**Impact mechanism of Chinese consumers’ ecological environment consciousness on the green value co-creation**

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**Abstract**

**Purpose** – This paper is to reveal the impact mechanism of Chinese consumers’ ecological environment consciousness on green value co-creation through customer perceived value with education level as a moderator variable.

**Design/methodology/approach** – 471 valid questionnaires were collected through the questionnaire star platform. The hypotheses were examined after a common method bias test, reliability analysis, and validity analysis by SPSS 24.0.

**Findings** – Ecological environment consciousness influences green value co-creation significantly; customer-perceived value (respectively functional value, emotional value, and environmental protection value) mediates the impact of ecological environment consciousness on green value co-creation; education level significantly moderates the relationship between ecological environment consciousness and customer-perceived value (functional value excepted).

**Originality/value** – Scholars have paid limited attention to green value co-creation, and have not explored the impact of ecological environment consciousness on consumers’ green value co-creation. The value of this paper is revealing the impact mechanism after the discharge of Japanese nuclear sewage into the sea.

**Keywords** Ecological environment consciousness, Green value co-creation, Customer perceived value, Education level

**Paper type** Research paper

**1. Introduction**

People have continuously pursued economic development by sacrificing the environment since the 1970s, causing severe environmental problems (Yousaf, 2021), such as global climate change, biodiversity reduction, land desertification, ozone layer depletion, and water stress. At 1 pm on August 24, 2023, the Japanese government ignored the doubts and opposition of the international community and unilaterally launched a plan to discharge contaminated water from the Fukushima nuclear accident into the sea for at least thirty years. Japan's discharge of nuclear-contaminated water into the sea will impact not only its own fisheries but also those of other countries. Industries in affected regions around the world may face serious consequences as well (Wu et al., 2023). On February 7, 2024, a leak occurred in the nuclear contaminated water purification device of the Fukushima Daiichi Nuclear Power Plant. Japan's repeated accidents in the process of treating Fukushima nuclear contaminated water have caused widespread concern in Chinese society. The incident may influence the Chinese public’s attitude toward environmental issues in different ways. Some individuals may become more willing to engage in environmental protection, while others may grow indifferent or pessimistic due to the broken window effect. The Fukushima nuclear wastewater incident has become a highly symbolic environmental event in the East Asian context, particularly influencing public ecological sensitivity in China. According to the responsible environmental behavior model (Hines et al., 1987), salient environmental events can increase perceived environmental risk and moral responsibility, which in turn can elevate individuals’ ecological environment consciousness (EEC). In this context, the incident may act as a catalyst, intensifying Chinese consumers’ awareness of ecological issues and potentially triggering stronger pro-environmental behavior, such as green value co-creation (GVC). Therefore, the event is not only a contextual backdrop but also a meaningful stimulus that helps frame and activate the theoretical relationship between EEC and GVC in the Chinese consumer landscape.

Since entering a new era, China has seen rising public expectations for both a better quality of life and a healthy ecological environment. In response, many companies have begun treating environmental protection as a strategic priority for sustainable development (Ge et al., 2020).The concept of “green value co-creation” emerged from the corporate perspective. It emphasizes the importance of businesses collaborating with stakeholders to share environmental values and jointly generate ecological and economic benefits (Chang, 2019). This approach is increasingly recognized as critical for corporate sustainability (Wang et al., 2021).While corporate-led initiatives are foundational, consumer involvement is equally essential. Encouraging customers to participate in co-creating green value enhances not only environmental outcomes but also brand trust, customer satisfaction, and long-term loyalty (Moise et al., 2020). Ecological environment consciousness is an important antecedent in understanding green consumption (Sharma and Bansal, 2013). Existing research finds out ecological environment consciousness influences green purchasing behavior (Mishal *et al.*, 2017), sustainable purchasing behavior (Mishra *et al.*, 2023), ecological fashion consumption (Fu and Kim, 2019), and so on. However, some scholars believe that consumers' environmental responsibility cannot directly promote green consumption behavior(Saif *et al.*, 2024). In addition, the dichotomous green development path that distinguishes green product production and green consumption is difficult to adapt to the needs of changes in the global supply and demand chain. The effectiveness of green value creation relies on value co-creation between green brand companies and consumers.(Ma *et al.*, 2019). Thus it is important to explore the impact of ecological environment consciousness on customers’ value co-creation.

According to the responsible environmental behavior model (Hines *et al.*, 1987), consumers with high environmental responsibility will act pro-environmental behaviors to a greater extent. It can be inferred that the stronger the responsibility for ecological environment protection, the more likely they co-create environmental sustainability value with enterprises. In other words, ecological environment consciousness may trigger green value co-creation behavior. How does ecological environment consciousness affect consumers’ green value co-creation? Customer perceived value is a cognitive process by which individuals associate various stimuli with behavioral outcomes (Yen, 2023), and it is a key mediator variable for converting cognition into behavioral intention (Belanche *et al.*, 2021; Molinillo *et al.*, 2021). In addition, education level is an important demographic characteristic (Sukhu and Scharff, 2018) and is frequently used as a moderator variable in studying consumer behaviors (Latif *et al.*, 2018).

Hence, this empirical research is to reveal how Chinese consumers’ ecological environment consciousness (EEC) influences green value co-creation (GVC) after the discharge of Japanese nuclear sewage into the sea, with the mediator variable of customer-perceived value (CPV) as well as the moderator variable of education level (EL). This paper chooses the context of green daily necessities consumption (i.e. daily necessities are beneficial to the environment and save resources) because of its high usage frequency, large consumption, and wide variety of products. The research conclusion can provide green commodity enterprises suggestions for promoting consumers to actively participate in co-creating green value.

**2. Literature review**

*2.1 Ecological environment consciousness*

Environmental awareness is the degree to an individual’s awareness and solution willingness about environmental problems (Dunlap and Jones, 2002). Scholars have defined environmental awareness from different perspectives. In a broad sense, environmental awareness is a psychological behavior reflecting individuals’ understanding, value judgment, and behavioral willingness towards environmental problems (Zheng, 2010). Environmental awareness is also applied to specific behaviors or situations. For example, environmental awareness refers to individuals’ specific psychological factors driving pro-environmental behaviors (Zelezny and Schultz, 2000). Some scholars believe that environmental awareness is individuals’ overall perception of the environment and concern level about environmental problems, as an adequate predictor of environmentally conscious behavior (Giudici *et al.*, 2019; Oliver *et al.*, 2020). It could also be the examination, behavior of evidence, or personal attitudes towards natural habitats (Ahmed *et al.*, 2021). Individuals’ response to the environment is related to environmental awareness (Chen and Zheng, 2015). This paper defines the EEC as the degree of customers’ understanding and protection of the ecological environment to emphasize consumers’ attention to the ecological environment. EEC includes the understanding of the mutual influence and interdependence among humans, society, and the ecological environment, as well as the ethical relationship between humans and the ecological environment, reflecting the concept and understanding of harmonious coexistence between humans and the ecological environment.To ensure consistency and enhance readability, the abbreviation "EEC" for ecological environment consciousness should be introduced upon its first mention and used uniformly throughout the manuscript. Inconsistencies between the full term and the abbreviated form may cause confusion and disrupt the professional tone of the paper. For clarity, the first occurrence of “ecological environment consciousness” should be followed by its abbreviation in parentheses, and “EEC” should be used exclusively thereafter. This approach aligns with academic writing conventions and supports a more fluid reading experience.

