

## ASSESSMENT OF FACTORS INFLUENCING CONSUMER GREEN PURCHASE INTENTIONS TOWARDS HOME APPLIANCE PRODUCTS IN INDONESIA USING THE EXTENDED THEORY OF PLANNED BEHAVIOR

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### ABSTRACT

Indonesia is experiencing significant economic growth, increasing consumer demand for home appliances, but it impacts the environment. Thus, manufacturers, regulators, and marketers need valuable insights into understanding how to effectively target environmentally conscious consumers in Indonesia. This study aims to establish a comprehensive framework utilizing the Extended Theory of Planned Behavior (TPB) to assess the determinants influencing Indonesian consumers' purchase intentions toward environmentally friendly home appliance products in Indonesia. The research analyzes the impact of eco-innovation, green products, environmental concerns, knowledge, and perceived value and risks associated with green products. This study adopts an empirical research design and gathers data using a quantitative methodology via survey questionnaires from 280 respondents. The robustness of the research is further enhanced by using structural Equation Modeling (SEM) to validate the proposed research framework and test various hypotheses concerning the relationships between the identified factors and green purchase intentions. This section will summarize the key results of the research, such as the most significant determinants of purchase intentions and the strength of the mediating effects between green trust and consumer attitude. This indicates that several variables, such as environmental concern, eco-innovation, and green perceived value, have contrasting results from preliminary assumptions based on references. Also, attitude is important as a mediating variable rather than green trust to influence consumer purchase intentions toward green home appliance products.

### KEYWORDS

Green Marketing, Eco-Innovation, Home Appliances, Extended Theory of Planned Behavior, Green Purchase Intentions



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## INTRODUCTION

Indonesia is one of the countries with rapid economic growth ([www.imf.org](http://www.imf.org)). This growth has increased demand for household electrical appliances such as air conditioners, refrigerators, and washing machines, which we call home appliances. However, the use of these products also impacts the environment, especially in terms of carbon emissions and waste generated when their use is complete or broken.

Carbon emissions from the use of home appliances can affect climate change and the environment. This occurs directly from refrigerants such as freon in air conditioners and refrigerators and their operational processes ([www.iesr.or.id/kkv3/](http://www.iesr.or.id/kkv3/)). Emissions are also generated from producing and mining materials such as iron ore, aluminum, lithium, and nickel, which can also potentially lead to the release of harmful chemicals and depletion of natural resources.

In addition to carbon emissions, other negative impacts include the disposal of electronic products and energy consumption, especially if electricity comes from burning fossil fuels, as well as the use of plastics and non-biodegradable materials. To reduce these negative impacts, consumers in Indonesia need to choose environmentally friendly home appliance products.

By choosing eco-friendly products, we can help reduce negative impacts on the environment and preserve the environment in Indonesia. Manufacturers need to produce products with more efficient and environmentally friendly technologies and materials, while consumers need to choose environmentally friendly products and reduce unnecessary products. Regulators also act as catalysts in delivering products that support a green environment.

Public attention to environmental issues and global warming is increasing, with many individuals, organizations, and companies exercising their social responsibility towards the environment (Peattie, 1995; Dwyer, 2009; Lee, 2009). This is part of a global consumerism movement called green consumerism, which is changing people's lifestyles and increasing their expectations of products.

According to the global consumer trends survey, there are three categories of consumer concern: climate change and human empowerment, willingness to pay for the best features for oneself, and willingness to pay for the best features for the environment.

Consumers' awareness of green marketing is realized when they believe in environmentally friendly products and brands, which affects their purchasing behavior (Rahbar & Abdul Wahid, 2011). Green marketing shapes consumer behavior, perceptions, and responsibilities regarding environmental issues (Cherian & Jacob, 2012).

Facing the development of green consumerism, companies implement green marketing strategies that pay attention to environmental issues (Balawera, 2013). Green marketing is part of modern sustainable business, although the main focus of the business remains on revenue and profit (Akenji, 2014). Companies try to reduce pollution, protect natural resources, and improve their image with a good reputation and product image from the view of consumers (Chen, 2008).

Green marketing enhances a company's competitive advantage and performance. It is a marketing activity aimed at reducing the negative environmental

impact of products and production systems and promoting environmentally friendly products (Peattie, 2001). The concept evolved through three stages: ecological marketing (1970-1980), environmental marketing (1980s), and sustainable marketing (since the mid-1990s).

With the application of green marketing, companies can improve the quality of their products to generate competitive advantage (Parasuraman et al., 1988). Product quality is highly considered by consumers and positively impacts the company's marketing performance (Sweeney et al., 1999).

Green marketing also shapes market rules. The public is willing to buy "green" products with reliable information, so companies need to present reliable information to reduce perceived risk (Peattie, 1992). They are also expected to manage their supply chain with sustainable principles, which include procuring services and raw materials from third-party producers.

