

THE THEORY OF PLANNED BEHAVIOR APPROACH TO ENHANCING PURCHASE INTENTION OF ENVIRONMENTALLY FRIENDLY ELECTRONIC PRODUCTS AMID THE ELECTRONIC WASTE CRISIS



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Abstract

Green marketing is a strategic approach that emphasizes the importance of sustainability and environmental awareness in marketing activities. One of the pressing issues driving the urgency of this approach is the increasing amount of electronic waste, which is projected to exceed 12,000 tons per day in Indonesia by 2030. Although public awareness of environmental issues is rising, purchasing behavior toward eco-friendly products remains low, indicating a gap between attitude and action. This study employs the Theory of Planned Behavior (TPB) framework, modified by the addition of the Ethical Obligation variable, to analyze Purchase Intention toward environmentally friendly electronic products. The model includes five main variables: Subjective Norms, Perceived Behavioral Control, Environmental Concern, Attitude, and Ethical Obligation. The results show that Purchase Intention is influenced by Perceived Behavioral Control and Ethical Obligation, while Subjective Norms and Attitude do not have a positive effect on Purchase Intention. Environmental Concern influences Attitude, but not Purchase Intention directly. This research contributes to strengthening green marketing strategies and promoting sustainable consumer behavior. Recommendations include testing other green products and adding external variables such as price, product availability, and media influence as factors that may enhance the understanding of consumer Purchase Intention.

Keywords: Theory of Planned Behavior, Produk Ramah Lingkungan, Purchase Intention, Perceived Behavioral Control, Environmental Concern

INTRODUCTION

The increasing environmental degradation caused by electronic waste has drawn global attention to the need for more environmentally friendly product consumption. According to the *Global E-waste Monitor* released by UNITAR (2024), the world generated approximately 62 million tons of electronic waste in 2022, and this figure is projected to rise to 82 million tons by 2030. In Indonesia, the Ministry of Environment and Forestry (KLHK) estimates that electronic waste generation will reach 12,187 tons per day by 2030, up from 10,450 tons per day in 2021 (*Media Indonesia*, 2023). This condition highlights the urgency of encouraging the consumption of eco-friendly electronic products among the public.

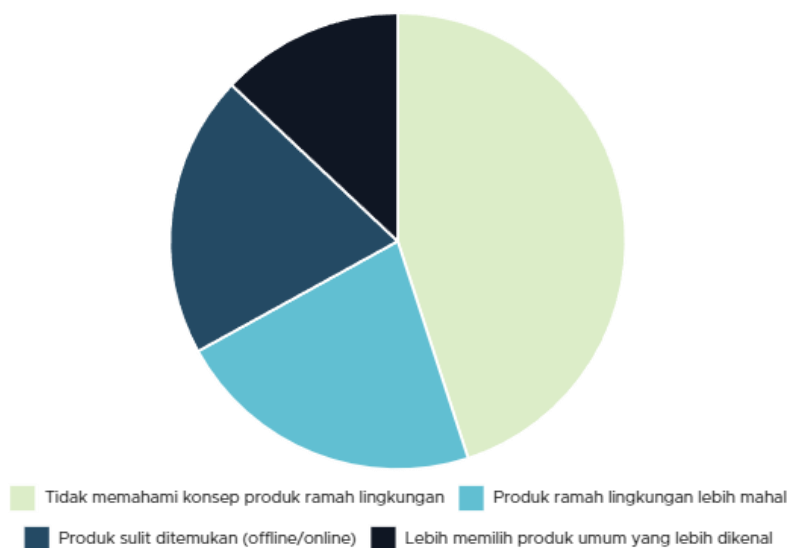


Figure 1.
Reasons for Not Purchasing Eco-Friendly Products
Source: Snapcart TASC Online Survey accessed via GoodStats

Although awareness of environmental issues continues to increase, this is not yet fully reflected in purchasing behavior. A survey conducted by Snapcart in October 2024 noted that while 84% of Indonesian consumers admitted to having purchased sustainable products, 16% of respondents stated they had never done so. Some of the reasons cited included higher product prices, lack of information, and limited access to eco-friendly products (GoodStats, 2014). This phenomenon indicates that there is still a gap between intention and actual behavior in purchasing eco-friendly products.

