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Identification Variables that Influence Attitudes and Intention in Buying Green Products as Recommendations in the Green Manufacturing Industry

Nurhadistya Alyfakhry[1*], Andreas Mahendro Kuncoro[1]
[1] Industrial Engineering, Universitas Pembangunan Nasional Yogyakarta, Jl.Babarsari No. 2. Tambak Bayan, Yogyakarta, 55281, Indonesia
E-mail: fakhrinurhadistya@gmail.com[1]

Abstract
Understanding consumer behavior regarding attitudes and intention in using green products is an important thing for producers to develop more targeted and efficient marketing strategies that suit consumer needs and desires, so that they can increase sales of green products produced by companies in the green manufacturing industry and increase the competitiveness of green products in the market. This research aims to identify the variables influencing consumers' attitudes and purchasing interest towards green products. The results will then be used to recommend which variables companies should prioritize in producing environmentally friendly products. This research employed purposive sampling as its sampling technique, along with a questionnaire survey targeting consumers who use green products in the DIY area. For data processing, the research employed the Structural Equation Model-Partial Least Squares (SEM-PLS) method using the SmartPLS 4 tool, and the results showed support for the attitude-behavior context theory. Environmental awareness, perceptions of green products, and perceptions of eco-innovation are factors that influence attitudes toward green products, which in turn encourage consumer interest in purchasing green products. These results have implications for company management, suggesting that companies should undertake product certification to ensure safety, promote environmentally friendly products, and adopt innovations in green products.

Keywords: *green product, environmental awareness, environmental knowledge, perception of eco innovation, SEM-PLS*

1. Introduction

Nowadays, environmentally friendly green products are increasingly popular and attract consumer interest as alternatives to single-use products and those made from plastic. The use of green products is considered an alternative to protect the environment from damage (Kurniawan & Iriani, 2023). Understanding consumer behavior regarding attitudes and interest in using green products is crucial for producers to develop more targeted and efficient marketing strategies that meet consumer needs and desires, thereby increasing sales of green products produced by companies adopting the green manufacturing industry. In addition, understanding consumer behavior in green products allows companies to innovate in product design, material selection, and production processes that are more environmentally friendly, which can increase the competitiveness of green products in the market.

The limited resources and energy found in nature and increasing consumer awareness of the use of environmentally friendly products have encouraged companies to implement green manufacturing, namely producing environmentally friendly products which include the use of environmentally friendly raw materials, environmentally friendly production processes, as well as final products that are also environmentally friendly (Karuppiah et al., 2020; Salim et al., 2019). Green manufacturing is being implemented in many companies to produce products that use as few resources as possible and reduce the negative impacts of industrial activities, such as pollution resulting from production waste (Digalwar et al., 2017). Green manufacturing practices are the practice of producing goods to meet consumer needs by complying with environmental regulations in the production process (Dornfeld, 2012). The increasing popularity of green products among consumers encourages many companies to produce environmentally friendly alternatives to single-use products and those made from plastic. Single-use products, especially those made from plastic, are relatively more practical to use; however, the impact is quite serious, namely the accumulation of inorganic waste that is difficult to decompose (Yusiyaka & Yanti, 2021).

The Piles of rubbish are a significant problem worldwide, including in Indonesia. According to data from the national waste management information system (SIPSN) released by the Ministry of Environment and Forestry in 2023, the national waste pile has reached 19.5 million tons. Based on this data, only 66.82% (13.04

[1*] Nurhadistya Alyfakhry
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million tons) can be managed, while the remaining 33.18% (6.48 million tons) cannot be managed properly. Meanwhile, other information from the jogjaprov.go.id page on March 5, 2024, indicates that the Integrated Waste Processing Site (TPST) in Piyungan, Bantul, experienced overcapacity due to difficulties in processing certain types of waste. Therefore, new final disposal sites (TPA) will be provided, located in Sleman Regency and in Yogyakarta City. However, providing new landfill locations cannot overcome the long-term problem of waste accumulation.

The government has implemented various measures to address waste in Indonesia, aiming to anticipate and overcome the waste problem. One of the initiatives undertaken is the launch of the "Trash Free Indonesia 2025" program, which aims to eliminate waste, particularly plastic waste, entirely. To achieve this, various steps have been taken, including the use of recycled and green products. Thus, companies as producers are increasingly trying to implement the green manufacturing concept into their products to attract consumers.

One theory that can explain the phenomenon of consumer interest in using green products is the Attitude Behavior Context theory (ABC theory), developed by Guangnano et al. (1995). This theory emphasizes that pro-environmental behavior is determined by inner environmental attitudes and external contextual factors, as well as the interaction of the two. This ABC theory has been widely applied to studies of pro-environmental behavior, such as climate warming, green consumption, and waste recycling (Ertz et al., 2016; Huang, 2016).