This research focuses on applying the Extended Theory of Planned Behavior (TPB) to understand the purchase intention of green electronic products in Indonesia, by highlighting factors such as green trust, green perceived value, green perceived risk, eco-innovation, green product, environmental concern, and environmental knowledge. This study explores how these factors interact and influence consumer purchase intention and how consumer attitudes mediate the relationship between environmental concern, environmental knowledge, eco-innovation, and green products on green purchase intention. In addition, this study evaluates the role of green trust in mediating the relationship between green perceived value and green perceived risk in the formation of green purchase intention. The research focuses on the effectiveness of green marketing for home appliance companies in Indonesia, targeting consumers knowledgeable about the green environment and potential purchases of electronic products that significantly affect energy consumption and the environment. The results of the study are expected to contribute to the field of green marketing and provide valuable input for the home appliances industry in implementing environmentally friendly marketing strategies.

### **Literature Review and Research Hypothesis**

This part investigates green marketing's role in influencing eco-friendly purchase intentions. As Mullins & Walker (2013) detail, marketing is a social process through which people and organizations exchange goods and services to fulfill their needs, involving creating, communicating, and delivering value to society. Dahlstrom (2011) describes green marketing as an approach that emphasizes eco-friendly practices in consumption, production, and the lifecycle of products, developed since the late 1980s to mitigate environmental damage. This strategy has grown to incorporate changes in products and processes for sustainability, aiming to meet consumer needs responsibly and positively influence the environment, economy, and business practices. As environmental awareness rises, green marketing has become crucial for businesses to affirm their commitment to social and environmental stewardship, focusing on promoting green products and sustainable business practices.

Chen and Chang (2012) crafted a framework grounded in the Theory of Planned Behavior to assess how green perceived value and green perceived risk

influence green purchase intentions, including examining green trust's mediating role in this dynamic. Trust, as defined by Ganesan (1994) and Hart and Saunders (1997), is the readiness to rely on an entity based on expectations of its competence, reliability, and goodwill, with Chen (2010) explicitly identifying "Green Trust" as reliance guided by the entity's environmental performance credibility, goodwill, and competence. This study redefines Green Trust as the consumer's trust level towards the environmental claims of home appliance products, influenced by environmental knowledge, perceived green value, and perceived green risk.

Green perceived value, introduced by Patterson and Spreng (1997) and further discussed by Chen and Chang (2012), is understood as customers' assessment of the benefits and sacrifices associated with environmentally sustainable "green" expectations. This concept is crucial for ensuring consumer confidence, as highlighted by Sweeney and Soutar (2001) and Kim et al. (2012), because it promises long-term environmental sustainability benefits and depends on the product/service meeting expected quality, reliability, and excellence.

Building trust between sellers and consumers is crucial to overcoming perceived risk, as research by Chaudhuri (1997) and Mitchell (1992), cited in Chen and Chang (2012), has shown that perceived risk can significantly affect buying decisions and consumer behavior, suggesting that consumers seek to minimize perceived risk when they believe sellers are honest and act with integrity. Consumers have become more selective about eco-friendly products in the context of environmental trends. As Sansolo (1991) argues, marketers must strive to build consumer trust to reduce negative attitudes and perceived risk tendencies, making consumers more likely to choose products with confidence in positive environmental impact.

Attitudes serve as a crucial link between individual values and eco-friendly behaviors, influencing actions such as recycling and the reduction of waste, with a noted impact on the consumer's choice of environmentally-friendly products like energy-efficient refrigerators Daugherty et al. (2008), Tan et al. (2017). The research underscores that positive attitudes toward energy efficiency, durability, and sustainability are key drivers behind the firm intention to purchase green products according to Gadenne et al., (2011), Wang et al. (2017), Akroush et al.(2019). Further studies, like that of Wang et al. (2018), delve into the factors that shape household behaviors for saving electricity, expanding our understanding of the relationship between pro-environmental attitudes and actions. Chawla and Joshi (2019) assess the importance of consumer attitudes in catalyzing a shift towards green product usage, indicating that positive consumer attitudes enhance organizational outcomes and support adopting environmentally friendly products.

Since we refer the green home appliances as green products, as Kasali (2005) and Nugrahadi (2002) defined, green products prioritize human and environmental safety, efficiency in resource use, waste minimization, and animal welfare, aiming to mitigate environmental harm across their lifecycle with sustainable practices. These products are characterized by non-toxicity, durability, recyclability, minimal environmental footprint, and energy efficiency, responding to concerns about pollution, global warming, and resource scarcity. Their increasing acceptance is driven by their health and environmental benefits, alongside their role in promoting conservation and sustainability through reusing, reduction, and recycling. The

consumer's environmental knowledge and concerns may influence attitude towards green purchase intentions. Fryxell and Lo (2003) define environmental knowledge as understanding ecosystems and the surrounding environment, including facts, concepts, and relationships. Mustafa (2007) expands on this by highlighting the importance of understanding human-environment interactions and their environmental implications. Despite these insights, Polonsky et al. (2011) note a gap between consumer knowledge and actions attributed to the complex and technical nature of information that may be challenging for consumers to grasp.