Previous research also supports this gap. A study by (Ningrum et al., 2024) showed that although subjective norms and environmental concern influence purchase intention, these factors are not yet fully capable of encouraging consumers to translate these intentions into actual purchases. Similar findings were also revealed by (Nafila & Simanjuntak, 2022), who stated that consumer attitudes and purchasing interest towards eco-friendly products remain moderate. This indicates that despite increasing environmental awareness and knowledge, purchase intention for environmentally friendly electronic products remains suboptimal.

According to (Ajzen, 1991), purchase intention reflects the extent to which a person is prepared to perform an action and is considered a proximate factor influencing actual behavior. This intention reflects the motivational factors that drive a person to act, namely the extent to which an individual is willing to exert effort and the amount of effort planned to realize that behavior.

There are two novelties in this study. The first examines the inconsistency regarding the influence of environmental concern on purchase intention. According to researchers (Nguyen et al., 2024), there is a positive influence. However, according to (Yameen & Khanam, 2025), there is no influence between the two variables. The second novelty is the addition of an attitude variable between environmental concern and purchase intention.

Given this gap between awareness, intention, and actual behavior, it is important to further examine the psychological and social factors that influence consumer purchase intention. This study not only provides theoretical contributions, but can also be a basis for formulating effective communication and marketing strategies to encourage wider adoption of environmentally friendly electronic products.

REVIEW OF LITERATURE

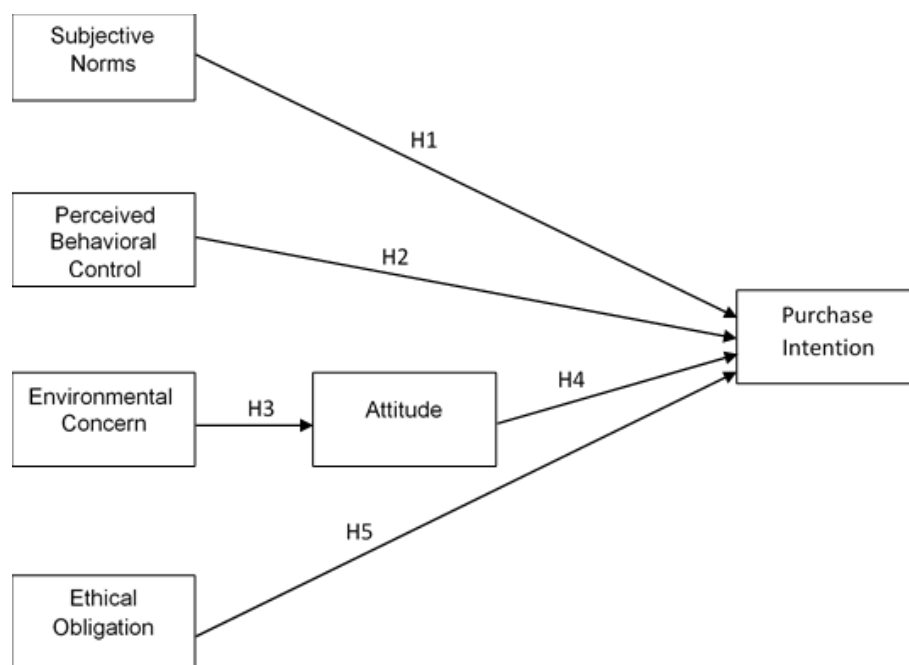


Figure 2.
Conceptual Framework
Source: Processed by the researcher

Subjective Norms measure the extent to which an individual is influenced by their social network to conform to certain behaviors. The most important and closest social networks—such as family, friends, and colleagues—shape one’s *Subjective Norms* (Emekci, 2019; Paul et al., 2016). Previous studies have shown that *Subjective Norms* are significant predictors of *Purchase Intention* (Ahmed et al., 2020; Arli et al., 2018; Carrión Bósquez et

al., 2023; Y. Khan et al., 2023; Z. Khan et al., 2023; S. H. N. Lee & Chow, 2020; Liu et al., 2020).