*2.2 Customer-perceived value*

CPV explains that consumers’ purchase is due to the perception of the actual value of products (Poter, 1985). Zeithaml (1988) defines CPV as customers’ comprehensive evaluation of products or services between perceived value and cost provided by enterprises. This viewpoint can be called the “gain and loss balance theory”, which advocates that CPV is the ratio or difference comparing benefits and costs (Dodds *et al.*, 1991). Later, some scholars emphasized that customer value will also be influenced by customer preferences, emotions, and other individual trait factors and situational factors (Holbrook, 1996; Woodruff, 1997) which is called “utility overall evaluation theory”.

The composition of CPV can be divided into single-dimension and multi-dimension. The former is based on the “gain and loss balance theory”, which mainly analyzes CPV from the perspective of comparing profit and loss. The premise of the single dimension is to assume that all consumers have the same understanding of value as the same (Zeithaml, 1988). Consumers’ value perception may be different even towards the same products or services. Therefore, this premise is untenable and lacks validity (Petrick, 2002). Therefore, scholars focus on the development of multidimensional scales. The latter one is based on the “utility overall evaluation theory”. In the early stage, it consisted of utilitarianism and esthetic (Holbrook and Hirschman, 1982). Subsequent scholars adopt these two dimensions (Jackson and Xu, 2022), or expand CPV into more dimensions (Sicilia and Palazón, 2008; Kim and Thapa, 2018; Fu *et al.*, 2018). Consumers will also evaluate the utility of products based on environmental desire, sustainable expectation, and green demand when consuming green consumption (Chen and Chang, 2012). Therefore, the environmental protection value (EPV), reflecting the characteristics of green consumption, is considered besides functional value (FV) and emotional value (EV) in this paper.

*2.3 Green value co-creation*

Customer value co-creation refers to consumers and enterprises co-creating value (Prahalad and Ramaswamy, 2000). Its early idea originated in joint production, and then customer experience and service-dominant logic became the mainstream research perspective (Saxena *et al.*, 2023). Different from the traditional logic of creating value by manufacturers, value co-creation emphasizes consumers’ experience, and integrates customer participation into organizations’ product or service production process. Research on customer value co-creation is carried out in several contexts, such as social media (Brey, 2019), service ecosystems (Peltier *et al.*, 2020), and the sharing economy (Koul *et al.*, 2022). Green practices of service companies will generate new value co-creation that improves customer recognition and consumption (Hsiao *et al.*, 2018). Value co-creation is a new driving force for green customer satisfaction (Bordian *et al.*, 2023).

Customers’ behavior in value co-creation is divided into “role inside” behavior and “role outside” behavior (Yi and Gong, 2013; Agrawal and Rahman, 2015). The former is to ensure the smooth service implementation and service results’ completion, customers must join in the process and delivery of service production, which is the mandatory transaction behavior; the latter is voluntary participation in the promotion of the enterprise or enhance the service performance, for example, customers’ suggestions to improve the service performance, positive word-of-mouth, and recommendation, which are the voluntary non-transaction behaviors. In practice, enterprises long for customers’ non-transaction behaviors (Beckers *et al.*, 2018) and establish long-term relationships with consumers (UI Islam *et al.*, 2019). Hence, this paper defines GVC as activities that consumers voluntarily participate in to promote the interests of green commodity companies or enhance service performance, focusing on the non-transaction behavior of customer value co-creation.

**3. Theoretical model construction and hypotheses**

This paper deeply analyzes the connotation of relevant core concepts and builds the theoretical model of the antecedent variable (EEC), mediator variable (CPV), and moderator variable (EL) of GVC. The model (shown in Figure 1) reveals the relationship and mechanism of the above constructs.

CPV

EEC

GVC

EL

FV

EV

EPV

Figure 1. The theoretical model

*The proposed theoretical model linking ecological environment consciousness (EEC), customer perceived value (CPV: FV, EV, EPV), education level (EL), and green value co-creation (GVC).*

*3.1 Ecological environment consciousness and green value co-creation*

EEC directly affects their environmental responsibility (Kumar and Ghodeswar, 2015). Environmental responsibility leads people to help solve environmental problems based on fully understanding the benefits of the environment (Stone *et al.*, 1995). Based on the responsible environmental behavior model, environmental responsibility is highly relevant to personal pro-environmental behavior, and individuals with high environmental responsibility will take environmentally responsible measures to a greater extent (Hines *et al.*, 1987). Therefore, individuals with high EEC are more concerned about environmental problems (Yue *et al.*, 2020) more prone to give up their interests in environmental protection (Gao *et al.*, 2020), and change their purchasing behaviors to improve the environment (Makhal *et al.*, 2020).

EEC positively affects the consumption habits that are responsible for the environment (Mohd Suki and Mohd Suki, 2015). When customers recognize the effect on the environment on account of consumption habits, they may feel responsible and turn to green consumption (Shimul and Cheah, 2023). Consumers concerned with the ecological environment tend to choose ecologically correct products out of the motivation of environmental benefits (Rana and Paul, 2020). When consumers realize that environmental problems are caused by human factors, they may feel guilty. Consumers who feel guilty are more likely to take compensatory actions, commit to future actions, or increase their willingness to consume sustainably (Allard and White, 2015). For example, the problem of global warming caused by greenhouse gas emissions will trigger public guilt and promote pro-environmental behavior in the US scenario (Malka *et al.*, 2009). Pro-environmental behaviors are closely related to self-transcendence values (Steg *et al.*, 2014). Self-transcendence values make consumers concerned about other people as well as their environment (Bouman *et al.*, 2018). Chinese people are deeply influenced by traditional values such as naturalism, collectivism, and ecological emotion (Chan, 2001), so they are more inclined to show environmentally favorable behaviors. Recent high-profile environmental crises, such as the Fukushima wastewater discharge, may amplify consumers' sense of ecological urgency and moral responsibility, thereby strengthening the pathway from EEC to GVC in real-world contexts. Based on the above theoretical foundations and cultural context, it can be inferred that higher levels of ecological environment consciousness among Chinese consumers increase their likelihood of engaging in green value co-creation behaviors. This includes actions such as recommending green commodities to others or providing feedback to enterprises. To empirically test this relationship, the following hypothesis is proposed:

*H1.* The EEC positively influences the GVC.

*3.2 Mediating effect of customer-perceived value*

Individuals may engage in prosocial behaviors because they believe they are entitled to a feeling of superiority and receive associated benefits from taking these actions(Guo *et al.*, 2022)。 Customer perceived value is a key mediator variable for converting cognition into behavioral intention (Belanche *et al.*, 2021; Molinillo *et al.*, 2021). The mediating effect hypothesis of FV, EV, and EPV is put forward successively.