A consumer's attitude towards using green products will influence a person's interest in buying a product that is considered environmentally friendly. This attitude is determined by several factors, including environmental awareness (Wu & Chen, 2014; Okada & Mais, 2010; Islam et al., 2021; and Kamarudin et al., 2021), environmental knowledge (D'Souza et al., 2006; Laroche et al., 1996), eco-innovation (Sharma et al., 2022; Severo et al., 2018), green product perception (Pankaj & Vishal, 2014), and interpersonal influence (Cheah & Phau, 2011). When a person has a high positive attitude towards the environment, they will be more likely to buy and consume green products (Cheah and Phau, 2011; Setiawan et al., 2024). Individuals will consume environmentally friendly products in an effort to reduce the impact of waste on the environment. Perceived need for a product has a strong influence on attitudes towards green products and interest in purchasing green products. Cheah and Phau (2011) revealed that consumers will evaluate whether the green product is needed before purchasing it. The contribution of this research is to collaborate the results of previous studies by adding consumers' perceived need for products as a moderating variable as in Cheah and Phau (2011). Many previous studies only reveal the antecedents and consequences of interest in using green products (D'Souza et al., 2006). but not many studies have paid attention to specific groupings of green products needed by consumers, so researchers add perceived product needs as a variable. moderation Cheah and Phau (2011). Researchers combine consumer attitudes towards green products by using variables originating from the consumer's internal personality, namely environmental awareness and knowledge, as well as from outside the consumer's personality, such as perceptions of environmental innovation, perceptions of green products, and interpersonal influence.

Using consumers interested in green products in the Special Region of Yogyakarta (DIY) as respondents, the results can serve as a consideration for companies producing green products in the green manufacturing industry. The respondents for this research were selected in relation to an issue that has always been a hot and annual topic in Yogyakarta society regarding waste, namely, Yogyakarta's waste emergency. People in Yogyakarta are confused about managing their waste, particularly plastic waste, leading them to start burning waste. This practice has an impact on air pollution, which in turn causes a decline in people's quality of life (Al Rizqi, 2019). This research focused on consumers in Yogyakarta to examine their environmental awareness, knowledge, and perceptions of green products, and to understand their purchasing preferences for green products. When the people of Yogyakarta, as consumers, switch to green products and producers start producing them, it will reduce the accumulation of nonorganic waste in the city of Yogyakarta, which has always been a major problem in this city.

This research employed a survey as its research method, utilizing a questionnaire as the instrument. The questionnaire was designed based on the results of previous research. It will then be distributed directly to respondents via Google Form. In data processing, this research uses SEM PLS, with the SmartPLS 4 tool.

2. Research Methods

2.1 Data Collection Technique

The population used in this research is all people or consumers in the Yogyakarta Special Region province (Indrianto & Supomo, 1999). Sample selection in this study employed a purposive sampling method, with the following criteria used in this research: 1. Residents of the Special Region of Yogyakarta; 2. Individuals who are interested in purchasing green products. This research utilizes primary data collected through a questionnaire. The questionnaire will be measured using a Likert scale of 1 to 5, as it allows for responses that are neutral or unsure. Sampling adequacy is in line with Hair et al. (2021), which states that assuming a significance level of 5% and a minimum path coefficient value of 0.2, the minimum sample size given is as follows:

$$n_{min} > \left(\frac{2.486}{|p_{\min}|}\right)^2 = 154{,}505$$

So the minimum sample size required is 155.

2.2 Data Processing Methods

This research uses Structural Equation Modeling (SEM) as a data analysis method. With SEM, researchers can carry out path analysis, which allows the use of equation models to estimate direct, indirect, and total impacts. In this research, PLS-SEM was chosen as the method to test the research hypothesis. This decision is based on the superiority of PLS-SEM in overcoming obstacles that often arise in conventional regression methods, such as the requirement for normally distributed data and multicollinearity problems between independent variables. The software tool we use is Partial Least Squares (PLS) using SmartPLS 4 as an analysis platform.

Data analysis techniques are used to test research hypotheses and evaluate models as well as analyze the relationship between independent variables, moderating variables, and dependent variables based on PLS-SEM" (Ghozali & Latan, 2014). The following are the steps that will be taken to evaluate the PLS-SEM model:

1. Designing a Measurement Model (Outer model);
   Outer model testing is used to test the validity and reliability of the instruments used.
2. Structural Model Design (Inner Model)
   At this stage, all variables are connected based on theoretical concepts and previous research findings.
3. Making Path Diagrams;
   The purpose of making a path diagram is to determine the pattern of relationships between latent variables and their indicators.
4. Make estimates
   Parameters are estimated using the least squares method with a calculation process that involves iteration. The iteration will stop when the convergent condition is reached.
5. Evaluate the Goodness of Fit Model
   Goodness-of-fit testing is used to assess the feasibility of the research model.
6. Hypothesis Testing
   The hypothesis is tested by examining the impact of environmental awareness, environmental knowledge, perceptions of eco-innovation, perceptions of green products, and interpersonal influence on attitudes towards green products, which will then influence interest in purchasing green products, which is moderated by consumers' perceived need for the product.

2.3 Variable Measurement

Intention in buying green products and attitudes towards green products were measured using statement items developed by Armitage et al. (1999). Environmental awareness was measured using question items developed by Chan (2001). Meanwhile, environmental knowledge was measured using question items developed by Mohr et al. (1998). Perceived eco-innovation was measured using question items developed from research by Yurdakul and Kazan (2020). The measurement of the perceived green product variable used statement items adopted from Hakim (2010). Interpersonal influence was adopted from research conducted by Bearden et al. (1989), and perceived product need was adopted from Cheah and Phau (2011).