H1: There is a positive relationship between *Subjective Norms* and *Purchase Intention* toward environmentally friendly electronic products.

Perceived Behavioral Control is defined as the perceived difficulty or ease of performing a particular behavior—in this case, purchasing environmentally friendly electronic products. It is considered a dominant predictor of green consumption behavioral intention (Afroz et al., 2015).

For example, studies on energy-saving products have shown that consumers' intentions to use energy-efficient gadgets to reduce energy consumption are significantly influenced by their perceived behavioral control (Harun et al., 2022; Hossain et al., 2022; Tan et al., 2017; Waris & Ahmed, 2020).

H2: There is a positive relationship between *Perceived Behavioral Control* and *Purchase Intention* toward environmentally friendly electronic products.

Environmental Concern refers to the extent to which individuals are aware of environmental threats and their personal willingness to contribute to solving these problems (Paul et al., 2016), as well as their efforts to preserve nature (Chuah et al., 2020). Consumers' *Environmental Concern* is viewed as a prerequisite for green consumption (Parashar et al., 2023).

Environmental Concern can shape individuals' *Attitudes* toward purchasing eco-friendly products (Peattie, 2001). The positive impact of *Environmental Concern* on *Attitude* has been demonstrated in the context of environmentally friendly products (Mostafa, 2007; Smith & Paladino, 2010; Zhu & Zhang, 2010), showing that consumers with higher *Environmental Concern* tend to have more positive *Attitudes*.

H3: There is a positive relationship between *Environmental Concern* and *Attitude* toward environmentally friendly electronic products.

According to the **Theory of Planned Behavior (TPB)**, individuals' execution of a particular behavior is influenced by their intention to perform that behavior. This intention is shaped by their perception of their ability to successfully engage in the target behavior (*Perceived Behavioral Control*), *Subjective Norms* regarding that behavior, and *Attitude* toward it (Ajzen, 1991).

Several studies have identified a positive and statistically significant effect of consumers' *Attitudes* on *Purchase Intentions* for environmentally friendly products (Ahmed et al., 2020; Akroush et al., 2019; Arli et al., 2018; Aslam et al., 2021; Y. Khan et al., 2023; Z. Khan et al., 2023; Kumar et al., 2023; Liu et al., 2020).

H4: There is a positive relationship between *Attitude* and *Purchase Intention* toward environmentally friendly electronic products.

In consumer behavior, **Ethical Obligation** serves as an important indicator of individual ethics, reflecting one's behavior concerning what is considered morally right or wrong. It represents "the ethical principles internalized by an individual that reflect personal beliefs regarding appropriate behavior."

Previous studies have shown a direct impact of *Ethical Obligation* on *Purchase Intentions* (Sandve & Øgaard, 2014; Shaw et al., 2000; Shaw & Shiu, 2002).

H5: There is a positive relationship between *Ethical Obligation* and *Purchase Intention* toward environmentally friendly electronic products.