FV refers to consumers’ perception of the functional efficiency of green daily commodities. It comes from the practicality, functional, or physical properties of the product (Sheth, 1991). FV is considered from quality and price (Sweeney and Soutar, 2001). In terms of quality, consumers with higher EEC will attach higher value to the characteristics of green daily necessities (e.g. environmental protection, natural, pollution-free), and believe green products are more reliable. In terms of price, even if green daily commodities are more expensive, consumers will consider the price reasonable because of the higher cost. Some customers recognize the high price of green products (Lin and Huang, 2012). Hence, H2 is proposed:

*H2.* EEC positively influences FV.

EV refers to consumers’ emotional utility perception of green daily commodities. The green attributes will connect consumers with the ecological environment, thus making consumers feel satisfied, happy, and gained (Hartmann and Apaolaza-Ibáñez, 2012). Although it is difficult for consumers to feel the contribution made by consuming green products in terms of environmental protection, consumers with actual pro-environment behavior are more likely to get positive feelings from environmental protection behavior (Khan and Mohsin, 2017). Therefore, consumers with stronger EEC are more able to arouse positive emotions in green daily necessities, thus H3 is proposed:

*H3.* EEC positively influences EV.

EPV is the green utility that consumers get from the green daily necessities. Consumers’ attention to the ecological environment is not only intended to get the approval or recognition of others but also due to the personal pursuit of EPV. The deeper consumers’ understanding of environmental problems, the more they will protect the environment, to have a more positive perception and recognition of the environmental protection efficiency of green consumption (De Medeiros *et al.*, 2016). Customers with stronger EEC are more concerned about green attributes and the environmental utility of green commodities, thereby enhancing their value perception of environmental protection (Hines *et al.*, 1987). Thus H4 is proposed:

*H4.* EEC positively influences EPV.

CPV is a cognitive process in which individuals link various stimuli with behavioral outcomes (Yen, 2023), and it triggers customer value co-creation (Aslam and Luna, 2021). Individuals will give positive feedback based on the principle of reciprocity when they perceive the benefit. Therefore, consumers will have positive ideas, feelings, and behaviors toward the enterprise after obtaining benefits in the relationship with the enterprise (Kusumawati and Rahayu, 2020). For example, customers with high perceived value will actively contribute their knowledge in the shopping community and subconsciously recommend products and services to people around them, promoting the development of the shopping community (Uzir *et al.*, 2021). As a result, customer perception of value positively affects customer value co-creation. Given that customer-perceived value serves as the cognitive mechanism linking environmental awareness to consumer behavior, it is reasonable to posit that it mediates the relationship between ecological environment consciousness and green value co-creation. Accordingly, the following hypotheses are developed to capture the distinct mediating roles of functional, emotional, and environmental value perceptions:

*H5.* Functional value mediates the impact of the EEC on the GVC.

*H6.* EV mediates the impact of EEC on GVC.

*H7.* EPV mediates the impact of EEC on GVC.

*3.3 Moderating effect of education level*

In psychology, EL affects cognitive functions (e.g. concept formation, vocabulary expression, memory) (Ardila and Moreno, 2001). Less educated consumers have difficulty processing complex stimuli and information due to lower cognitive skills and processing abilities(Talwar *et al.*, 2021; Sharma *et al.,* 2023). Consumers with higher EL have higher knowledge levels and stronger thinking abilities, comprehension abilities, and analysis abilities. Consumers with different ELs will respond differently even to the same stimulus. For example, EL is a positive moderator variable of recycling attitude and intention that the positive relationship will be weakened when the EL is low (Latif *et al.*, 2018). Furthermore, a positive moderating effect also exists between corporate social responsibility belief and consumers’ loyalty (Sukhu and Scharff, 2018).

The higher the consumers’ EL is, the more consumers pay attention to the quality and price of products, hoping to obtain better social interaction and recognition from others (Astari *et al.*, 2015). For consumers with higher education, when their EEC is stronger, consumers will think that green daily commodities have higher FV and can bring higher positive emotions, and purchasing and using green daily commodities can make more contribution to environmental protection; for consumers with lower education, the positive effect is weaker. These findings underscore the importance of consumers’ cognitive capacity in processing environmental information. Since education level may shape consumers’ interpretations of green product attributes, it is hypothesized that it moderates the relationship between ecological environment consciousness and perceived value dimensions. Thus, the following moderation hypotheses are put forward:

*H8.* EL positively moderates the relationship between EEC and FV.

*H9.* EL positively moderates the relationship between EEC and EV.

H10. EL positively moderates the relationship between EEC and EPV.

**4. Research methods**

*4.1 Questionnaire design and variable measurement*

The research method is a questionnaire survey. The preamble informs respondents that this survey is anonymous and voluntary with no commercial purpose to make the respondents answer seriously. Gratitude is expressed to the respondents at the beginning and the end of the questionnaire. Respondents who have no consumption experience of green daily necessities do not need to answer.

The main content of the questionnaire has two parts. In the first part, the respondents are asked to recall the most impressive consumption of green daily necessities and answer the scales of EEC, CPV, and GVC according to the recalled experience. A 5-point Likert scale is applied from 1=strongly disagree to 5=strongly agree. Reverse questions were set to test whether the respondents answered carefully, and the reverse questions were converted during data analysis. The second part is the respondents’ basic information (e.g. gender, occupation, education level).

EEC scale refers to the “ecological consciousness” scale (Mishra *et al.*, 2023), including four items such as “Humans should change their behavior appropriately to reduce the consumption of natural resources”.

FV scale refers to the “functional value” scale (Khan and Mohsin, 2017), including three items such as “Green daily necessities are durable and practical”.

EV scale refers to the “emotional value” scale (Sweeney and Soutar, 2001; Joshi *et al.*, 2021), including three items such as “Green daily necessities bring me a pleasant feeling”.

EPV scale refers to the “green perceived value” (Chen and Chang, 2012) and the “environmental value” scale (Ganji *et al.*, 2021) based on the definition, including three items such as “Green daily necessities help improve the ecological environment”.

GVC scale refers to the “customer value co-creation” scale (Moise *et al.*, 2020), including four items such as “I will provide my creativity or ideas for developing new products for green daily necessities enterprises”.

Three scholars of value co-creation were invited for semantic analysis and content confirmation of the questionnaire, and the ambiguous items were corrected to ensure content validity. Then 100 consumers were invited for a pretest. The initial questionnaire was purified by using statistical methods such as correlation analysis of individual items and total scores and exploratory factor analysis, thereby the final questionnaire was formed.

*4.2 Data collection*

542 questionnaires were collected from the Questionnaire Star platform. Respondents’ IP address covers northeast China (the sample size in descending order are Liaoning, Jilin, and Heilongjiang respectively, the same below), northwest China (Shaanxi, Xinjiang, and Gansu), north China (Shanxi, Hebei, Beijing, Inner Mongolia, and Tianjin), east China (Shandong, Zhejiang, Shanghai, Jiangsu, Anhui, and Fujian), central China (Henan, Hubei, and Hunan), south China (Guangdong and Hainan), southwest (Sichuan, Yunnan, and Guizhou), a total of 25 provinces.

