intention

Definition of green purchase intention

Green products, commonly called eco-friendly products, are manufactured using environmentally sustainable technology. They help conserve natural resources, ensure sustainable growth, and maintain human health by reducing environmental pollution and speeding up recycling (Vazifehdoust et al., 2013). The European Union defines green products as using fewer resources, having a lower environmental impact and risk, and producing no waste. China has established General Principles for the Evaluation of Green Products, defining green products as those meeting environmental protection standards, posing minimal harm to ecosystems and human health, consuming limited resources and energy, maintaining high quality, and emitting low carbon emissions throughout their lifecycle. Green products are items manufactured, collected, and packaged using environmentally sustainable materials, aiming to minimize ecological impact across their entire life cycle (Almohammadi & Abdulghaffar, 2022).

The essence of green purchase intention is rooted in the concept of intention, encompassing not only an individual's attitude and responsive inclination towards a specific object but also the subjective likelihood of consumers to procure a particular product or service. Consumer behavior scholars Ajzen and Fishbein (1975) initially introduced the notion of purchase intention, highlighting that it represents the likelihood of consumers acquiring a specific product or service. Within the framework of the theory of planned behavior, behavioral intention signifies the extent to which an individual is inclined to participate in a particular behavior and the level of effort they are prepared to invest in it (Ajzen, 1991). Green purchase intention refers to consumers' propensity to purchase environmentally sustainable products while avoiding those that may adversely affect the environment (Moslehpour et al., 2023). Green purchase intention serves as the foundation supporting consumer purchasing behavior and constitutes a crucial stage in consumers' decision-making process (Ahmad et al., 2023).

With the popularization of the green consumption concept, academics have conducted in-depth research on consumers' green purchase intention. From the psychological perspective, scholars believe

that purchase intention is the performance of consumers at the psychological level and the internal tendency of individual behavior, which is formed under the comprehensive influence of various internal and external factors. If a consumer has a solid psychological identity and a positive attitude towards green products, the consumer's purchase intention of green products will be increased. Purchase intention signifies the psychological resolve of consumers to procure products that fulfill their individual needs through personal experiences and data analysis (Tarabieh, 2021). From a behavioral standpoint, purchase intention is linked to consumer decisions regarding consumption and represents the likelihood of consumers acquiring a product. Ramayah et al. (2010) posited that broadly speaking, green product purchase intention denotes the consumer's inclination to acquire goods after comprehending the environmental impact of the product. In green consumption, consumer purchase intention is a significant factor affecting consumers' decision to buy green goods. Green purchase intention refers to consumers' subjective preferences and efforts they are willing to make when buying green products in the future. Customers' purchase probability will increase with greater demand for a particular product.

In the theory of planned behavior, intention precedes behavior, and the likelihood of behavior occurring can be predicted through intention. Using green purchase intention as an essential indicator to explain and predict green consumption behavior is recognized and confirmed by most scholars (Wijekoon & Sabri, 2021). Measuring the green purchasing behavior of various products in empirical research poses a significant challenge. Hence, researchers frequently adopt green purchase intention as a dependent variable in exploring the determinants of green purchasing behavior, aiming to understand consumers' inclinations toward environmentally friendly purchases.

Influencing factors of green purchase intention

Through the literature review, it is found that the factors affecting consumers' green purchase intention are mainly divided into internal factors and external factors.

Internal factors mainly include the influence of socio-demographic and psychological factors on green consumption intentions. Socio-demographic factors usually include variables such as age, gender, family structure, and education. Researchers have found that older adults and female consumers have higher green product purchase and recycling behaviors (Witek & Kuźniar, 2020). Psychological factors usually refer to environmental attitudes, environmental values, environmental concerns, responsibility, and so on. The findings from numerous scholars' research have validated that environmental attitude serves as a significant explanatory factor for green consumption intention (Zaremohzzabieh et al., 2021). Different dimensions of environmental values can affect green products differently; altruistic and ecological values can promote consumers' green purchases, while self-interested values can inhibit green purchase intention (Chaihanchai & Anantachart, 2023). Environmental concerns will significantly affect green consumption through the mediating mechanism of planned behavior theory (Hauslbauer et al., 2022).

Consumers' green consumption behavior is also influenced by external factors such as environmental knowledge, advertising demands, promotional information framework, product factors, and social norms. Sun et al. (2019) investigated the considerable influence of environmental knowledge on external factors. Per the cognitive learning theory, consumers possessing extensive environmental knowledge are inclined to prioritize the green attributes of products during their purchasing decisions (Lavuri et al., 2023). As for the social aspect, consumers are influenced by subjective norms, power

distance, and so on. In terms of products, the primary determinants influencing consumers' inclination to purchase green products include product pricing and eco-labeling (Hou & Yin, 2022).