RESEARCH METHOD

This study consists of 6 variables, namely Subjective Norms, Perceived Behavioral Control, Environmental Concern, Ethical Obligation, Attitude and Purchase Intention. According to (Kumar et al., 2023) and (Shaw & Sihy, 2002) there are 3 items that can be used to measure "Ethical Obligation". There are 4 items that can be used to measure "Environmental Concern" adopted from (K. Lee, 2008), there are 3 items that can be used to measure "Attitude", there are 4 items that can be used to measure "Subjective norm", there are 5 items that can be used to test "Perceived Behavioral Control" and there are 5 items that can be used to measure "Purchase Intention" adopted from (Paul et al., 2016). Data collection in this study was carried out through a survey method using a closed questionnaire. The questionnaire was structured based on indicators for each variable: Subjective Norms, Perceived Behavioral Control, Environmental Concern, Ethical Obligation, Attitude, and Purchase Intention. Each statement was measured using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The population in this study consisted of individuals with the potential or experience of purchasing green electronic products in Indonesia. Because the exact population size was unknown, a non-probability sampling technique using purposive sampling was used. According to Sugiyono (2018), non-probability sampling is a sampling technique that does not provide equal opportunity for each element or member of the population to be selected. Purposive sampling is a sampling technique based on specific considerations (Sugiyono, 2018). Sample selection was based on specific characteristics relevant to the research objectives: age 18 to 35, having purchased or considering purchasing green electronic products, and having a minimum education of high school or equivalent. The 18–33 age group was chosen because this age group has consistently been identified as the young consumers most concerned with contemporary environmental issues and more carefully considering a product's sustainability attributes (Kotler & Keller, 2012; McKinsey, 2020; PwC, 2019). Furthermore, the United Nations Environment Programme (UNEP, 2011) also states that young people are key agents in changing consumer lifestyles to become more sustainable.

This study successfully collected a sample of 125 respondents. The sample size was determined based on the sample calculation results (Hair et al., 2010), which states that a more acceptable sample size is obtained if the total number of statement indicators for each variable is multiplied five to ten times, or a minimum of 100. Based on the 24 statement indicators in this study, the recommended minimum sample size is 120 respondents.

RESULT AND DISCUSSION

Table 1.
Respondent Characteristics

Characteristics	Status	Number of Respondents	Percentage
Gender	Male	69	55,20%
	Female	56	44,80%
	Total	125	100,00%

Age	18-22 years	22	17,60%
	23-27 years	53	42,40%
	28-33 years	50	40,00%
	Total	125	100,00%
Level of Education	High school/equivalent	33	26,40%
	Diploma (D1/D2/D3)	45	36,00%
	Bachelor Degree (S1)	47	37,60%
	Postgraduate (S2/S3)	0	0,00%
	Total	125	100,00%
Current Status	Student	25	20,00%
	Fresh Graduate	21	16,80%
	Young workers/professionals	40	32,00%
	Businessman	39	31,20%
	Total	125	100,00%
Monthly Income	< Rp3.000.000	34	27,20%
	Rp3.000.000 - Rp5.999.999	57	45,60%
	Rp6.000.000 - Rp9.999.999	28	22,40%
	≥ Rp10.000.000	6	4,80%
	Total	125	100,00%

Source: Google Form Questionnaire Results Processed by Researchers

Table 1 presents the characteristics of the 125 study respondents. The majority of respondents were male (55.20%) and aged 23–27 years (42.40%). The highest educational attainment was dominated by bachelor's degrees (37.60%). Based on status, the majority were young workers/professionals (32.00%), followed by entrepreneurs (31.20%). Most respondents had a monthly income of IDR 3,000,000–IDR 5,999,999 (45.60%).

Instrument Testing

Validity testing was conducted using Pearson Product-Moment correlation analysis, with 30 respondents. In this context, a statement item is considered valid if the Pearson Correlation value, or calculated r , is greater than the table r value, which is 0.3494 at a 5% significance level (Sugiyono, 2018). Next, reliability testing was conducted using Cronbach's Alpha. A construct is considered reliable if its alpha value is ≥ 0.70 , indicating internal consistency of its constituent items (Ghozali, 2017).

Table 2.

Validity and Reliability Results

Construct	Convergent Validity	Reliability
Ethical Obligation (EO)	Pearson Correlation	Cronbach's Alpha = 0.827
• I am responsible for ethical obligations (moral or ethical responsibilities in making decisions or taking actions) in consuming environmentally friendly electronic products.	0.847	
• I am responsible for supporting the ethical consumption of environmentally friendly electronic products.	0.849	