Invalid questionnaires were removed that the answer time was lower than 3 times the standard deviation of the average answer time, or the answers were inconsistent or showed obvious regularity. 471 valid questionnaires were retained. 243 respondents were men and 228 were female with a similar proportion. The sample was relatively evenly distributed in terms of other demographic characteristics, reflecting the good representation of the samples. Table 1 shows sample basic information.

Table 1. Sample basic information

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Number | Item | Frequency | Percentage |
| Gender | 1 | Male | 243 | 51.6% |
|  | 2 | Female | 228 | 48.4% |
| Age | 1 | < 18 | 14 | 3.0% |
|  | 2 | 18 ~ 24 | 85 | 18.0% |
|  | 3 | 25 ~ 29 | 107 | 22.7% |
|  | 4 | 30 ~ 39 | 120 | 25.5% |
|  | 5 | 40 ~ 49 | 91 | 19.3% |
|  | 6 | > 50 | 54 | 11.5% |
| Occupation | 1 | Government and public institution staff | 59 | 12.5% |
|  | 2 | Freelance | 77 | 16.3% |
|  | 3 | Individual business | 49 | 10.4% |
|  | 4 | Service industry personnel | 78 | 16.6% |
|  | 5 | Professional technical personnel | 66 | 14.0% |
|  | 6 | Student | 101 | 21.4% |
|  | 7 | Other | 41 | 8.7% |
| Education level | 1 | < Junior high school | 48 | 10.2% |
|  | 2 | High school / technical secondary school | 113 | 24.0% |
|  | 3 | Junior college | 94 | 20.0% |
|  | 4 | Undergraduate | 133 | 28.2% |
|  | 5 | Postgraduate | 83 | 17.6% |
| Income per month (RMB) | 1 | < 1000 | 29 | 6.2% |
|  | 2 | 1000 ~ 3000 | 145 | 30.8% |
|  | 3 | 3000 ~ 5000 | 173 | 36.7% |
|  | 4 | 5000 ~ 7000 | 84 | 17.8% |
|  | 5 | > 7000 | 40 | 8.5% |

**5. Results**

*5.1 Common method bias test*

Common method bias was controlled in procedural and statistical ways. In procedural control, methods such as anonymous voluntary filling and setting reverse questions were adopt. In statistical control, 36.838% (variance interpretation rate without rotation) was below the criterion of 50% by the single-factor test. The correlation coefficients before control and the partial correlation coefficients after control were all significant by partial correlation analysis. Therefore, common method bias was within the acceptable range.

*5.2 Reliability analysis and validity analysis*

The reliability and validity were tested by SPSS 24.0. Results in Table 2 show that Cronbach’s α and combined reliability coefficient (CR) exceeded 0.7, indicating good reliability. All the factor loading and average variance extracted (AVE) exceeded 0.5, indicating a good convergence validity.

Table 2. Reliability and convergence validity test

Note: All Cronbach’s α and CR values exceed 0.7; all AVE values exceed 0.5, indicating acceptable reliability and convergent validity.

|  |  |
| --- | --- |
| Variables and scale items | Factor loading |
| *Ecological Environment Consciousness (Cronbach’s α=*0.758*, CR=*0.847*, AVE=*0.582*)* |  |
| EEC1: Humans should change their behavior appropriately to reduce the consumption of natural resources | 0.685 |
| EEC2: Economic development must be synchronized with environmental protection | 0.784 |
| EEC3: Each of us should recognize the necessity of protecting the environment | 0.814 |
| EEC4: I have a responsibility to do my best to protect the environment and save resources | 0.763 |
| *Functional Value (Cronbach’s α=*0.807*, CR=*0.866*, AVE=*0.722*)* |  |
| FV1: Green daily necessities are durable and practical | 0.824 |
| FV2: Green daily necessities are cost-effective | 0.900 |
| FV3: Reasonable prices for green daily necessities | 0.823 |
| *Emotional Value (Cronbach’s α=*0.849*, CR=*0.909*, AVE=*0.770*)* |  |
| EV1: Green daily necessities bring me a pleasant feeling | 0.871 |
| EV2: Green daily necessities make me feel good | 0.899 |
| EV3: Green daily necessities give me a better person feeling | 0.862 |
| *Environmental Protection Value (Cronbach’s α=*0.741*, CR=*0.854*, AVE=*0.662*)* |  |
| EPV1: Green daily necessities help improve the ecological environment | 0.830 |
| EPV2: Using green daily necessities will reduce environmental pollution | 0.832 |
| EPV3: Using green daily necessities can help raise environmental awareness | 0.778 |
| *Green Value Co-creation (Cronbach’s α=*0.792*, CR=*0.876*, AVE=*0.640*)* |  |
| GVC1: I will provide my creativity or ideas for developing new products for green daily necessities enterprises | 0.755 |
| GVC2: I won’t recommend others to use green daily necessities R | 0.861 |
| GVC3: I will provide useful feedback to green commodity enterprises | 0.732 |
| GVC4: I will provide advice to others and help them choose green daily necessities | 0.845 |

Note: The item marked with R is a reverse question

The AVE square root of latent variables (the diagonal data in Table 3) was greater than the correlation coefficients between this latent variable and others, which indicated that the variation of the items corresponding to this latent variable factor was far greater than its interpretation of the variation of other measurement items. Therefore, each latent variable had a good discrimination validity.

Table 3. Discrimination validity test

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | Mean | SD | EEC | FV | EV | EPV | GVC |
| Ecological environment consciousness (EEC) | 4.436 | 0.498 | **0.763** |  |  |  |  |
| Functional value (FV) | 3.872 | 0.658 | 0.264\*\*\* | **0.850** |  |  |  |
| Emotional value (EV) | 3.777 | 0.716 | 0.257\*\*\* | 0.533\*\*\* | **0.877** |  |  |
| Environmental protection value (EPV) | 4.266 | 0.551 | 0.385\*\*\* | 0.505\*\*\* | 0.489\*\*\* | **0.814** |  |
| Green value co-creation (GVC) | 3.757 | 0.693 | 0.260\*\*\* | 0.513\*\*\* | 0.561\*\*\* | 0.530\*\*\* | **0.800** |

Note: \* *p*<0.05; \*\* *p*<0.01; \*\*\* *p*<0.001.

*5.3 Hypothesis test*

H1, H2, H3, and H4 were tested by regression analysis. The positive impact of EEC on GVC (*β*=0.304), FV (*β*=0.289), EV (*β*=0.267), and EPV (*β*=0.391) was significant at the level of 0.001 after controlling for demographic variables, hence these four hypotheses were supported.

The mediating effect of CPV (H5, H6, and H7) was tested with standardized data by PROCESS. In model 4, the dependent and independent variables were GVC and EEC respectively, the mediator variables were FV, EV, and EPV, the control variables were demographic, and other parameters were set as the default value. Tables 4 and 5 present the results of the above analysis.