Environmental knowledge

Definition of environmental knowledge

Environmental knowledge entails an individual's capacity to comprehend a collection of facts, concepts, and behaviors associated with the environment (Cong Doanh et al., 2021). Environmental knowledge can be defined as "the extent to which consumers understand the facts, concepts, and relationships of the natural environment, ecosystems, and green labels." Environmental knowledge encompasses comprehension of ecosystem functions and issues, behavioral choices, and the acquisition of environmental benefits (Galván-Mendoza et al., 2022). Environmental knowledge involves an individual's grasp of the elements of sustainable development, fundamental relationships, and environmental responsibilities (Zahan et al., 2020). Environmental knowledge refers to the information that individuals possess about the state of the environment, climate change, environmental views, and the ecological effects of consumption and production (Pagiaslis & Krontalis, 2014). According to (D'souza et al., 2006), environmental knowledge extends in two ways: firstly, consumers must be guided to understand the impact of products on the environment; secondly, consumers must ensure that products have gone through environmentally friendly manufacturing processes.

Relationships between environmental knowledge and green purchase intention

Most scholars have indicated a positive correlation between environmental knowledge and green purchase intention, emphasizing that consumers' awareness of environmental issues influences their inclination to purchase green products (Rusyani et al., 2021). Cognitive theory posits that a consumer's decision to engage in a specific consumption choice necessitates acquiring information about the product and developing a corresponding understanding of it. Consumer's accumulated environmental knowledge and their perceptions have a positive effect on their willingness to construct behaviors related to environmental protection. The richer the environmental knowledge they have, the more they are able to notice the potential crisis of environmental problems, and thus, the more they are willing to adjust their daily consumption patterns. In fact, rich environmental knowledge empowers consumers to understand the entire process of environmental problems and their solutions and thus can be used as an effective predictive tool for green consumption behavioral intentions.

Aghighi (2023) conducted a study involving 104 employees of Pelareh Dairy Company in Malayer County. The results revealed that environmental knowledge has a positive and significant impact on behavioral intention. The importance of environmental knowledge was confirmed, and it was suggested that regular training should be conducted to improve the environmental knowledge of employees and managers. Elbarky et al. (2023) investigated 810 samples in Egypt and found that environmental knowledge indirectly affects green purchase intention through green perceived quality and green customer satisfaction.

Accordingly, we make the following hypothesis:

H1: Environmental knowledge has a significant positive impact on green purchase intention.

Relationships between environmental knowledge and environmental attitude

Environmental knowledge plays a crucial role in shaping individuals' attitudes and intentions, as consumers tend to develop more favorable attitudes towards the environment when they acquire pertinent

knowledge about environmental issues and green products in real-world contexts. Attitude is an individual's mental and emotional disposition towards things or behaviors and is usually used to evaluate an individual's perception of something. Environmental knowledge enables individuals to comprehend consumption's positive and negative impacts on the environment. This understanding may foster positive attitudes towards green products manufactured with environmentally friendly raw materials and green technology, subsequently resulting in heightened green purchase intentions (Chanda et al., 2023).

The more robust the environmental knowledge, the greater the inclination to engage in environmentally friendly behaviors, and there exists a significant correlation between environmental knowledge and environmental attitudes. Shah et al. (2021) analyzed the determinants of consumers' willingness to adopt 5G services, noting that environmental knowledge significantly influences attitudes and further behavioral intentions. He et al. (2022) found that environmental knowledge positively affects residents' attitudes toward waste sorting through structural equation modeling and multiple regression analysis. Amoako et al. (2020) evaluated the influence of green knowledge on the green purchasing intention of youth. Their findings suggested that consumers' insufficient knowledge about green products diminishes green purchasing intention and influences purchasing behavior.

Consequently, we formulate the following hypothesis:

H2: Environmental knowledge has a significant positive impact on environmental attitude.