• I contribute to public good through the consumption of environmentally friendly electronic products as a member of society.	0.894	
Environmental Concern (EC)		Cronbach's Alpha = 0.806
• I am concerned about the deterioration of environmental quality.	0.742	
• The environment is my main concern.	0.817	
• I am emotionally involved in issues related to environmental protection.	0.838	
• I often think about how environmental quality can be improved.	0.783	
Attitude		Cronbach's Alpha = 0.879
• I like the idea of purchasing environmentally friendly electronic products.	0.915	
• Buying environmentally friendly electronic products is a good idea.	0.898	
• I have a positive attitude toward purchasing environmentally friendly electronic products.	0.881	
Subjective Norm (SN)		Cronbach's Alpha = 0.849
• Most people important to me think I should buy environmentally friendly electronic products when making a purchase.	0.847	
• Most people important to me want me to buy environmentally friendly electronic products when making a purchase.	0.789	
• People whose opinions I value prefer that I buy environmentally friendly electronic products.	0.839	
• Positive opinions from my friends influence me to buy environmentally friendly electronic products.	0.858	
Perceived Behavioural Control (PBC)		Cronbach's Alpha = 0.913
• I believe I have the ability to purchase environmentally friendly electronic products.	0.855	
• If it were entirely up to me, I am confident that I would buy environmentally friendly electronic products.	0.847	
• I see myself as capable of purchasing environmentally friendly electronic products in the future.	0.834	
• I have the resources, time, and willingness to buy environmentally friendly electronic products.	0.907	

• Environmentally friendly electronic products are generally available at the stores where I usually shop.	0.870	
Purchase Intention (PI)		Cronbach's Alpha = 0.808
• I will consider purchasing environmentally friendly electronic products because they cause less pollution in the future.	0.842	
• I will consider switching to environmentally friendly brands for ecological reasons.	0.711	
• I plan to spend more money on environmentally friendly electronic products than on conventional ones.	0.693	
• I expect to purchase environmentally friendly electronic products in the future due to their positive contribution to the environment.	0.841	
• I definitely want to buy environmentally friendly electronic products in the near future.	0.670	

Source: SPSS data processing results

Based on Table 2, the validity test results indicate that each indicator for each variable has a Total Pearson Correlation Value (r) $\geq$ the calculated r value, with the r value = 0.3494, indicating that each indicator accurately measures each variable. The reliability test results for each variable showed a Cronbach's alpha coefficient value ≥ 0.70 , indicating that each instrument is reliable.

Model Testing

Model testing was conducted after instrument testing to assess the validity of the proposed research model against several goodness-of-fit indices. This study considered absolute fit indices, consisting of a significance value (p -value) ≥ 0.05 , RMSEA ≤ 0.08 , and indices such as GFI, AGFI, CFI, TLI, NFI, and RFI, each ≥ 0.90 (Hair et al., 2010).

Table 3.
Goodness of Fit Results

Goodness of Fit Index	Calculation Results	Criteria (Cut of Value)	Kesimpulan
X ² (Chi Square)	407,626	Expected to be small (0-2)	Poor Fit
Significance probability	0,00	$\geq 0,05$	No Goodness Of Fit
RMSEA	0,075	$\leq 0,10$	Good Fit
NFI	0,631	$\geq 0,90$	Poor Fit
RFI	0,578	$\geq 0,90$	Poor Fit
TLI	0,770	$\geq 0,90$	Poor Fit
CFI	0,799	$\geq 0,90$	Poor Fit
AGFI	0,748	$\geq 0,90$	Poor Fit
GFI	0,798	$\geq 0,90$	Poor Fit

Source: AMOS data processing

Based on Table 3, it can be concluded that although most of the goodness of fit indices do not meet the cut-off value, this model can still be considered minimally suitable. This is supported by the RMSEA value of 0.075, which is still within acceptable limits (≤ 0.08). According to Hair et al. (2010), meeting one primary index, such as RMSEA or CFI, is sufficient to declare a model as partially fit. Similar opinions are expressed by Hu & Bentler (1999) and Byrne (2010), who state that a model can still be accepted even if not all fit indices are met, as long as one or two primary indices show good results.

Hypothesis Testing

The hypotheses formed were tested using estimates and a significance level (p -value) of 5% or 0.05.