Table 4. Regression analysis

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | | *β* | *t* | *p*-value | LLCI | ULCI |
| Mediator variable | FV | 0.190 | 4.379 | 0.000 | 0.105 | 0.275 |
|  | EV | 0.323 | 7.559 | 0.000 | 0.239 | 0.407 |
|  | EPV | 0.258 | 5.911 | 0.000 | 0.172 | 0.343 |
| Independent variable | EEC | 0.062 | 1.585 | 0.114 | -0.015 | 0.138 |

Table 5. Indirect effect test

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Mediator variables | Sobel test | | Bootstrap test | | | |
| *Z* | *p*-value | Effect | Boot SE | Boot LLCI | Boot ULCI | |
| FV | 3.556 | 0.000 | 0.055 | 0.021 | 0.022 | 0.102 |
| EV | 4.543 | 0.000 | 0.086 | 0.026 | 0.042 | 0.143 |
| EPV | 4.886 | 0.000 | 0.101 | 0.028 | 0.052 | 0.163 |

*Note: Bootstrap 95% confidence intervals do not contain zero, indicating significant mediating effects of functional value (FV), emotional value (EV), and environmental protection value (EPV).*

Table 4 showed that when EEC, CPV, and control variables were brought into the model, FV (*β*=0.190), EV (*β*=0.323), and EPV (*β*=0.258) significantly influenced GVC at the level of 0.001, while the impact of EEC on GVC was not significant (*β*=0.062, *p*>0.05). Table 5 showed that the *Z*-values of all the mediating effects were more than 2.56, which was significant at the level of 0.001; the 95% confidence intervals of all the mediating effects did not contain 0, thus mediating effects were significant, and hence these three hypotheses were supported.

The moderating effect of EL (H8, H9, and H10) was tested by PROCESS. In model 1, the dependent variables were FV, EV, and environmental value respectively, the independent variable was EEC, the moderator variable was EL, the control variable was other demographic variables, and other parameters were set as default values. Table 6 presents the moderating effect analysis results.

Table 6 showed that (1) EL did not moderate the impact of EEC on FV (R2-chng=0.000, *p*>0.05). When the consumer EL was junior middle school or below, the influence of EEC on FV was significant at 0.01 level, when consumers were at other levels of education, the influence of EEC on FV was significant at 0.001 level. The significance of the positive moderating effect is lower than the standard level, thus H8 was not supported. (2) EL moderated the effect of EEC on EV significantly (R2-chng=0.011, *p*<0.05). When the EL of consumers was junior high school or below, the influence of EEC on EV was not significant; when the EL of consumers was high school or technical secondary school, the influence of EEC on EV was significant at 0.05 level; when consumers were at other EL, the influence of EEC on EV was significant at 0.001 level. The higher the EL, the greater the impact of EEC on EV. Thus H9 was supported. (3) EL moderated the effect of EEC on EPV significantly (R2-chng=0.023, *p*<0.001). When consumers’ EL was junior high school or below, the influence of EEC on EPV was not significant, while the consumer was at other EL, the influence of EEC on EPV was significant at 0.001 level. The higher the EL, the greater the impact of EEC on EPV. Thus H10 was supported.

Table 6. The moderating effect of EL

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Path | Number of EL | R2 increase due to interaction | | Direct effects in different conditions | | | |
| R2-chng | *p*-value | Effect | *p*-value | LLCI | ULCI |
| EEC → FV | 1 | 0.000 | 0.641 | 0.251 | 0.007 | 0.069 | 0.434 |
| 2 | 0.268 | 0.000 | 0.143 | 0.394 |
| 3 | 0.285 | 0.000 | 0.193 | 0.378 |
| 4 | 0.302 | 0.000 | 0.195 | 0.409 |
| 5 | 0.319 | 0.000 | 0.162 | 0.476 |
| EEC → EV | 1 | 0.011 | 0.019 | 0.077 | 0.408 | -0.106 | 0.260 |
| 2 | 0.163 | 0.011 | 0.037 | 0.289 |
| 3 | 0.249 | 0.000 | 0.157 | 0.341 |
| 4 | 0.335 | 0.000 | 0.228 | 0.442 |
| 5 | 0.421 | 0.000 | 0.264 | 0.578 |
| EEC → EPV | 1 | 0.023 | 0.000 | 0.119 | 0.177 | -0.054 | 0.292 |
| 2 | 0.242 | 0.000 | 0.123 | 0.361 |
| 3 | 0.365 | 0.000 | 0.278 | 0.452 |
| 4 | 0.488 | 0.000 | 0.387 | 0.590 |
| 5 | 0.611 | 0.000 | 0.462 | 0.760 |

**6. Conclusions and Implications**

*6.1 Research conclusions*

This paper explores the impact mechanism of Chinese consumers’ EEC on GVC after the discharge of Japanese nuclear sewage into the sea. The conclusions are shown as follows.

(1) EEC influences consumers’ GVC positively. The higher the EEC of consumers is, the more inclined they are to co-create green value. GVC includes providing ideas or thoughts about new products and useful feedback to green daily commodity enterprises; recommending to other consumers and helping others to choose green daily commodities.

(2) CPV is a mediator variable of EEC and GVC. CPV is measured by FV, EV, and EPV. Consumers’ EEC influences GVC through CPV, and the mediating effect is significant. It shows that the stronger consumers’ EEC is, the more they can perceive the value of green daily commodities, and the more they tend to co-create green value.

(3) EL significantly moderates the relationship between EEC and EV as well as EPV. With the increase in EL, the effect of ecological environmental consciousness on EV and EPV becomes greater. Although the higher the consumers’education level, the greater the impact of the EEC on the functional value, it does not reach the level of statistical significance, that is, EEC indiscriminately influences the FV of green daily necessities among consumers with different EL.

*6.2 Theoretical contributions*

Theoretical contributions in the fields of EEC, CPV, and GVC are summarized below.

(1) Existing research on green consumption pays attention to the psychology or behaviors related to transactions, such as green purchase intention (Kaur and Gangwar, 2022; Hartmann and Apaolaza-Ibáñez, 2012), purchase decision (Kumar and Ghodeswar, 2015; De Medeiros *et al.*, 2016), and purchasing behavior (Taufique and Vaithianathan, 2018; Mishal *et al.*, 2017), while the research on non-transaction behavior is limited. This paper reveals the influence of EEC on GVC as the non-transaction behavior from consumers’ perspective. Conclusions enrich existing research on green consumption.

(2) This paper examines the mediating mechanism in the relationship between the EEC and the GVC. The mediating role of CPV has been widely examined. Some studies have refined CPV as a mediator variable (Yen, 2023; Fu *et al.*, 2018; Mainardes and Freitas, 2023), while others have studied CPV as a whole variable (Molinillo *et al.*, 2021; Kusumawati and Rahayu, 2020; Wang and Chiu, 2023). This paper applies the CPV to a new path and divides it into FV, EV, and EPV, combined with the characteristics of green consumption. The conclusion not only makes up for the gap in the mediating effect between EEC and GVC but also makes the mediating role more detailed.