Consumers' pro-environmental attitudes often influence the intention to purchase green products, reflecting their concern for environmental issues. Furthermore, Trivedi et al. (2018) and Sreen et al. (2018) explore how media, information channels, and demographic variables like gender, behavior, and culture affect consumer attitudes and, through environmental concern, mediate the intention to make eco-friendly purchases, highlighting the complex relationship between individual and collective factors in promoting environmentally responsible shopping behavior.

In the context of growing global emphasis on economic efficiency and environmental benefits, eco-innovation emerges as a key element in achieving both, with Sharma et al. (2022) exploring the dynamics between eco-friendly buying behavior and eco-innovation, highlighting the role of emotions in generating customer loyalty and innovation. Viale et al. (2022) point out the rising consumer demand for innovative and environmentally sustainable products, reflecting a surge in the intention to purchase eco-friendly goods and services, thereby propelling advancements in eco-innovation. Severo et al. (2018) delve into the relationship between environmental innovation, corporate social responsibility, and clean production, demonstrating how these initiatives significantly influence consumer perceptions of sustainability, making eco-innovation a crucial driver in the shift towards more sustainable business practices and products.

Figure 1 displays the conceptual framework; environmental concern and knowledge positively relate to attitudes (H2, H3) and green purchase intentions (H1, H4). Similarly, eco-innovation and green products positively relate to attitudes (H6, H9) and green purchase intentions (H7, H8). On the other side, green perceived value is positively related to green purchase intention (H10) and green trust (H11), while green perceived risk has give inversely effect to two variables (H12, H13). Meanwhile, the mediating attitude and green trust are expected to relate to green purchase intentions positively.

## RESEARCH METHOD

### Research Model

Researchers refer to two previously researched research models, Chen and Chang (2012) and Moslehpour et al. (2023), which are then combined to examine green purchase intentions for electronic home appliances products. Researchers adopted the Chen and Chan model in this study because it is the primary source of most similar studies related to green marketing. In the research carried out by Chen and Chang, they made a modeling construction between the variables of perceived value, perceived risk, and green trust which influenced the dependent variable green

purchase intention. Furthermore, researchers are also interested in enriching this theory with innovative elements proposed by related theoretical extensions.

In this context, it was found that variables such as environmental concern and environmental knowledge serve as internal motivations for consumers (Choi and Johnson, 2018), while the variables of eco-innovation and green products serve as relevant external motivations to be applied to home electronic products (Moslehpour, 2023). Home appliances and electronic products are everyday consumer goods familiar to consumers, and information about environmental impacts is more or less understood, especially regarding energy efficiency. In addition, marketing activities by manufacturers related to products that support the environment and eco-innovation carried out in their product lines can be easily accessed by consumers, which in turn has the potential to influence their purchase intentions.

Here, we present a research model with its indicator questions that holds significant implications for understanding and influencing green purchase intentions for electronic home appliance products.

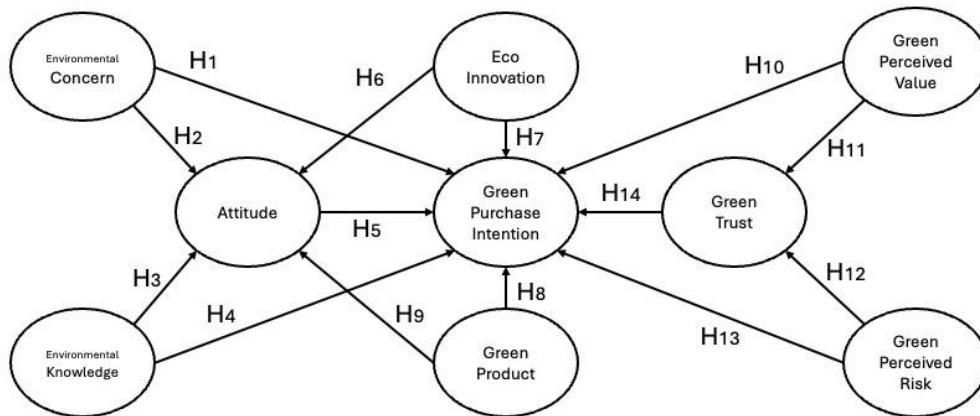


Figure 1. Research Model

Table 1. Variable Indicators

(Green) Purchase Intention refer to Chen & Chang (2012), Netemeyer et al (2005), Morrison (1979), Pavlou (2003), Siti Munerah (2021)	I have the desire to buy this green home appliances product; I expect to buy this green home appliances product soon; I will consider switching to green home appliance products for ecological reasons; I will take the initiative to find green home appliance products in the future.
Green Product refer to Moslehpoura (2022), Chang et al (2019)	Green home appliance products: provide significant benefits for me; increase my satisfaction; to develop from time to time; is more attractive than its competitors; can achieve their aims to attract me as a consumer.