Table 1. Variable Measurement

Variable	Source	Indicators
Intention to Buy Green Product	Armitage et al. (1999)	Intention to buy green products, low pollution, energy saving, recycled products, and healthy products.
Attitudes Toward Green Products	Armitage et al. (1999)	Buying a green product is good, wise, useful, profitable, positive, and satisfying.
Environmental Awareness	Chan (2001)	Awareness of how to act without damaging nature, maintaining its balance, and recognizing that humans are part of nature, not superior to it, and can adapt to it.
Environmental Knowledge	Mohr et al. (1998)	Knowledge about environmentally friendly products and packaging, recycling products, reducing waste, product symbols, sorting recyclables, and environmental problems.
Perceived Eco-innovation	Yurdakul and Kazan (2020)	Green products use fewer ingredients, are easily recyclable, produce the least waste, minimize environmental damage, and use the least energy.
Perceived Green Product	Hakim (2010)	Green products feature a green label, natural materials, no preservatives, organic materials, energy efficiency, environmentally

Variable	Source	Indicators
		friendly waste, reduced emissions, no animal testing, easily decomposed materials, eco-friendly labels, durability, and certificates.
Interpersonal Influence	Bearden et al. (1989)	Use products that meet relatives' expectations, such as those recommended by relatives, friends, or family, or those that are good. Also, consider agreements and find out about the product.
Perceived Product Need	Cheah and Phau (2011)	Greetings, honey, soft drinks, jewelry, shopping bags, hairstyling, cosmetics, shampoos, mobile phones, household appliances, personal computers, t-shirts, refrigerators, medicine, and tissues.

2.3 Attitude Behavior Context Theory

Attitude Behavior Context (ABC) theory is a theory that discusses behavior that is relevant to the environment. This theory, developed by Guangnano et al. (1995), emphasizes that pro-environmental behavior is determined by the interplay of inner environmental attitudes, external contextual factors, and their interaction. This ABC theory has been widely applied to studies of pro-environmental behavior, such as climate warming, green consumption, and waste recycling (Ertz et al., 2016; Huang, 2016).

ABC theory is considered relevant to apply in this research because previous studies have utilized this theory to elucidate how environmental attitudes influence the primary focus of behavior, specifically how beliefs about green products are shaped by environmental attitudes, thereby informing the intention to purchase green products (Goh & Balaji, 2016). ABC theory is considered a suitable theory for researching consumer attitudes and behavior towards green products. By applying ABC theory, it becomes clear that the use of green products is influenced not only by internal factors originating from oneself but also by external factors responsible for this behavior.

Environmental awareness and consumer attitudes towards green products

Environmental awareness is an effort to create and direct awareness within the entire community, helping to make the environment sustainable based on shared values. This value system is based on an ideology that posits the environment will coexist harmoniously with its natural surroundings. Consumer awareness of green products also attracts interest in purchasing them (Wu & Chen, 2014; Okada & Mais, 2010). A study examining trends and challenges in environmental issues related to interest in purchasing cosmetics found that these issues were usually related to protecting animals, plants, air, sea, and land (Islam et al., 2021; Kamarudin et al., 2021). Consumers who place a high value on environmental concern tend to buy green products to demonstrate this value. Concern for the surrounding environment refers to an individual's awareness of environmental issues, the belief that grows within oneself that he can help resolve these issues, and readiness to take action on this behavior (Kumar et al., 2021). Thus, concern for the environment is expected to influence individuals in implementing environmentally friendly behavior, such as consuming environmentally friendly products. Consumers who care about the environment prefer to consume natural food compared to conventional food (J. Chambers et al., 2020). Consumer concerns about the impact of human actions on the environment do not make it important to think better about natural food products (Talwar et al., 2021). Thus, the higher a person's awareness or concern for the environment, the more it will encourage individuals to adopt environmentally friendly products. Therefore, the proposed research hypothesis is:

H1: Environmental awareness has a positive effect on consumer attitudes towards green products.

Environmental knowledge and consumer attitudes towards green products

Environmental knowledge can influence the formation of a consumer's attitudes or behavior when using green products. There are two aspects of environmental knowledge: external, where consumers learn about the benefits of using green products, and internal, where consumers recognize that green products are made using environmentally friendly processes (D'Souza et al., 2006). Knowledge of each individual's environment has a strong influence on changing the individual's self or behavior, namely that the individual can describe and provide views on the actions that should be taken in forming a person's attitudes and interests through beliefs (Laroche et al., 1996). "Meanwhile, there is research on the role of a consumer's attitude towards the environment, which mediates the influence of environmental knowledge on green product purchasing behavior. The research results show that environmental knowledge has a positive influence on attitudes and interest in purchasing green products" (Noor et al., 2012). Thus, the higher a consumer's knowledge "about environmentally friendly products, the more it will

influence their attitude towards using environmentally friendly products." Therefore, the proposed research hypothesis is:

H2: Environmental knowledge has a positive effect on consumer attitudes towards green products.

Perception of eco-innovation and consumer attitudes towards green products

Eco-innovation helps prevent waste buildup and reuses waste at the beginning of the production process. Eco-innovation is a strong determinant of consumer interest in buying green products. There is a need to analyze the relationship between environmentally friendly purchasing behavior and environmental innovation, specifically examining how it influences the generation of emotions and loyalty. This relationship occurs depending on the processes, products, and business methods used in eco-innovation to minimize the impact on the environment by reducing the ecological footprint (Sharma et al., 2022). Eco-innovation involves continuous development to make changes through a company's processes, services, and products (Severo et al., 2018). Thus, the more companies that sell products carry out environmentally friendly innovations, the more they will be perceived by consumers as a positive thing in relation to producing environmentally friendly products, thereby increasing consumer attitudes towards these green products. Therefore, the proposed research hypothesis is:

H3: Perceptions of environmental innovation have a positive effect on consumer attitudes towards green products.