(3) This paper reveals the boundary conditions of the effect of EEC on CPV. Existing research studied EL as a moderator variable in the relationship between consumer attitude and behavior intention (Latif *et al.*, 2018) while existing studies have not explored its moderating role between EEC and CPV. This paper verifies the moderating effect of EL on EEC and CPV (FV excepted), which is also a new finding in this study.

*6.3 Management implications*

The conclusions bring inspiration for management practice to promote consumers’ GVC.

(1) The government, green daily commodity enterprises, and social organizations should enhance consumers’ EEC in multiple ways. The government should do top-level design well, formulate relevant policies and regulations, and let the public establish the concept of low-carbon, conservation, and environmental protection. Green daily commodity enterprises can invite consumers to visit green production links and environmental protection achievements by holding open visit activities, to spread the importance and necessity of green production to consumers. Social organizations can organize various activities to mobilize the public to participate in environmental protection activities to publicize the ecological concept and practical experience of harmonious coexistence between man and nature.

(2) Green daily commodity enterprises should enhance consumers’ value perception of green daily necessities. Green daily commodity enterprises publicize the attention to the ecological environment in the process of production and operation to consumers, emphasizing the green protection, natural, pollution-free, and other green attributes of products, so that consumers realize the substantive difference between green commodity and ordinary daily necessities. Therefore, consumers will think that green daily necessities are worth the money and are willing to accept higher prices. They will also get a pleasant feeling of living in harmony with nature because of buying and using green daily necessities, and will also get a sense of achievement in contributing to environmental protection.

(3) Green daily commodity enterprises must take proactive steps to enhance consumers’ education levels. One approach is to establish scholarships and educational grants in collaboration with academic institutions, thereby promoting long-term consumer development. Additionally, companies are encouraged to implement systematic outreach programs—including educational campaigns via public platforms, livestreams, and curated content—to expand consumer knowledge on environmental protection and sustainable consumption. In the face of highly educated consumers, green daily commodity enterprises can highlight the green attributes of their products, awaken consumers’ environmental awareness, and enhance consumers’ perception of the value of green daily necessities to promote co-creating green value.

*6.4 Research limitations and prospects*

The prospect of GVC will be broad as EEC attracts more and more attention. Research limitations and further suggestions are as follows. (1) The research data only came from the online data collection platform, thus some disadvantages of online questionnaire collection also exist in this survey. In future research, diversification of survey methods can be used to make up for the shortcomings of a single survey. (2) This study examines the mechanism of EEC on GVC through CPV and the moderating effect of EL. Other mediator variables (e.g. environmental responsibility, natural empathy, and environmental commitment) and moderator variables (e.g. green involvement, product status symbol attributes, and other demographic variables) can be explored in the future. (3) Only Chinese consumers are investigated in this study. It should be noted that when facing the same problem or phenomenon, consumers with different cultural and social structures may have different psychology and behavior. Therefore, the influence level and mechanism of EEC on GVC may be different, which needs to be further tested by subsequent cross-cultural studies.

**References**

Agrawal, A.K. and Rahman Z. (2015), “Roles and resource contributions of customers in value co-creation”, *International Strategic Management Review*, Vol. 3 Nos 1/2, pp. 144-160.

Ahmed, N., Li, C., Khan, A., Qalati, S.A., Naz, S. and Rana, F. (2021), “Purchase intention toward organic food among young consumers using theory of planned behavior: role of environmental concerns and environmental awareness”, *Journal of Environmental Planning and Management*, Vol. 64 No. 5, pp. 796-822.

Allard, T. and White, K. (2015), “Cross-domain effects of guilt on desire for self-improvement products”, *Journal of Consumer Research*, 2015, Vol. 42 No. 3, pp. 401-419.

Ardila, A. and Moreno, S. (2001), “Neuropsychological test performance in Auuaco Indians: an exploratory study”, *Journal of the International Neuropsychological Society*,Vol. 7 No. 4, pp. 510-515.

Aslam, W. and Luna, I.R.de. (2021). “The relationship between brand Facebook page characteristics, perceived value, and customer engagement behavior: an application of Stimulus-Organism-Response (S-O-R)”, *Review of Business Management*, Vol. *23* No. 1, pp. 43-62.

Astari, K.A.D., Arsa, K.S., Iristianty, L.C. and Riandana, S. (2015), “Analysis of consumer psychology subject to daily time and level of education in Indonesia”, *Journal of Economics, Business and Management*, Vol. *3* No. 4, pp. 470-478.

Beckers, S.F.M., van Doorn, J. and Verhoef, P.C. (2018), “Good, better, engaged? The effect of company-initiated customer engagement behavior on shareholder value”, *Journal of the Academy of Marketing Science*, Vol. 46 No. 3, pp. 366-383.

Belanche, D., Casaló, L.V., Schepers, J. and Flavián, C. (2021), “Examining the effects of robots’ physical appearance, warmth, and competence in frontline services: the humanness-value-loyalty model”, *Psychology & Marketing*, Vol. *38* No. 12, pp. 2357-2376.

Bordian, M., Gil-Saura, I. and Šerić, M. (2023), “The impact of value co-creation in sustainable services: understanding generational differences”, *Journal of Services Marketing*, Vol. 37 No. 2, pp. 155-167.

Bouman, T., Steg, L. and Kiers, H.A.L. (2018), “Measuring values in environmental research: a test of an environmental portrait value questionnaire”, *Frontiers in Psychology*, Vol. *9*, 564.

Brey, E.T. (2019), “Co-creating value from social media: a framework”, *Journal of Creating Value*, Vol. 5 No. 2, pp. 222-236.

Chan R Y K. (2001), “Determinants of Chinese consumers’ green purchase behavior”, *Psychology & Marketing*, Vol. 18 No. 4, pp. 389-413.

Chang C H. (2019), “Do green motives influence green product innovation? The mediating role of green value co-creation”, *Corporate Social Responsibility and Environmental Management*, Vol. 26 No. 2, pp. 330-340.

Chen, Y. and Chang, C. (2012), “Enhance green purchase intentions: the roles of green perceived value, green perceived risk, and green trust”, *Management Decision*, Vol. 50 No. 3, pp. 502-520.

Chen, Y. and Zheng, Y. (2015), “Cross-national analysis on sensitivity to environmental quality and its change in East Asia”, *Advances in Applied Sociology*, Vol. 5 No. 6, pp. 183-194.

De Medeiros, J.F., Ribeiro, J.L.D. and Cortimiglia, M.N. (2016), “Influence of perceived value on purchasing decisions of green products in Brazil”, *Journal of cleaner production*, Vol. 110, pp. 158-169.

Dodds, W.B., Monroe, K.B. and Grewal, D. (1991), “Effects of price, brand, and store information on buyers’ product evaluations”, *Journal of Marketing Research*, Vol. 28 No. 3, pp. 307-319.

Dunlap R.E. and Jones RE. (2002), “Environmental concern: conceptual and measurement issues”, in Dunlap, R.E. and Michelson, W. (Eds), *Handbook of Environmental Sociology*, Greenwood Press, pp. 482-524.

Fu, W. and Kim, Y.K. (2019), “Eco-fashion consumption: cognitive‐experiential self-theory”, *Family and Consumer Sciences Research Journal*, Vol. 47 No. 3, pp. 220-236.