Eco-Innovation refer to Moslehpoura (2022), Yurdakul & Kazan (2020)	Innovation of green home appliances products: using less materials; using materials that can be easily recycled; causes less waste; minimizes damage caused by waste; minimizes energy use; with easily separable products.
Attitude refer to Huzaiifa et.al (2023) ; Ali et. al (2019); Ajzen (1999) ; Taylor&Todd (1995), Bhattacharjee (2000)	For me to buy green home appliance products is (1-5) : unexpected / expected; very unpleasant / pleasant; reckless / wise; disliked / liked; negative / positive
Green Trust refer to Chen & Chang (2012), Gen Li (2022), Zhuang (2021), Mohd. Suki (2016)	I feel that: this green home appliance product has a reliable environmental reputation; the environmental performance of this green home appliance product is generally dependable; the environmental claims of green home appliance products are generally trustworthy. The green home appliances product: 's concern for the environment meets my expectations; keeps promises and commitment to protect the environment.
Environmental Concern refer to Chan (2001), Goh & Balaji (2016), Moslehpoura (2022)	I have concern for the environment; environmental conditions affect my quality of life; I am willing to make sacrifices to protect the environment; I am emotionally involved in environmental protection issues
Environmental Knowledge refer to Goh & Balaji (2016), Hamzah and Tamwir (2021), Mirza (2023)	I know about environmental issues related to home appliance products; compared to others, I know about environmental issues related to home appliance products: Compared to an environmental expert, I know about environmental issues related to home appliance products; I understand and identify environmental symbols on home appliance product packaging
Green Perceived Value refer to Chen et al (2012), Petterson and Spreng (1997)	The environmental function of this green product home appliance provides excellent value for me; t; the environmental performance of this green home appliances product meets mymy expectations; I;I buy this green home appliance product because it pays more

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	attention to the environment than other home appliance products; ; II buy this green home appliances product because it is environmentally friendly
Green Perceived Risk refer to Chen et al (2012)	There may be errors in the environmental performance of this product; ; it is possible that this product may not function properly due to its environmental design; t; there is a possibility that I will suffer sanctions or environmental losses if I use this product; t; there is a possibility that use of this product will have a negative impact on the environment; u; using this product will damage my environmental reputation or image

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### Data Collection and Sample

The selection process for screening respondents to participate in the survey was an integral component of the sampling and data collection methodologies. A questionnaire designed to assess the constructs of interest was employed to gather data. In this investigation, convenience sampling, also known as nonprobability purposive sampling, was utilized. The questionnaires were created utilizing an online platform (Google Forms) and disseminated directly to the respondents via email and various digital applications such as WhatsApp and other messaging services. This method was chosen to expedite the recruitment of a substantial number of appropriate participants rapidly and efficiently, facilitating the ease of data collection. 401 questionnaires were collected from potential respondents, and 280 valid responses were obtained after screening and excluding extreme right or left answers.

The sample size exceeded 200, which is considered adequate for conducting structural equation modeling (SEM) analysis, as Hair et al. (2010) suggested. Respondents were selected based on their willingness and availability to participate in the study, a strategy commonly employed when the target population is difficult to access or constrained by limited time and resources. For data collection, a self-administered questionnaire was the research instrument, incorporating multiple-choice and Likert scale (five-point) questions to investigate the constructs of interest. To ensure the relevance and clarity of the questionnaire, a pretest was conducted among respondents who possessed an awareness and concern of environmental sustainability and had experience purchasing home appliance products. This measure aimed to confirm that the questionnaire was comprehensible and suited to the target population. Before distributing the survey, cover letters were dispatched to potential participants detailing the research objectives, the estimated time required to complete the survey (approximately 5-10 minutes), and an assurance of confidentiality.

In this research, we integrated a set of metrics previously utilized by scholars, selected based on their relevance to our research question and their application in



studies of a similar nature. As detailed in the table, the measurement construct was operationalized using five scale items from various studies. The items were then translated into Bahasa Indonesia. They should pass the word testing to make sure the questions are understandable among the target Indonesian citizens who live in Indonesia. Assessing these metrics' reliability and validity is crucial to ensure their appropriateness for the target demographic and the research questions being investigated. Although including established measures from prior studies offers a time-efficient approach, verifying their applicability and suitability for the present research context is essential.

## RESULT AND DISCUSSION

### Pre-Test

Before distributing the questionnaire widely, the wording test and pre-testing was conducted to improve the quality of the questionnaire by identifying and resolving potential problems. Pre-testing was conducted by distributing the questionnaire to 40 respondents after conducting a wording test on 7 respondents to ensure accuracy of sentence structure and ease of understanding.

### Analysis of Main-Test Results

After *pretesting*, the researcher distributed the large-scale questionnaire and received 400 responses from respondents in the main stage of testing. Furthermore, the researcher again conducted validity and reliability tests on the questionnaires that had been filled out by the respondents. Researchers will also analyze the profile of respondents who have been selected as samples for this study. Then, the measurement model and structural model were analyzed to test the hypotheses that have been proposed on the analyzed variables including *green purchase intentions*, *green products*, *eco-innovation*, *attitude*, *green trust*, *environmental concern*, *environmental knowledge*, *green perceived value*, and *green perceived risk*.