Perception of green products and consumer attitudes towards green products

Green products are alternative products that are made from organic materials, use efficient energy, do not contain toxic products, and minimize pollution or waste (Pankaj and Vishal, 2014). Green products have three aspects, namely green input, green process, and green output. Consumer attitudes play a major role in selecting and purchasing environmentally friendly products. Consumer attitudes will have an impact on consumers' lives in the future, giving rise to a feeling or interest in buying green products (Gupta & Singh, 2021). Green products have significantly changed consumer attitudes, with a notable increase in interest in making environmentally friendly purchases.

Additionally, Wang et al. (2019) discussed the importance of green product knowledge, which encourages interest in environmentally friendly purchases. Individuals with a positive value are more likely to be interested in purchasing products that offer complete comfort. Liobikiene and Bernatonien (2017) found that consumer attitudes towards green products positively mediate the determining intention to purchase environmentally friendly products. Thus, the higher the consumer's perception of green products produced by producers, the more they will encourage their attitude towards these products to use them." Therefore, the proposed research hypothesis is as follows:

H4: Perception of green products has a positive effect on consumer attitudes towards green products.

Interpersonal influence and consumer attitudes towards green products

Consumer trust or attitudes towards green products cannot be separated from the surrounding environment. For example, family, work environment, or friends have an important role in forming a person's attitudes and interests in deciding to purchase green products. Previous research by Bearden et al. (1989) and Stafford and Cocanougher (1977) said that interpersonal influence has a positive effect on consumer attitudes towards green products. However, Cheah and Phau (2011) have different results, namely that a consumer who has an open attitude to other people's views tends to try to align his views with other people's views. A consumer with an open attitude towards other people's views tends to align their own views with those of others (Cheah and Phau, 2011). a person's perception comes from other people's references, which will make him think whether or not he should carry out a certain action, which references can come from superior people, teachers, or parents, for example, or from colleagues (friends). When someone close to a consumer advises them to use environmentally friendly products, it influences their attitude towards green products. This attitude, in turn, encourages consumers to make green purchasing decisions. Therefore, the proposed research hypothesis is as follows:

H5: Interpersonal influence has a positive effect on consumer attitudes towards green products.

Consumer attitudes towards green products and interest in buying green products

A consumer's attitude towards green products will influence a person's interest in purchasing environmentally friendly products. When a person has a high positive attitude towards the environment, they will be more likely to buy and consume green products (Cheah and Phau, 2011; Setiawan et al., 2024). Individuals will consume environmentally friendly products in an effort to reduce the impact of waste on the environment. Thus, the higher the consumer's attitude towards green products, the more they will be interested in buying the green product. Therefore, the proposed research hypothesis is:

H6: Consumer attitudes towards green products have a positive effect on interest in buying green products.

The moderating effect of perceived needs and consumer attitudes towards green products on interest in buying green products

Perceived product needs have a strong influence on attitudes towards green products in terms of interest in purchasing green products (Cheah & Phau, 2011). This research reveals that when consumers want to purchase a green product, they will evaluate whether the green product is needed or not. When consumers have a positive attitude towards green products, they will be increasingly interested in purchasing green products. Therefore, the proposed research hypothesis is as follows:

H7: Perceived need strengthens the influence of consumer attitudes towards green products on interest in buying green products.

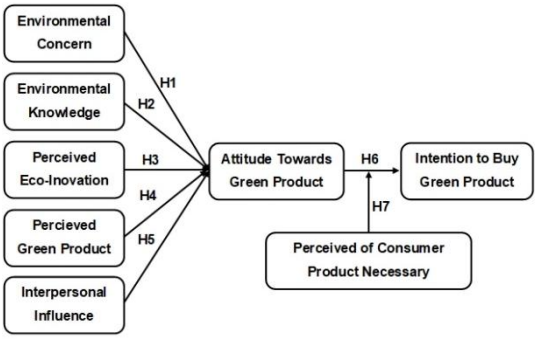

Figure 1. Conceptual Framework

3. Results and Discussion

3.1 Respondent Characteristics

This research was conducted on consumers in the Special Region of Yogyakarta who have the desire to use or buy green products. Data collection was carried out from June 2024 to July 2024, with the results obtained by respondents presented in Table 2.

Table 2. Respondent Data

Data	Total
The total of respondents obtained	221
Never/don't want to buy *green product*	20
Live outside DIY area	14
Answered randomly	23
Total respondent used	178

Respondents who answered randomly were respondents who answered strongly agree to the two questions that were made in negation form, namely environmental awareness questions (KL3 and KL5). These 2 negation sentences were given in order to ensure that the respondent answered seriously, which means answering consistently to the statement given.

Respondents in this study were dominated by women, namely 74%. The highest level of education is high school graduates with a total of 68%, and only 24% are undergraduate graduates. The ages of the respondents ranged from 16 years to 21 years, which means that most of them were students, namely 86%, while employees and housewives only made up around 5%.

The results of statistical descriptive in table 3 showed that the majority of respondents have an interest in buying green products, as seen from the mean value of 4.5315, also have a high positive attitude towards green products. Regarding environmental knowledge, the majority of respondents also have good environmental knowledge, and have a good perception of eco-innovation towards green products as seen from the mean of 4.3202. The majority of respondents also had positive perceptions of green product, while interpersonal influence showed that the influence of close relatives did not really influence consumers' interest in buying green products with a mean of 3.9865. Meanwhile, green products are considered important by consumers with a mean of 4.0238.