Table 4.
Hypothesis Test Results

Hypothesis	Estimate	p -value	Decision
H1 Subjective Norms $\rightarrow$ Purchase Intention	0,103	0,504	Declined
H2 Perceived Behavioural Control $\rightarrow$ Purchase Intention	0,393	0,024	Supported
H3 Environmental Concern $\rightarrow$ Attitude	0,596	0,000	Supported
H4 Attitude $\rightarrow$ Purchase Intention	0,117	0,420	Declined
H5 Ethical Obligation $\rightarrow$ Purchase Intention	0,538	0,013	Supported

Source: AMOS data processing

H0: There is no positive relationship between subjective norms and purchase intention for environmentally friendly electronic products.

H1: There is a positive relationship between subjective norms and purchase intention for environmentally friendly electronic products.

Based on the results of the hypothesis testing, the estimated coefficient value was 0.103 with a significance value of 0.504 (>0.05), thus the first hypothesis (H1) was rejected. Therefore, it can be concluded that subjective norms do not have a positive and significant effect on consumers' purchase intention for environmentally friendly electronic products.

These results indicate that social norms, namely the influence of those closest to them, such as family, friends, or the surrounding environment, do not directly encourage someone to have the intention to purchase environmentally friendly electronic products. This means that the decision to purchase these products is based more on personal considerations than external incentives.

This finding contradicts the Theory of Planned Behavior (TPB) proposed by Ajzen (1991), which states that subjective norms are an important factor influencing an individual's intention to act. However, the results of this study align with research by Han et al. (2010), which revealed that in the context of environmentally friendly products, the influence of subjective norms tends to be weaker than internal factors such as personal values, environmental awareness, and moral beliefs.

The failure of subjective norms to influence purchase intention for environmentally friendly products may be due to the low level of collective public awareness of the importance of using sustainable products. Consumers may not yet feel strong enough social

pressure to adopt green consumption behaviors because it has not yet become a common culture in their environment. Furthermore, the influence of media, educational campaigns, or role models may not be optimal in shaping public opinion regarding the importance of consuming environmentally friendly electronic products.

H0: There is no positive relationship between Perceived Behavioral Control and the purchase of environmentally friendly electronic products.

H2: There is a positive relationship between Perceived Behavioral Control and the purchase of environmentally friendly electronic products.

The results of testing the second hypothesis (H2) indicate an estimated coefficient of 0.393 with a significance value of 0.024 (<0.05). Therefore, this hypothesis is accepted, meaning that Perceived Behavioral Control has a positive and significant effect on consumer Purchase Intention for environmentally friendly electronic products.

These results indicate that the greater consumers' confidence in their ability to purchase and use environmentally friendly electronic products, the higher their intention to purchase them. This finding supports the conceptual framework of the Theory of Planned Behavior (Ajzen, 1991), which states that Perceived Behavioral Control is an important predictor in forming behavioral intentions, particularly when individuals perceive they have control over the resources, time, and ability to perform the action.

In this context, when consumers perceive they have access to information, financial resources, and the availability of environmentally friendly electronic products, they will be motivated to purchase. Companies can strengthen this influence by ensuring their products are readily available, affordable, and providing education or training on the use of green technology.

H0: There is no positive relationship between environmental concern and attitudes toward environmentally friendly electronic products.

H3: There is a positive relationship between environmental concern and attitudes toward environmentally friendly electronic products.

The third hypothesis (H3) has an estimated value of 0.596 with a significance level of 0.000 (<0.05), therefore, this hypothesis is accepted. This indicates that environmental concern has a positive and significant influence on consumer attitudes toward environmentally friendly electronic products.

These results align with the findings of (Schlegelmilch et al., 1996) and (Kalafatis et al., 1999), which state that consumers with a high level of concern for environmental issues tend to have more positive attitudes toward products that support sustainability. This attitude is reflected in their appreciation for brands that use environmentally friendly materials, energy-efficient production processes, and recycling features in electronic products.