From the 400 survey answers and the *screening* process, in addition, sorting was also carried out to eliminate data that was indicated to be filled in without really paying attention to survey questions such as answering the same choices for all indicators or answering the right or left average. The *filtering* survey data obtained were 280 people who were then processed further.

### Measurement Model Analysis

According to Hair et al (2014), an instrument can be said to be valid if the value is  $> 0.5$  and the validity test in this study was carried out using the SEM method through SmartPLS 4.0 software by looking at the outer loading value on each indicator or question item owned by the variable. From the results displayed in the *outer loading* value of all indicators on latent variables  $\geq 0.5$ , so that all variables are said to be valid.

Apart from the *outer loading* value, the validity of the instrument can also be expressed from the Fornell-Larcker value and *Average Variance Extracted (AVE)*. Fornell-Lacker is used to measure discriminant validity by looking at the *cross-loadings* of each indicator. Fornell-Larcker is declared good if the value of each

indicator in its construct is higher than the cross-value of other constructs, AVE is declared good if the variable value is  $> 0.5$  (Hair et., al 2014).

Table 2. Fornell-Larker and AVE validity test results

<i>Fornell Lacker</i>										<i>AVE</i>
	AT	EI	EC	EK	GPR	GPV	GP	GPI	GT	
AT	<b>0.809</b>									0.655
EI	0.651	<b>0.743</b>								0.552
EC	0.664	0.579	<b>0.785</b>							0.616
EK	0.48	0.393	0.472	<b>0.764</b>						0.584
GPR	0.114	0.144	0.114	0.342	<b>0.781</b>					0.61
GPV	0.67	0.543	0.603	0.548	0.152	<b>0.81</b>				0.655
GP	0.711	0.658	0.537	0.397	0.138	0.541	<b>0.797</b>			0.635
GPI	0.584	0.461	0.42	0.354	0.102	0.394	0.632	<b>0.725</b>		0.525
GT	0.711	0.547	0.546	0.577	0.097	0.722	0.542	0.424	<b>0.804</b>	0.646

From the results displayed in the Fornell-Lacker and AVE values, all variables are declared valid. Just as it was done in the preliminary test or pre-test, the reliability test also needs to be done to find out whether the variables used in the study are reliable. The reliability test was carried out by measuring Cronchbach's alpha with a minimum value of  $> 0.6$  and *composite reliability*  $> 0.7$ .

Table 3. Reliability test results

	Cronbach's alpha	Composite reliability
Attitude	0.868	0.905
Eco-Innovation	0.836	0.88
Environmental Concern	0.792	0.865
Environmental Knowledge	0.778	0.847
Green Perceived Risk	0.874	0.885
Green Perceived Value	0.825	0.884
Green Product	0.856	0.897
Green Purchase Intention	0.701	0.815
Green Trust	0.863	0.901

From the results displayed in the Cronchbach's Alpha and Composite Reliability values, all variables are said to be Reliable.

### Descriptive Statistics

Researchers use descriptive statistics to process variable data with the help of Microsoft excel and SPSS. The following are the results of data processing per question item and per variable construct.

### Respondent Demographic

Parameters	Respondent Distributions
Genders	Male 55.7% ; Female 44.3%
Age	Baby Boomer 3.2%; Gen X 12.1%; Gen Y 58.2%; Gen Z Elementary 2.2%; Mid-High School 32.3%; Dipl/Bachelor 51.6%; Post School Student 1.4%; Civil Servant 6.8%; University Student 9%; Housewife
	(In Rupiah) >10mil 14%; 7-10mil 11.9%; 5- 7Mil 11.9%;
operating hours	5-10hours 70%; > 10 hours 30%

### Research Variables

1. **Green Purchase Intentions:** This variable consists of four question indicators. The data shows that respondents generally agree with statements regarding green purchase intentions. The standard deviation indicates that the sample is not too diverse and the data is relatively identical.
2. **Green Product:** This variable consists of five indicator questions. Respondents also generally agreed with statements regarding green products. The standard deviation indicates the homogeneity of the sample.
3. **Eco-Innovation:** This variable consists of six question indicators. Respondents agreed with the statements regarding eco-innovation. The standard deviation shows little variation in the sample.
4. **Attitude:** This variable consists of five question indicators. Respondents tend to agree with statements regarding attitude. The data shows the homogeneity of the sample.
5. **Green Trust:** This variable consists of five question indicators. Respondents generally agree with statements regarding green trust. Standard deviation indicates homogeneous data.
6. **Environmental Concern:** This variable consists of four question indicators. Respondents agree with the statements regarding environmental concern. The data shows the homogeneity of the sample.
7. **Environmental Knowledge:** This variable consists of four question indicators. Respondents generally agreed with the statements regarding environmental knowledge, except on two indicators where they were neutral. The standard deviation shows homogeneous data.

8. **Green Perceived Value:** This variable consists of four question indicators. Respondents agreed with the statement regarding green perceived value. Standard deviation indicates homogeneous data.
9. **Green Perceived Risk:** This variable consists of five indicator questions. Respondents agreed with some statements regarding green perceived risk and were neutral on others. The data shows the homogeneity of the sample.