Table 3. Statistical Descriptive

Variabel	N	Min	Max	Mean	Std. Dev
Intention to BuyGreen Product (MMP)	178	3.00	5.00	4.5315	0.51510
Attitute Toward Green Product (STP)	178	2.83	5.00	4.5281	0.48760
Environmental Awareness (KL)	178	3.40	5.00	4.5652	0.41432
Environmental Knowledge (PL)	178	3.00	5.00	4.3244	0.49475
Perceived Eco Innovation (PE)	178	2.40	5.00	4.3202	0.53164
Perceived Green Product (PP)	178	2.70	5.00	4.2545	0.52616
Interpersonal Influence (PI)	178	2.20	5.00	3.9865	0.66302
Perceived Product Need (PKP)	178	1.23	5.00	4.0238	0.63732

3.2 Validity and Reliability Test

Convergent validity means that a set of indicators represents one latent variable and is the basis for that latent variable. When conducting convergent validity testing, it can be assessed based on outer loadings or loading factors and Average Variance Extracted (AVE). The results of validity testing using loading factors show that almost all indicators have values above 0.7. A measurement is valid if it has a factor loading value of 0.7 and an AVE value > 0.5. Some of the question indicators that had loading factors below 0.7 were removed because these indicators could not measure the variables they measured. There are 13 indicators that have a value below 0.7. Meanwhile, the results of the validity test using the AVE value can be seen in table 4. The test results show that each variable has an AVE value > 0.5, which indicates that the instrument is valid.

Table 4. Convergent Validity

Variable	AVE	Conclusion
Environmental Awareness (KL)	0.543	Valid
Environmental Knowledge (PL)	0.532	Valid
Perceived Eco Innovation (PE)	0.576	Valid
Perceived Green Product (PP)	0.543	Valid

Variable	AVE	Conclusion
Interpersonal Influence (PI)	0.579	Valid
Attitute Toward Green Product (STP)	0.615	Valid
Intention to Buy Green Product (MMP)	0.717	Valid
Perceived Product Need (PKP)	0.552	Valid

If the construct's correlation with each indicator is greater than the other construct measures, then the latent construct predicts the indicator better than the other constructs. The discriminant validity results show that the diagonal cross loading values for all variables are higher than the cross loading values below them. However, there are two variables that have different values, namely the STP and KL; and PL variable with an MMP, it means that the indicator is not appropriate in that construct. This may be happened because in the variables there is a set of indicators that are only unidimensional, even though the set of indicators combined in one variable should be multidimensional, that is, the indicators measure several different dimensions or aspects of a concept. To overcome this, this can be done by eliminating outlier data. This research did not omit the outlier because the amount of observation data obtained was not too large, so if outliers were removed it would result in a reduction in data so that data adequacy would not be met.

Table 5. Discriminant Validity

	KL	MMP	PE	PI	PKP	PL	PP	STP
KL	0.737							
MMP	0.805	0.847						
PE	0.692	0.668	0.759					
PI	0.526	0.616	0.606	0.761				
PKP	0.574	0.512	0.720	0.603	0.743			
PL	0.748	0.883	0.659	0.713	0.580	0.729		
PP	0.680	0.535	0.723	0.584	0.771	0.672	0.737	
STP	0.822	0.691	0.727	0.548	0.642	0.689	0.691	0.784

The reliability test is aimed at finding out whether the questionnaire instrument used is answered consistently by respondents. This test was also carried out to see accuracy, consistency and accuracy in analyzing the construct (Ghozali and Latan, 2014). This test was carried out by measuring the magnitude of Cronbach'h Alpha and Composite Reliability. A questionnaire is said to be reliable if the Cronbach's Alpha value is at least 0.6 and Composite Reliability (CR) is at least 0.7 from the PLS Algorithm results. The test results can be seen from table 6 which shows that all variables have a Cronbach alpha value above 0.6. The results indicate that the instruments used are consistent or reliable. The composite reliability results also show that all values are above 0.7.

Table 6. Reliability Test

Variabel	Cronbach's Alpha	Composite Reliability	
Kesadaran Lingkungan (KL)	0.788	0.843	Reliable
Pengetahuan Lingkungan (PL)	0.901	0.904	Reliable
Persepsi Eco-Inovasi (PE)	0.815	0.818	Reliable
Persepsi Green Product (PP)	0.831	0.863	Reliable
Pengaruh Interpersonal (PI)	0.931	0.939	Reliable
Sikap Terhadap Produk (STP)	0.707	0.756	Reliable
Minat Beli Produk (MMP)	0.907	0.942	Reliable
Persepsi Kebutuhan Produk (PKP)	0.870	0.886	Reliable

Inner Model Testing

The inner model or structural model of this research uses a structural equation with the following variables:

$Y = \alpha + \beta_n X_n$ ..... (4.1)

The model are as following:

$y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon_1$ ..... (4.2)

$Y = \alpha + \beta_6 y + \varepsilon_2$ ..... (4.3)

$Y = \alpha + \beta_6 y + \beta_7 (y \times Z) + \varepsilon_2$ ..... (4.4)

Notation:

Y = dependent variable
α = coefficient of influence of endogenous latent variable
β = coefficient of influence of exogenous latent variables
X = independent variable
ε = error
Z = moderation variable