Fu, Y., Liu, X., Wang, Y. and Chao, R.F. (2018), “How experiential consumption moderates the effects of souvenir authenticity on behavioral intention through perceived value”, *Tourism Management*, Vol. 69, pp. 356-367.

Ganji, S.F.G., Johnson, L.W. and Sadeghian, S. (2021), “The effect of place image and place attachment on residents’ perceived value and support for tourism development”, *Current Issues in Tourism*, Vol. 24 No. 9, pp. 1304-1318.

Gao, Z., Li, C., Bai, J. and Fu, J. (2020), “Chinese consumer quality perception and preference of sustainable milk”, *China Economic Review*, Vol. 59, 100939.

Ge, W., Sheng, G. and Gong, S. (2020), “Research on the Formation Mechanism of Consumers’ Green Value Co-creation Intention”, *Soft Science*, Vol. 34 No. 1, pp.13-18.

Giudici, G., Guerini, M. and Rossi-Lamastra, C. (2019), “The creation of cleantech startups at the local level: the role of knowledge availability and environmental awareness”, *Small Business Economics*, Vol. 52 No. 4, pp. 815-830.

Guo, Y., Chen, X., Ma, J., Li, Y. and Hommey, C. (2022), “How belief in a just world leads to prosocial

behaviours: the role of communal orientation”, *Personality and Individual Differences*, Vol. 195, pp. 1-9.

Hartmann, P. and Apaolaza-Ibáñez, V. (2012), “Consumer attitude and purchase intention toward green energy brands: the roles of psychological benefits and environmental concern”, *Journal of Business Research,* Vol. 65 No. 9, pp. 1254-1263.

Hines, J.M., Hungerford, H.R. and Tomera, A.N. (1987), “Analysis and synthesis of research on responsible environmental behavior: a meta-analysis”, *The Journal of Environmental Education*, Vol. 18 No. 2, pp. 1-8.

Holbrook, M.B. (1996), “Customer value: a framework for analysis and research”, *Advances in Consumer Research*, Vol. 23 No. 1, pp. 138-142.

Holbrook, M.B. and Hirschman, E.C. (1982), “The experiential aspects of consumption: consumer fantasies, feelings, and fun”, *Journal of Consumer Research*, Vol. 9 No. 2, pp. 132-140.

Hsiao, T.Y., Chuang, C.M. and Huang, L. (2018), “The contents, determinants, and strategic procedure for implementing suitable green activities in star hotels”, *International Journal of Hospitality Management*, Vol. 69 No. 3, pp. 1-13.

Jackson, J.E. and Xu, X. (2022), “Does scarcity add value in influencing consumers in the try-before-you-buy model?”, *International Journal of Electronic Commerce*, Vol. 26 No. 1, pp. 25-48.

Joshi, Y., Uniyal, D.P. and Sangroya, D. (2021), “Investigating consumers’ green purchase intention: examining the role of economic value, emotional value and perceived marketplace influence”, *Journal of Cleaner Production*, Vol. 328, 129638.

Kaur, B., Gangwar, V.P. and Dash, G. (2022), “Green marketing strategies, environmental attitude, and green buying intention: a multi-group analysis in an emerging economy context”, *Sustainability*, Vol. 14 No. 10, 6107.

Khan, S.N. and Mohsin, M. (2017), “The power of emotional value: exploring the effects of values on green product consumer choice behavior”, *Journal of Cleaner Production*, Vol. 150, pp. 65-74.

Kim, M. and Thapa, B. (2018), “Perceived value and flow experience: application in a nature-based tourism context”, *Journal of Destination Marketing & Management*, Vol. 8 No. 2, pp. 373-384.

Koul, S., Jasrotia, S.S. and Mishra, H.G. (2022), “Value co-creation in sharing economy: in Indian experience”, *Journal of the Knowledge Economy*, Vol. 13, pp. 387-405.

Kumar, P. and Ghodeswar, B.M. (2015), “Factors affecting consumers’ green product purchase decisions”, *Marketing Intelligence & Planning*, Vol. 33 No. 3, pp. 330-347.

Kusumawati, A. and Rahayu, K.S. (2020), “The effect of experience quality on customer perceived value and customer satisfaction and its impact on customer loyalty”, *The TQM Journal*, Vol. 32 No. 6, pp. 1525-1540.

Latif, S.A., Bidin, Y.H. and Awang, Z. (2018), “The moderating role of the residents’ education level in the realization of green cities”, *Asian Journal of Behavioural Studies*, Vol. 3 No. 10, pp. 175-182.

Lin, P.C. and Huang, Y.H. (2012). “The influence factors on choice behavior regarding green products based on the theory of consumption values”, *Journal of Cleaner Production*, Vol. 22 No. 1, pp. 11-18.

Ma, Y., Rong, K., Luo, Y., Wang, Y., Mangalagiu, D. and Thornton, T.F. (2019). “Value co-creation for sustainable consumption and production in the sharing economy in china”, *Journal of Cleaner Production*, Vol. 208, pp. 1148-1158.

Mainardes, E.W. and Freitas, N.P.d. (2023), “The effects of perceived value dimensions on customer satisfaction and loyalty: a comparison between traditional banks and fintechs”, *International Journal of Bank Marketing*, Vol. 41 No. 3, pp. 641-662.

Makhal, A., Robertson, K., Thyne, M. and Mirosa, M. (2020), “Normalising the ‘ugly’ to reduce food waste: exploring the socialisations that form appearance preferences for fresh fruits and vegetables”, *Journal of Consumer Behaviour*, Vol. 20 No. 5, pp. 1025-1039.

Malka, A., Krosnick, J.A. and Langer, G. (2009), “The association of knowledge with concern about global warming: trusted information sources shape public thinking”, *Risk Analysis*, Vol. 29 No. 5, pp. 633-647.

Mishal, A., Dubey, R., Gupta, O.K. and Luo, Z. (2017), “Dynamics of environmental consciousness and green purchase behaviour: an empirical study”, *International Journal of Climate Change Strategies and Management*, Vol. 9 No. 5, pp. 682-706.

Mishra, S., Malhotra, G., Chatterjee, R. and Kareem Abdul, W. (2023), “Ecological consciousness and sustainable purchase behavior: the mediating role of psychological ownership”, *Asia Pacific Journal of Marketing and Logistics*, Vol. 35 No. 2, pp. 414-431.

Mohd Suki, N. and Mohd Suki, N. (2015), “Does religion influence consumers’ green food consumption? Some insights from Malaysia”, *Journal of Consumer Marketing*, Vol. 32 No. 7, pp. 551-563.

Moise, M.S., Gil-Saura, I. and Ruiz-Molina, M.E. (2020), “Implications of value co-creation in green hotels: the moderating effect of trip purpose and generational cohort”, *Sustainability*, Vol. 12 No. 23, 9866.

Molinillo, S., Aguilar-Illescas, R., Anaya-Sánchez, R. and Liébana-Cabanillas, F. (2021), “Social commerce website design, perceived value and loyalty behavior intentions: the moderating roles of gender, age and frequency of use”, *Journal of Retailing and Consumer Services*, Vol. 63, 102404.