### Structural Model Analysis

#### *Multicollinearity Test*

Before analyzing the structural model testing, it is necessary to check for multicollinearity. If VIF is less than 5 then there is no multikolinier.

Table 4. Multicollinearity test results

	VIF
Attitude > Green Purchase Intentions	3.447
Eco-Innovation > Attitude	2.033
Eco-Innovation > Green Purchase Intentions	2.160
Environmental Concern > Attitude	1.755
Environmental Concern > Green Purchase Intentions	2.084
Environmental Knowledge > Attitude	1.345
Environmental Knowledge > Green Purchase Intentions	1.888
Green Perceived Risk > Green Purchase Intentions	1.162
Green Perceived Risk > Green Trust	1.024
Green Perceived Value > Green Purchase Intentions	2.651
Green Perceived Value > Green Trust	1.024
Green Product > Attitude	1.919
Green Product > Green Purchase Intentions	2.349
Green Trust > Green Purchase Intentions	2.810

Variables that affect performance obtained a VIF (Variance Inflated Factor) value of less than 5, so the multicollinearity between variables is low (can be ignored).

#### *R-Square Value Test*

The R-Square value is used to predict the accuracy of the model or predict how strongly exogenous variables affect endogenous variables. R-square has a fixed value for its measurement with 0.75, 0.5 and 0.25 describing strong or substantial, moderate or moderate, and weak levels of accuracy.

Table 5. R-Square test result

	R-square	Adjusted R-square	Description
Attitude	0.645	0.639	Moderate
Green Purchase Intention	0.444	0.427	Moderate
Green Trust	0.521	0.517	Moderate

From the result we found out that the independent variables have been moderately (around 50%) affecting dependent variables on the table 5. There are another half factors out of those variables which also can determined each dependent variable.

### Research Hypothesis Analysis

Apart from using path analysis, the directional relationship can also use hypothesis analysis using the 1-tailed test, especially if the path coefficient value found is quite small so it is confusing to determine the direction, where the hypothesis test result value greater than 1.645 means that it shows a positive effect and the test result value smaller than 1.645 means that there is a negative effect. The following is a summary of the initial hypothesis to compare the results.

Table 6. Hypotheses Analysis

	Path Coefficient	T statistics		P values	
Attitude > Green Purchase Intention	0.291	2.112	H5 accepted	0.017	significant
Eco-Innovation > Attitude	0.178	2.536	H6 accepted	0.006	significant
Eco-Innovation > Green Purchase Intention	-0.006	0.063	H7 rejected	0.475	Not significant
Environmental Concern > Attitude	0.298	3.758	H2 accepted	0	significant
Environmental Concern > Green Purchase Intention	0.008	0.115	H1 rejected	0.454	Not significant
Environmental Knowledge > Attitude	0.115	2.965	H3 accepted	0.002	significant
Environmental Knowledge > Green Purchase Intention	0.104	1.705	H4 accepted	0.044	significant
Green Perceived Risk > Green Purchase Intention	-0.013	0.234	H13 accepted	0.408	Not significant
Green Perceived Risk > Green Trust	-0.013	0.249	H12 accepted	0.402	Not significant
Green Perceived Value > Green Purchase Intention	-0.085	0.972	H10 rejected	0.165	Not significant
Green Perceived Value > Green Trust	0.724	16.675	H11 accepted	0	significant
Green Product > Attitude	0.387	3.458	H9 accepted	0	significant
Green Product > Green Purchase Intention	0.443	2.906	H8 accepted	0.002	significant
Green Trust > Green Purchase Intention	-0.021	0.261	H14 accepted	0.397	Not significant

## **Hypothesis Test Analysis**

### ***Environmental Concern on Green Purchase Intentions (H1 Rejected)***

The hypothesis that environmental concern affects the purchase intention of green products is rejected because the relationship between these variables is not significant. Some factors that may hinder this relationship are the difference between attitude and actual behavior, the high cost of green products, and lack of information. External factors such as social norms and lack of policy support also affect the low adoption of green products in Indonesia.

### ***Environmental Concern to Consumer Attitude (H2 Accepted)***

The hypothesis that environmental concern positively influences consumer attitudes is accepted and significant. Consumers with a high level of environmental concern tend to have a positive attitude towards environmentally friendly products. Increased environmental awareness in Indonesia has led to positive attitudinal changes towards sustainable products, particularly in energy efficient household appliances.

### ***Environmental Knowledge on Consumer Attitude (H3 Accepted)***

The hypothesis that environmental knowledge positively influences consumer attitudes is accepted and significant. Consumers with higher environmental knowledge tend to have positive attitudes towards purchasing and using green products. This knowledge provides an understanding of the real benefits of green products, which reinforces positive consumer attitudes and encourages responsible purchasing behavior.

### ***Environmental Knowledge on Green Purchase Intentions (H4 Accepted)***

The hypothesis that environmental knowledge affects the purchase intention of green products is accepted and significant. In-depth knowledge of environmental issues increases the tendency of individuals to choose sustainable options. Studies show that consumers who have a good understanding of environmental consequences tend to have stronger intentions to buy green products.