STP = α + 0.0551 STP + 0.025 PL + 0.221 PE + 0.118 PP + 0.038 PI + ε1

MMP = α + 0.0641 STP + ε2

MMP = α + 0.0641 STP + 0.033 (STP x PKP) + ε2

Model testing is carried out by looking at the R-square value or f-square value. If the R-square value is above 0.67 then the model is said to be strong, if it is between 0.33 to 0.67 then the research model is said to be moderate, whereas if the value is below 0.33 then the model is said to be weak. Meanwhile, an f-square value above 0.35 is categorized as large, a value of 0.02 to 0.35 is said to be moderate, while a value below 0.02 is said to be weak. The test results showed that the R-square value for STP is 0.733, which is above 0.67, which is included in the strong category, indicating that the resulting structural model is very good for explaining the influence of environmental awareness, environmental knowledge, eco-innovative perceptions, green product perceptions, and perceptions interpersonal in explaining attitudes towards green products. Meanwhile, the R-square value for MMP is 0.488, which is between 0.33 and 0.67, which means it is moderate. These results indicate that the resulting structural model is good enough to explain the influence of attitudes towards green products on interest in buying green products.

The test results show that the f-square value of the influence of KL to STP is 0.393 and STP to MMP is 0.403, which is categorized as large because it has a value above 0.35. Meanwhile, a PE of 0.068 is categorized as

having a medium/moderate influence. Meanwhile, PI of 0.002, PL of 0.001, and PP of 0.020 are categorized as having a weak influence because all three have f-square values of 0.02 or below.

3.3 Hypothesis Testing

This test is aimed at finding out whether the proposed hypothesis is successful in getting evidence support or not. The test results can be seen in figure 2 and table 7.

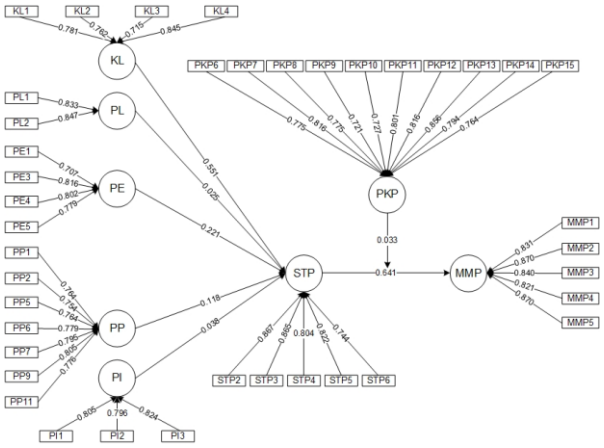

Figure 2. Path Diagram of SEM Model

Table 7. Hypothesis Testing

Hypothesis	Original sample	Mean	Standard deviation	T statistics	P values
KL →STP	0.551	0.557	0.072	7.680	0.000
PE →STP	0.221	0.211	0.088	2.510	0.012
PI →STP	0.038	0.031	0.066	0.584	0.559
PKP →MMP	0.117	0.137	0.071	1.656	0.098
PL→ STP	0.025	0.035	0.092	0.274	0.784
PP →STP	0.118	0.119	0.058	2.019	0.044
ST→ MMP	0.641	0.622	0.087	7.378	0.000
PKP x STP→ MMP	0.033	0.009	0.061	0.544	0.586

The test results for hypothesis 1 which states that environmental awareness has a positive effect on attitudes towards green products was supported. These results can be seen in table 6 which shows the p value for KL → STP is 0.000, in this case the value is <0.05 which means it is significant, with a coefficient of 0.551 which has a positive direction, in line with the direction of the proposed hypothesis. Meanwhile, **hypothesis 2** which states that environmental knowledge has a positive effect on attitudes towards green products was not supported. This can be seen in the PL→ STP p value of 0.784, which is > 0.05, which means it is not significant even though it has a positive coefficient. The results related to **hypothesis 3** which states that perceptions of eco-innovation have a positive effect on attitudes towards green products was supported. These results can be shown in table 6. The p value of PE→ STP has a value of 0.012, which in this case is <0.05, which means it is significant and the coefficient value is 0.221, which is positive, in the same direction as the proposed hypothesis.

The next results are still related to the determining factors of attitudes towards green products. The results of research related to **hypothesis 4** which states that perceptions of green products have a positive effect on attitudes towards green products was supported. This result is shown in table 6, namely the p value for PP → STP is 0.044, which in this case is <0.05, which means it is significant, and the coefficient value is 0.118 which is also positive, in the hypothesized direction. Meanwhile, **hypothesis 5** which states that interpersonal influence has a positive effect on attitudes towards green products was not supported. This is shown by table 6 which shows the p value PI → STP of 0.559, which in this case is > 0.05, which means it is not significant, even though the coefficient value is positive.

The results related to **hypothesis 6** which states that attitudes towards green products have a positive effect on interest in buying green products was supported. This is indicated by the p value of STP → MMP of 0.000, which in this case is <0.05 which means it is significant, with a coefficient value of 0.641 which is positive. Meanwhile, the results related to the moderation effect stated in **hypothesis 7**, which states that perceived product needs strengthen the influence of attitudes towards green products on interest in buying green products, was not supported. This result is shown by the PKPxSTP→ MMP p value of 0.586, which in this case is > 0.05 so it is not significant, even though it has a coefficient in the direction of the hypothesis.