Oliver, D.M., Zheng, Y., Naylor, L.A., Murtagh, M., Waldron, S. and Peng, T. (2020), “How does smallholder farming practice and environmental awareness vary across village communities in the karst terrain of southwest China?”, *Agriculture, Ecosystems & Environment*, Vol. 288, 106715.

Peltier, J.W., Dahl, A.J. and Swan, E.L. (2020), “Digital information flows across a B2C/C2C continuum and technological innovations in service ecosystems: a service-dominant logic perspective”, *Journal of Business Research*, Vol. 121, pp. 724-734.

Petrick, J.F. (2002), “Development of a multi-dimensional scale for measuring the perceived value of a service”, *Journal of Leisure Research*, Vol. 34 No. 2, pp. 119-134.

Porter, M.E. (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*, Free Press, pp. 1-10.

Prahalad, C.K., Ramaswamy, V. (2000), “Co-opting customer competence”, *Harvard Business Review*, Vol. 78 No. 1, pp. 79-87.

Rana, J. and Paul, J. (2020), “Health motive and the purchase of organic food: a meta-analytic review”, *International Journal of Consumer Studies*, Vol. 44 No. 2, pp. 162-171.

Saif, S., Zameer, H., Wang, Y. and Ali, Q. (2024), “The effect of retailer CSR and consumer environmental responsibility on green consumption behaviors: mediation of environmental concern and customer trust”, *Marketing Intelligence & Planning,* Vol. 42 No. 1, pp. 149-167.

Saxena, S., Amritesh, Mishra, S.C. and Mukerji, B. (2023), “A multi-method bibliometric review of value co-creation research”, *Management Research Review*, Vol. ahead-of-print No. ahead-of-print, doi: 10.1108/MRR-09-2022-0646

Sharma, A., Pandher, J.S. and Prakash, G. (2023), “Consumer confusion and decision postponement in the online tourism domain: the moderating role of self-efficacy”, *Journal of Hospitality and Tourism Insights*, Vol. 6 No. 2, pp.1092-1117.

Sharma, K. and Bansal M. (2013), “Environmental consciousness, its antecedents and behavioural outcomes”, *Journal of Indian Business Research*, Vol. 5 No. 3, pp. 198-214.

Sheth, J.N., Newman, B.I. and Gross B.L. (1991), “Why we buy what we buy: a theory of consumption values”, *Journal of Business Research*, Vol. 22 No. 2, pp. 159-170.

Shimul, A.S. and Cheah, I. (2023), “Consumers’ preference for eco-friendly packaged products: pride vs guilt appeal”, *Marketing Intelligence & Planning*, Vol. 41 No. 2, pp. 186-198.

Sicilia, M. and Palazón, M. (2008), “Brand communities on the internet: a case study of Coca‐Cola’s Spanish virtual community”, *Corporate Communications: An International Journal*, Vol. 13 No. 3, pp. 255-270.

Steg, L., Perlaviciute, G., van der Werff, E. and Lurvink, J. (2014). “The significance of hedonic values for environmentally relevant attitudes, preferences, and actions”, *Environment and Behavior*, Vol. 46 No. 2, pp. 163-192.

Stone, G., Barnes, J.H. and Montgomery, C. (1995), “Ecoscale: a scale for the measurement of environmentally responsible consumers”, *Psychology & Marketing*, Vol. 12 No. 7, pp. 595-612.

Sukhu, A. and Scharff, R. (2018), “Will ‘doing right’ lead to ‘doing well’? An examination of green behavior”, *Journal of Consumer Marketing*, Vol. 35 No. 2, pp. 169-182.

Sweeney, J.C. and Soutar, G.N. (2001), “Consumer perceived value: the development of a multiple item scale”, *Journal of Retailing*, Vol. 77 No. 2, pp. 203-220.

Talwar, M., Talwar, S., Kaur, P., Tripathy, N. and Dhir, A. (2021), “Has financial attitude impacted the trading activity of retail investors during the COVID-19 pandemic?”, *Journal of Retailing and Consumer Services*, Vol. 58, 102341.

Ul Islam, J., Hollebeek, L.D., Rahman, Z., Khan, I. and Rasool, A. (2019), “Customer engagement in the service context: an empirical investigation of the construct, its antecedents and consequences”, *Journal of Retailing and Consumer Services*, 2019, Vol. 50, pp. 277-285.

Uzir, M.U.H., Halbusi, H.A., Thurasamy, R., Hock, R.L.T., Aljaberi, M.A., Hasan, N and Hamid, M. (2021), “The effects of service quality, perceived value and trust in home delivery service personnel on customer satisfaction: evidence from a developing country”, *Journal of Retailing and Consumer Services*, Vol. 63, 102721.

Wang, F.J. and Chiu, W. (2023), “Service encounter and repurchase intention in fitness centers: perceived value as a mediator and service innovativeness as a moderator”, *International Journal of Sports Marketing and Sponsorship*, Vol. 24 No. 1, pp. 145-167.

Wang, M., Li, Y., Li, J. and Wang, Z. (2021), “Green process innovation, green product innovation and its economic performance improvement paths: a survey and structural model”, *Journal of Environmental Management*, Vol. 297, 113282.

Woodruff, R.B. (1997), “Customer value: the next source for competitive advantage”, *Journal of the Academy of Marketing Science*, Vol. 25, pp. 139-153.

Wu, X., Zhang, Y. and Feng, X. (2023), “The impact of Japanese nuclear wastewater discharge into the sea on the global economy: input-output model approach”, *Marine Pollution Bulletin*, Vol. 192, 115067.

Yen, Y.S. (2023), “Channel integration affects usage intention in food delivery platform services: the mediating effect of perceived value”, *Asia Pacific Journal of Marketing and Logistics*, Vol. 35 No. 1, pp. 54-73.

Yi, Y. and Gong T. (2013), “Customer value co-creation behavior: scale development and validation”, *Journal of Business Research*, Vol. 66 No. 9, pp. 1279-1284.

Yousaf, Z. (2021), “Go for green: green innovation through green dynamic capabilities: accessing the mediating role of green practices and green value co-creation”, *Environmental Science and Pollution Research*, Vol. 28, pp. 54863-54875.

Yue, B., Sheng, G., She, S. and Xu, J. (2020), “Impact of consumer environmental responsibility on green consumption behavior in China: the role of environmental concern and price sensitivity”, *Sustainability*, Vol. 12 No 5, 2074.

Zeithaml, V.A. (1988), “Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence”, *Journal of Marketing*, Vol. 52 No. 3, pp. 2-22.

Zelezny, L.C. and Schultz, P.W. (2000), “Psychology of promoting environmentalism: promoting environmentalism”, *Journal of Social Issues*, Vol. 56 No. 3, pp. 365-371.

Zheng, Y. (2010), “Association analysis on pro-environmental behaviors and environmental consciousness in main cities of East Asia”, *Behaviormetrika*, Vol. 37, pp. 55-69.

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