### ***Consumer Attitude as a Mediator on Green Purchase Intentions (H5 Accepted)***

The hypothesis that consumer attitude as a mediator variable affects the purchase intention of green products is accepted and significant. Consumers' positive attitudes towards green products play an important role in the relationship between environmental awareness and knowledge with purchase intention. Increased environmental awareness, effective education, and promotion of green innovations can strengthen consumers' pro-green attitudes and encourage the purchase intention of green products.

Research shows that Indonesian consumers with environmental knowledge tend to show more positive attitudes and higher purchase intentions towards green products. This positive attitude is an important mediator that translates environmental awareness and knowledge into concrete intentions to purchase green



products. Effective education and demonstration of the tangible benefits of green products can facilitate the transition from awareness to responsible purchase action.

***Eco-Innovation affects Consumer Attitude (H6 Accepted)***

Hypothesis testing results show that eco-innovation has a positive and significant effect on consumer attitudes. Respondents showed a strong preference for eco-innovation in home electronics products, such as the use of recycled materials, waste reduction, and energy efficiency. The study shows that eco-innovation strengthens the brand image as a pioneer in sustainability, enhancing positive consumer attitudes and brand loyalty.

***Eco-Innovation affects Green Purchase Intentions (H7 Rejected)***

The hypothesis that eco-innovation affects green purchase intentions was rejected, although this relationship was not significant. Factors such as higher prices and limited availability of innovative products inhibit purchase intentions. Consumers may value eco-friendly aspects but are not always prepared to pay a price premium. Lack of information or awareness about the benefits of innovations also reduces purchase intentions. In Indonesia, economic factors such as price and lack of government incentives contribute to this result.

***Green Product affects Green Purchase Intentions (H8 Accepted)***

The hypothesis that green products influence green purchase intentions is accepted and significant. Green products that clearly communicate their benefits often motivate consumers to make sustainable purchases. Research shows that green product quality and value, as well as trust in environmental claims, contribute to higher purchase intentions. In Indonesia, features such as energy efficiency and sustainable materials increase purchase intentions.

***Green Product affects Consumer Attitude (H9 Accepted)***

The hypothesis that green products positively influence consumer attitudes is accepted and significant. In Indonesia, the environmental attributes of products enhance customer perceptions of value and quality. Promotional campaigns that highlight the environmental and health benefits of green products contribute to positive consumer attitudes. Effective marketing about the green attributes of products can shape and reinforce positive customer attitudes, driving brand preference and loyalty.

***Green Perceived Value affects Green Purchase Intentions (H10 Rejected)***

The hypothesis that green perceived value affects green purchase intentions was rejected as insignificant. Although consumers recognize the added value of green products, factors such as higher prices and lack of product availability inhibit purchase intentions. Skepticism towards claims of sustainability and product effectiveness also reduces the positive impact of perceived value. In Indonesia, inhibiting factors such as price and lack of information about the long-term benefits of green products influence purchase decisions.

***Green Perceived Value affects Green Trust (H11 Accepted)***

Hypothesis testing results show that green perceived value significantly affects green trust. Consumers who recognize the economic, social and environmental value of green products tend to trust the product's sustainability claims more. Re- search shows that effective and consistent communication about the benefits of green products also plays an important role in developing trust.

***Green Perceived Risk affects Green Trust (H12 Accepted)***

Hypothesis testing results show that green perceived risk affects green trust negatively and significantly. When consumers perceive high risks related to the performance or reliability of green products, their trust in the product's sustainability claims decreases. These concerns include financial risks, such as higher initial costs and uncertainty of return on investment.

***Green Perceived Risk affects Green Purchase Intentions (H13 Accepted)***

Hypothesis testing results show that green perceived risk affects green purchase intentions negatively and significantly. Consumers who perceive high risks related to the effectiveness, quality, and durability of green products tend to have low purchase intentions. Concerns about higher initial costs and uncertainty of long-term benefits also inhibit purchase intentions.

***Green Trust as a mediator affects Green Purchase Intentions (H14 Accepted)***

The results of hypothesis testing show that green trust affects green purchase intentions positively and significantly. Green trust acts as an important mediator between green perceived value and green perceived risk on green purchase intentions. Consumers who have high trust in green products tend to be more motivated to buy these products despite perceived risks. This trust is based on the belief that green products will fulfill their sustainability claims and provide long-term benefits.

Overall, the hypothesis test results show that green perceived value and green trust play an important role in shaping green purchase intentions, while green perceived risk has a negative influence. Effective marketing strategies, consumer education, and clear communication about the benefits of green products can help increase consumer trust and purchase intentions towards green products.