3.4 Discussion

The Attitude-Behavior-Context (ABC) approach is a framework that helps understand how attitudes, behavior, and context interact to influence decisions. The research results show that attitudes towards green products are more determined by environmental awareness, perceptions of eco-innovation, and perceptions of green products. This attitude towards green products will determine interest in buying green products. The test results show that consumers who are aware of the environment will have an influence on their attitudes towards green products. High environmental awareness encourages positive attitudes and behavior in supporting green products. Individuals who are aware that each individual must act in a way that does not damage nature, should not cause pollution, always maintain the balance of nature also tend to have a more positive attitude towards green products, so that the environment can always be protected. The positive attitude towards green products is also determined by consumers' views that humans are not the masters of nature, consumers must be wise in using natural resources, consumers also realize that consumers are only one part of the universe so that consumers must always maintain the balance of nature, so it will encourage consumers to have a positive attitude towards the use of green products. The research results are in line with

research conducted by Awuni et al. (2023) who stated that consumers who have strong ecological values, such as wanting to protect nature, tend to choose products that are in line with these goals. The research results are also consistent with research conducted by Chambers et al. (2020) which proves that consumers who care about the environment prefer to consume natural food compared to conventional food, as well as Talwar et al. (2021) who found that consumers' concerns about the impact of human actions on the environment make it important to think better about natural food products.

This research found that environmental knowledge did not have a significant effect on attitudes towards green products. This may be caused by a mismatch between knowledge and action. Although someone may have good knowledge of environmental issues, this does not necessarily mean they will act in accordance with that knowledge. Many other factors influence consumer decisions, such as habits, personal preferences, and convenience. Apart from that, it is also possible that the results are not supported due to the influence of price and affordability (Noor et al., 2012). Often green products are more expensive than conventional products. Another factor that might also cause insignificant results is availability and accessibility, meaning that green products are not easy to find in shopping places. Consumer attitudes and behavior are also influenced by culture. Although someone may have good knowledge of the environment, they may be influenced by the dominant consumption culture. Thus, although environmental knowledge is an important component, other factors such as price, availability, and personal priorities, play an important role in shaping consumer attitudes towards green products (D'Souza et al., 2006). The research results are in line with research conducted by Lee and Kim (2011) which found that there was no relationship between knowledge about the environment and the desire to pay more for green products, which means that people who have more knowledge about the environment are not necessarily consumers of environmentally friendly clothing.

This research finds that perceptions of eco-innovation play an important role in shaping consumer attitudes towards green products. Green innovation refers to the development and implementation of products, processes, or practices that provide environmental benefits. Consumers with positive perceptions of eco-innovation tend to have a more positive attitude towards green products. Research shows that positive perceptions of environmentally friendly innovation are closely related to positive attitudes towards green products (Chen & Chang, 2012). Consumers who value innovative efforts to reduce environmental impact are more likely to support such products.

Consumers who believe that producers in producing products use few materials, their products can be recycled easily, produce as little waste as possible, and use minimal energy, will further encourage consumers' positive attitudes towards the use of green products. This research is in line with research conducted by Lin, Lobo, and Leckie (2017) which shows that consumers view products produced through environmentally friendly innovation as superior products and of higher value, which will increase positive attitudes towards green products. The research results are also consistent with findings from Yadav and Pathak (2017) who stated that when consumers believe that a company is committed to environmentally friendly practices, they tend to develop positive attitudes towards its products.

This research also found that perceptions of green products have a positive impact on attitudes towards green products. Positive perceptions of green product quality and environmental benefits significantly increase consumers' positive attitudes towards these products (Chen & Chang, 2012). When consumers believe that a green product is a product that pays attention to the composition of the product with a green label, considers raw materials originating from nature, organic raw materials, uses minimal preservatives, consumes little energy, reduces emissions in producing the product, and considers production waste. that is environmentally friendly, has a no animal testing label, uses recyclable packaging, then consumers will have an increasingly positive attitude towards green products. This perception of green products is important for consumers because they want products that are environmentally friendly and products that meet quality and performance standards (Laroche, Bergeron, and Barbaro-Forleo (2001). The research results are in line with research conducted by Gleim et al. (2013) which states that when consumers perceive green products as having reliable ecological benefits, for example reducing pollution and conserving resources, this will increase positive attitudes towards the product.

This research found that interpersonal interactions, such as communication between friends, family and co-workers, did not have a significant effect on attitudes towards green products. Interpersonal influence may not always influence consumers' attitudes towards green products for the following reasons, namely differences in values and priorities, skepticism towards sources providing information because they do not have sufficient knowledge or credibility about green products, or independence in making decisions. Consumers who are more independent in making decisions rely more on research and personal judgment rather than the influence of others. Other influencing factors are incompatibility with lifestyle, personal experiences that are not positive with green products in the past, limited information are factors that cause failure to support evidence in this research. Thus, although interpersonal influences can play a role in shaping consumer attitudes, there are many other factors that also influence consumer attitudes toward green products. Differences in values, priorities,

personal experiences, and social context can all influence the degree to which interpersonal influences impact consumer attitudes. The research results are in line with research conducted by Yen and Hoang (2023) who found that online product reviews functioned as social stimulation (interpersonal influence) which directly influenced green product purchase intentions but did not significantly influence attitudes towards green products.

The results also showed that attitudes towards green products have a positive effect on interest in buying green products. This positive attitude towards green products is important in increasing buying interest, especially if influenced by a supportive context. This research shows that when consumers have a positive attitude towards green products, their interest will increase significantly. Consumers who feel that buying green products is a good and wise action, buying environmentally friendly products will provide benefits and advantages for them, buying environmentally friendly products is a positive thing, buying green products is a satisfying experience, then they tend to be interested to purchase these green products. The research results are consistent with research conducted by (Cheah & Phau, 2011) which found that consumers with positive attitudes believe that green products are useful and of high quality, thus motivating them to consider purchasing. The research results are also in line with the research results of Setiawan et al. (2024) which shows that a positive attitude towards green products influences interest in providing green products.