Environmental attitude

Definition of environmental attitude

Attitude refers to an individual's favorable or unfavorable appraisal of a specific behavior (Ajzen, 1991). Attitude is a tendency of the degree of approval or disapproval of a behavior. In this context, attitude represents an assessment of the behavior's desirability, determining whether it is perceived as positive or negative and whether one is inclined to engage in it. Ajzen (2002) viewed attitude as a learned cognitive, affective, and behavioral predisposition for responding positively or negatively to an object, situation, practice, idea, or person. Attitudes characterize consumer likes and dislikes (Blackwell et al., 2006) and, therefore, influence buying behavior. Attitude refers to the extent to which an individual forms a positive or negative evaluation of a particular behavior. Thus, attitudes can be manifested through evaluations, feelings, and tendencies toward a particular behavior or willingness. Research has shown that individuals with more positive attitudes have stronger purchase intentions and that attitude is a favorable predictor of behavioral intentions (Jaiswal & Kant, 2018).

In the environmental field, some scholars have defined attitude as an environmental disposition reflecting an individual's concern for the environment, which ultimately manifests through environmental behavior. Milfont and Duckitt (2010) considered environmental attitudes as psychological dispositions expressed in making good or bad evaluations of the natural environment. Schultz et al. (2004) defined environmental attitudes as "a collection of beliefs, emotions, and behavioral intentions that individuals hold about environmentally relevant activities or issues". Brügger et al. (2011) proposed that individuals' acceptance of nature influences environmental attitudes. Those with negative attitudes toward nature are less inclined to engage in pro-environmental behaviors, whereas individuals with positive attitudes are more likely to adopt pro-environmental behaviors. Stern (2000) argued that

environmental attitudes are behavioral attitudes of individuals towards environmental issues and are an effective type of response, which is a tendency to prefer environmentally friendly behaviors.

Relationships between environmental attitude and green purchase intention

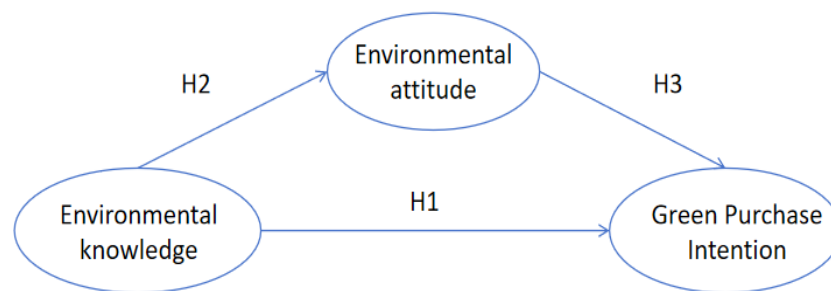
The Theory of Planned Behavior encompasses three key determinants: attitudes, subjective norms, and perceived behavioral control. Attitudes shape behavioral intentions, subsequently influencing individuals' actions. Previous studies have underscored the significance of attitudes as a pivotal factor in forecasting consumer purchasing intentions (Arlı et al., 2018). When an individual holds the belief that engaging in a specific behavior will lead to favorable outcomes, they are likely to harbor a more positive attitude towards that behavior and a heightened behavioral intention (Ajzen, 1991). Behavioral willingness refers to the probability that an individual will partake in behavior, a likelihood that can be influenced by attitudes toward the execution of said behavior. When consumers have more positive attitudes and willingness to perform a task behavior, they are more inclined to participate in a behavior. Attitudes play a pivotal role in behavioral decision-making, with the choice to engage in a specific behavior intricately connected to an individual's attitude (Tonglet et al., 2004). In the examination of individual environmental behavior, environmental attitude represents an individual's subjective inclination towards a specific environmental willingness and behavior.

Therefore, we posit the following hypothesis:

H3: Environmental attitude has a positive influence on green purchase intention.

After reviewing the relevant literature, the conceptual framework and hypotheses are shown in Figure 1.

Figure 1 Conceptual framework



CONCLUSION

This paper constructs a conceptual model on environmental knowledge, environmental attitude, and green purchase intention. It is found that environmental knowledge and environmental attitude play an important role in the formation of individuals' green purchase intentions. Improvement in environmental knowledge can enhance individuals' awareness of environmental issues, leading them to prefer environmentally friendly products. Positive environmental attitudes, on the other hand, are more likely to lead individuals to adopt purchasing behaviors that are in line with the concept of environmental protection. Mixed research methods can be applied in future studies to enrich the understanding of this

issue, with quantitative data providing statistical support and qualitative data digging deeper into the psychological motivations of individuals in the green purchasing process. However, there are still some inconsistencies in the interpretation of the relationship between environmental knowledge, environmental attitudes, and green purchase intentions in some studies, and further research is needed to clarify these associations. Therefore, future research should systematically explore the relationship between environmental knowledge, environmental attitudes, and green purchasing intentions and put forward specific policy recommendations and management strategies in the context of practical situations.

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