## CONCLUSION

This study provides an explanation of how the various hypotheses of parameters that are considered significant in similar studies related to the application of Theory of Planned Behavior (TPB) and its extensions in relation to the topic of green purchase intention, such as the mediation parameter green trust (H14) for green perceived value (H10) and green perceived risk (H13) parameters, combined with eco-innovation (H7), green product (H8), environmental concern (H1) and environmental knowledge (H4) mediated by Attitude (H5) can affect green purchase intentions for electronic home appliances products in Indonesia. Furthermore, the results of the study found that hypotheses H1, H7 and H10 were rejected but not

significant, while hypotheses H4, H5 and H8 were accepted and significant. In addition, the results of hypothesis testing show that hypotheses H13, H14 are accepted but not significant.

The hypothesized relationship between consumer attitude influenced by environmental concern (H2), environmental knowledge (H3), eco-innovation (H6) and green product (H9) shows that all hypotheses are accepted and significant and as mentioned in the paragraph above that the positive mediation of attitude affecting consumers' green purchase intention of electronic home appliances products is significant.

On the other hand, green trust that is positively influenced by green perceived value (H11) is accepted and significant, while the negative influence of green perceived risk (H12) is also accepted but not significant. However, the positive influence of green trust in shaping green purchase intention is not significant from the results of this study.

### **Theoretical Contributions**

This research extends the Theory of Planned Behavior by integrating green trust and consumer attitude as mediators between environmental consciousness and green purchase intentions (Ajzen, 1991). The study enriches theoretical models by detailing how psychological constructs, specifically green trust and attitude, impact consumer decisions in emerging markets like Indonesia (Chen & Chang, 2012; Zhuang, 2021). Integrating these mediators provides a deeper understanding of the factors that drive green purchasing behavior, highlighting the role of environmental awareness in shaping consumer decisions. By proposing this novel integration, the research contributes to broadening the applicability of the Theory of Planned Behavior in green marketing, offering a comprehensive framework that encapsulates the complexities of consumer psychology in environmental decision-making processes (Ajzen, 1991; Kautish & Sharma, 2019).

The study's exploration into the roles of green trust and consumer attitudes yields significant findings. It demonstrates how green trust influences consumer confidence in environmentally friendly home appliances, supporting the hypothesis that green trust significantly mediates the relationship between environmental knowledge and purchasing decisions (Chen, 2010; Gen Li, 2022). The investigation into consumer attitudes as a mediator underscores their crucial influence in decision-making, reinforcing the importance of positive perceptions towards green products (Dahlstrom, 2011; Gadenne et al., 2011). Moreover, by focusing on the home appliance sector in Indonesia, the research fills a significant gap in existing literature, providing sector-specific insights that illuminate consumer behavior in a rapidly evolving economic and environmental landscape.

This targeted approach advances theoretical discussions around consumer behavior models in green marketing and enhances understanding of market dynamics in emerging economies (Chen & Chang, 2012; Zhuang, 2021).

### **Managerial Implications**

The managerial implications derived from this study underscore the importance of strategic initiatives in green marketing to enhance consumer

engagement and market penetration for environmentally friendly home appliances in Indonesia. First, manufacturers and marketers must establish and transparently communicate their environmental credentials to build green trust. Effective marketing strategies should focus on substantiating environmental claims to foster trust and reduce consumer-perceived risks (Chen & Chang, 2012). This includes transparent, credible messaging that aligns with consumers' growing environmental consciousness, aiming to strengthen the brand's reputation as environmentally responsible (Kumar & Christodouloupoulou, 2014).

The practical implications of this study are significant. They underline the importance of strategic initiatives in green marketing to enhance consumer engagement and market penetration for environmentally friendly home appliances in Indonesia. The study suggests several actionable recommendations: the integration of eco-innovation in product development, which has been positively received by consumers, indicating that such features can serve as significant differentiators in a competitive market (Chen, 2010; Pujari, 2006). Companies are also advised to engage consumers through educational initiatives explaining the environmental impact and benefits of green appliances. This can be strengthened by partnerships with environmental organizations to enhance credibility (Ottman, 2011).

Furthermore, policymakers are urged to create incentives for companies investing in green technologies and establish stricter environmental claims regulations to combat greenwashing (Delmas & Burbano, 2011). Lastly, targeted advertising should highlight the personal and communal benefits of green products, such as energy cost savings and reduced environmental impacts, to positively influence consumer attitudes and encourage green purchase intentions (Peattie & Charter, 2003). These recommendations provide a roadmap for businesses and policymakers to create a more sustainable market environment, using the insights from this research to steer consumer behavior towards greener choices in home appliances.

### **Limitation And Future Research**

For future research, it is recommended to use the model from this study on home appliances to compare results between Indonesian consumers and those from countries with different levels of environmental awareness. This can help identify unique factors in each country and provide a comprehensive understanding of global consumer behavior. Besides quantitative methods, qualitative approaches such as in-depth interviews and focus group discussions are suggested to gain deeper insights into consumer attitudes and behaviors towards green home appliances.

Future studies could also explore additional factors affecting green purchase intentions, like economic influences, social media, availability, and government policies. Longitudinal studies are recommended to observe changes in consumer attitudes and behaviors towards green products over time, providing insights into the long-term effects of green marketing campaigns and environmental regulations. This understanding can help companies and policymakers develop more effective strategies to promote green products and achieve environmental sustainability.

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