This research failed to find evidence support for perceived product needs in moderating the influence of attitudes towards green products on interest in buying green products. This perception can influence purchasing decisions, especially when consumers have to choose between products that are considered important and products that are considered unimportant (Sheth, Newman, and Gross, 1991). However, the research results found the opposite result, that perceived product need was not a variable that moderated this influence. This may be caused by a number of factors, including the gap between attitudes and actions, economic and practical factors, or external influences which may also influence why research results do not receive evidence support. Purchasing decisions are often influenced by advertising, promotions, and other social influences that may be stronger than the perceived need for green products. Another factor that may play a role is consumer inertia, that is, consumers tend to keep buying the products they usually buy. Thus, although consumers may have a positive attitude and see a need for green products, various other factors that are more dominant in purchasing decisions can reduce the moderating effect of perceived need.

3.5 Recommendations for Company Managerial

Based on the research results, it was found that the variables that influence consumer attitudes towards green products are determined more by environmental awareness, perceptions of environmentally friendly products, and perceptions of eco-innovation. This attitude towards environmentally friendly products will then influence interest in purchasing environmentally friendly products. Therefore, the management of environmentally friendly companies/product producers need to consider these variables when carrying out green manufacturing.

Consumers who are aware of the environment will have strong ecological values in their beliefs, namely they always want to preserve nature, therefore they tend to choose products that are in line with this goal. Consumers who care about the environment prefer to consume natural food over conventional food, because consumers are concerned about the impact of human actions on the environment, which makes them choose to use it. Consumers who care about the environment will prefer products that have health and safety guarantees (Chambers et al., 2018). The first strategy that can be carried out by producers in green manufacturing is to create environmentally friendly product specifications that meet safety standards, the products made must certainly not pollute the environment, and be made from natural materials (Pankaj dan Vishal, 2014). Companies should carry out certification on their products, to ensure the safety of their product and obtain a green label. Companies can also campaign for the use of environmentally friendly products through various events, advertisements in various media that focus more on environmentally friendly products, as well as conducting company visits, so that consumers feel closer to their products so they are interested in buying the products (Veronika, 2022).

Regarding the perception of eco innovation, consumers who believe that producers use few materials in producing products and that their products can be recycled easily tend to be more supported by consumers, so consumers tend to choose their products (Schiffman & Wisenblit, 2014). The second strategy that can be carried out by companies as producers of environmentally friendly products is to create innovative products whose waste will certainly not pollute nature. Consumers who have a positive attitude towards environmentally friendly products will pay attention to the composition of products with a green label, consider raw materials that come from nature, consume little energy, reduce emissions in producing their products, consider environmentally friendly production waste, no animal testing, and the product uses recyclable packaging (Cheah & Phau, 2011; Setiawan et al., 2024). Thus, the third strategy that can be carried out by companies is that the products produced must be made from recycled materials, organic materials and non-toxic, for example not containing BPA. The fourth strategy is related to the production process,

companies can process these products using renewable energy, use designs that reduce carbon emissions, and must not produce hazardous waste that can pollute the environment (Kholiq, 2015).

The fifth strategy is related to product design, the company designs products using a modular design, meaning that it is easy to repair, renew and recycle when its useful life is over (Damayanti et al., 2022). Apart from that, the product must also be designed to be energy efficient, and designed to be durable, so that it cannot be replaced frequently. The last strategy that companies can implement is related to product packaging, companies use recycled packaging materials or use recyclable packaging, or reduce the amount of packaging as much as possible, or use reusable packaging (Coelho et al., 2020).

4. Conclusion

This research succeeded in providing support for the Attitude Behavior Context theory which was proposed to explain the phenomenon. The research results show that consumer attitudes towards green products are more determined by consumers' environmental awareness, perceptions of eco innovation, and perceptions of green products. Furthermore, consumer attitudes towards green products will then encourage consumer interest in consuming or purchasing environmentally friendly products.

The results of the research have implications for the company's production process, that producers must consider consumers who are already oriented towards environmentally friendly products. In producing green products, companies should pay attention to the materials used, whether they use organic materials, recycled materials, and non-toxic. Meanwhile, the production process uses renewable energy, reduces carbon emissions and good waste management. The product design uses a modular design, energy saving, and durable. The packaging should also use recycled packaging materials, or minimal packaging, or packaging that can be used repeatedly. Companies should certify their products, to ensure the safety of their product. Companies can also campaign to use environmentally friendly products through various events and advertisements in various media, carry out product innovations that focus more on environmentally friendly products, and carry out company visit programs, so that consumers feel closer to their products.

The limitation of this research is that the questionnaire was not distributed evenly to the wider community in DIY due to the sampling method used, and was only carried out via Google Form which was distributed to respondents via private messages in whats's app or Instagram online, so not all DIY residents use these two information technologies. The research results did not find evidence to support perceived product needs as a moderating variable, this is because product needs that are considered important abroad are different from those in Indonesia. Future research can remove outlier data so that better data testing results are obtained, used statistical sampling methods with clustering methods to produce samples that are more evenly distributed and more reflective of the population of the people in DIY. Researchers can adjust the questionnaire for products that are considered important for Indonesian people, such as basic necessities instead of question items about greeting cards or jewelry.

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