Environmental concern can arise from the influence of media information, environmental education, personal experiences related to environmental damage, and a desire to contribute to positive change. Therefore, companies are advised to link product marketing messages with positive environmental impacts to strengthen positive consumer attitudes.

H0: There is no positive relationship between attitude and purchase intentions for environmentally friendly electronic products.

H4: There is a positive relationship between attitude and purchase intentions for environmentally friendly electronic products.

The fourth hypothesis (H4) shows an estimated value of 0.117 and a significance level of 0.420 (>0.05), therefore, this hypothesis is rejected. This means that consumer attitudes toward environmentally friendly electronic products do not have a positive and significant effect on purchase intentions.

The rejection of this hypothesis contradicts the basic concept of the Theory of Planned Behavior (Ajzen, 1991), which states that attitudes toward a behavior should influence the intention to perform that behavior. However, in the context of this study, even if consumers have a positive attitude toward environmentally friendly electronic products, this does not necessarily translate into purchase intentions. Possible causes for these results include external barriers, such as limited funding, lack of product availability in the local market, or the perception that environmentally friendly products perform less competitively than conventional products. A study by (Gupta & Ogden, 2009) refers to this phenomenon as the "attitude-behavior gap," where consumers express positive attitudes toward green products but do not significantly change their purchasing behavior.

H0: There is no positive relationship between ethical obligation and purchase intentions for environmentally friendly electronic products.

H5: There is a positive relationship between ethical obligation and purchase intentions for environmentally friendly electronic products.

The fifth hypothesis (H5) shows an estimated value of 0.538 and a significance value of 0.013 (<0.05), thus accepting this hypothesis. This means that ethical obligation has a positive and significant influence on consumers' purchase intentions for environmentally friendly electronic products.

These findings indicate that consumers feel a moral responsibility to support environmental sustainability through concrete actions, namely by purchasing environmentally friendly products. This concept aligns with research by Thøgersen (1999), which states that moral responsibility is a crucial factor in pro-environmental behavior.

These results also confirm that ethical values and individual awareness of the environmental impacts of electronic consumption influence purchasing behavior. Consumers with a sense of moral obligation tend to be motivated to make responsible choices, even if the product carries a higher price or requires adjustments in use.

CONCLUSION

This study aimed to analyze the influence of Subjective Norms, Perceived Behavioral Control, Environmental Concern, Ethical Obligation, and Attitude on consumer purchase intention for environmentally friendly electronic products. The analysis showed that Perceived Behavioral Control and Ethical Obligation significantly influenced purchase intention, while Subjective Norms and Attitude did not. Meanwhile, Environmental Concern significantly influenced attitude, but not directly on purchase intention.

These findings suggest that consumer purchase intention for environmentally friendly electronic products is more influenced by internal factors, such as self-confidence and moral awareness of the environment, than by social influences or positive attitudes alone. Furthermore, Environmental Concern significantly shapes consumer attitudes toward the product, but does not necessarily result in purchase intention, reinforcing the gap between attitudes and actual behavior in sustainable consumption.

Recommendations

This study has several limitations that should be considered for further research. First, the focus of this study is limited to consumer behavior toward environmentally friendly electronic products. To broaden the scope and enrich the context, future research is recommended to examine other products within the context of green marketing, such as sustainable fashion, eco-friendly cleaning products, or eco-friendly food packaging, to determine whether similar purchase intention patterns also occur in other product categories.

Second, the model used in this study only includes internal variables: Subjective Norms, Perceived Behavioral Control, Environmental Concern, Ethical Obligation, and Attitude. Future research could consider adding external variables, such as price perception, product availability, media influence, or the effectiveness of green marketing campaigns, to gain a more comprehensive understanding of the factors influencing purchase intention.

Third, this study only involved respondents aged 18–33. To obtain more comprehensive results, future studies could expand the age range of respondents or compare generations, such as Generation Z and Generation Alpha, to understand differences in attitudes and purchase intentions toward environmentally friendly products based on generational characteristics.

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