



## **Impact of Environmental Knowledge toward Green Purchase Intention: Attitude as Mediator**

**Sri Rahayu<sup>1</sup>,**  
**Evi Novitasari<sup>2</sup>,**  
**Nabila Kharimah Vedy<sup>3</sup>**

<sup>1</sup>*Department of Business and Financial, Faculty of Vocation, Universitas Negeri Yogyakarta*

<sup>2</sup>*Faculty of Economics and Business, Institut Bakti Nusantara, Lampung*

<sup>3</sup>*Faculty of Economics and Business, Universitas Islam Indonesia, Yogyakarta*

Corresponding Author: [nabilakv@gmail.com](mailto:nabilakv@gmail.com)

**Abstract:** *Environmental knowledge and attitudes are important factors in increasing the purchase intention of environmentally friendly products. This study aims to analyze the influence of environmental knowledge on green buying intention through environmental attitudes as mediators. This research uses a quantitative approach. The population of this study is consumers of Tupperware's eco-friendly products in Bandar Lampung. The research sample is women aged 25 to 40 who have bought Tupperware products. The sampling technique uses a purposeful sampling technique, with the criteria of female samples, minimum age of 25 and maximum of 40 years, and domicile in Bandar Lampung City. The data of this study is sourced from primary data generated from the distribution of questionnaires. The data obtained was analyzed using SmartPLS. The results of this study show that environmental knowledge affects environmental attitudes and green buying intentions. Environmental attitudes can be a mediator between environmental knowledge and green buying intentions. It shows that environmental knowledge, directly and indirectly, affects green buying intentions through environmental attitudes. does not have a significant direct influence on consumers' environmentally friendly purchase intentions.*

**Keywords:** *Environmental attitude; Environmental knowledge; Green purchase intention; Green product.*

### **1. Introduction**

The issue of environmental damage is still a theme that attracts the attention of all parties. One of the environmental issues that needs attention is microplastic pollution. This is a serious issue that has the potential to have a negative impact on the environment and human health (Tarricone et al., 2024). Microplastic particles have spread widely in various ecosystems in sea, air, and land, (Stapleton et al., 2023), which has tended to be ignored so far (Guo et al., 2022). This condition worsens because decomposing plastic into microplastics takes a very long time, causing a continuous buildup in the environment (Chen et al., 2024). Forming microplastics can be from discarded plastics directly or through more significant plastic degradation (Forster et al., 2023). Microplastics in marine waters are consumed by aquatic organisms, resulting in adverse impacts on the health of marine ecosystems and food chains (Dar et al., 2024). This microplastic pollution can be overcome by applying, among others, reducing the use of single-use plastics, developing more effective water filtration technology, and implementing strict regulations on the plastic industry (Fian et al., 2024).

Plastic food container products using harmless, recyclable, and environmentally friendly materials were developed by Tupperware, a pioneer of environmentally friendly

plastic products. The brand is focused on developing household products made of environmentally friendly plastics, such as plates, bowls, drink bottles, food containers, jars, and others. This company from the United States is experiencing poor financial conditions and is even potentially bankrupt. Furthermore, it is unable to finance its operations because it does not have sufficient finances (Chaeranieza & Desmiza, 2024).

**Table 1. Food Plastic Container Sales**

<b>Brand/Year</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Lion Star	36.70	33.70	31.90	30.80	30.80
Tupperware	33.60	32.70	25.00	22.50	16.30
Lock & Lock	7.00	11.00	12.80	13.40	11.50
Clariss	5.00	6.60	6.90	6.70	9.80
Kiramas	-	-	-	-	3.90

Source: Top Brand Award, 2024

Table 1. shows the number of consumers of food container plastic products of various brands from 2020 to 2024. The sales position of Tupperware in the Top Brand Award version is below Lion Star. From 2021 to 2024, Tupperware experienced a significant decrease from 33.60% in 2020 to 32.70% in 2021; this condition lasts until 2024. This fact indicates that Tupperware, as a pioneer product of environmentally friendly plastic products, is starting to be abandoned by consumers; in other words, there is a lack of consumer interest in buying these products.

Various kinds of the literature suggest that to foster consumer purchase intention in environmentally friendly products, green knowledge products must be needed (Putri & Hayu, 2024). People who have knowledge and understanding of green products will buy eco-friendly products. It is strengthened by the opinion that environmental knowledge can increase the purchase intention of environmentally friendly fashion products (Zhang et al., 2024). This phenomenon occurs in the younger generation when they have enough knowledge about the environment and are aware of the problems it causes, so they tend to buy and consume environmentally friendly and sustainable products (Pereira et al., 2024).

On the other hand, it was found that environmental knowledge cannot directly increase the intention to buy green products, but must be through environmental attitudes (Indriani et al., 2019). It shows that knowledge alone is not enough, but must be accompanied by an attitude so that the intention to buy environmentally friendly products grows. Environmental attitudes are proven to improve eco-friendly purchasing behavior (Ogiemwonyi et al., 2023) and mediate consumers' knowledge attachment to pro-environmental behavior (Tavitiyaman et al., 2024; Srisathan et al., 2024). It shows that environmental attitudes have a direct or indirect influence on environmentally friendly purchasing intentions. This is the reason why more research is needed. Based on the background description, the purpose of this study is to analyze the influence of environmental knowledge and environmental attitudes on green purchase intentions. In addition, to analyze the indirect influence of environmental knowledge on the green purchase intention of Tupperware container food plastic products.

## **2. Literature Review & Hypotheses Development**

### **2.1. Theory of reasoned action (TRA) and Theory of planned behavior (TPB)**

The theories for measuring the factors that influence behavioral intentions for consumers are the Theory of reasoned action (TRA) and the Theory of planned behavior (TPB) (Almrafee & Akaileh, 2024). The first person to introduce TRA is (Fishbein, 1976), developed a year later by Ajzen & Fishbein (1977), who stated that behavioral intentions that are direct predictors of actions are the result of individual beliefs about the likelihood that a behavior will produce certain results. Based on the TRA, beliefs that lead to behavioral intentions are divided into two main components, including behavioral beliefs and normative beliefs. Behavioral beliefs are a reflection of attitudes, while normative beliefs reflect subjective norms (Ajzen, 1980). It shows that intention behavior has a strong relationship with these components.

The TPB is a development of the TRA, which is needed to overcome the limitations of the model that individuals have incomplete control of the will. People's intention to act in a particular behavior is an important factor in the SDGs (Ajzen, 1985). Based on the opinion of Bosnjak et al. (2020), TPB is a person's intention to do a behavior. The components of the SDGs include attitudes, subjective norms, and perceived behavioral control. It emphasizes that the better the subjective attitude and norm, the greater the control felt so the stronger the individual's intention to perform a behavior.

### **2.2. Green Purchase Intention**

Purchase intent is one of the main concepts in marketing studies, and is used by companies as an indicator to predict sales of new products and repurchase of existing products (Ali et al., 2011). Meanwhile, in the study of green marketing, green purchase intent can be interpreted as an individual's desire to consider and choose environmentally friendly products rather than conventional or traditional products when making purchasing decisions (Ali & Ahmad, 2016). Furthermore, the intention to buy a product can be implemented into the behavior of purchasing green products when consumers believe that their efforts in consuming green products do bring positive effects (Kumar et al., 2017). The description indicates that green buying intention is an individual's desire to consider and choose environmentally friendly products because it is based on the belief that the consumption of environmentally friendly products has a positive impact on themselves and the environment.

### **2.3. Environmental Knowledge**

Environmental knowledge refers to the way individuals try to understand individuals about objects and everything around them (the environment) and its scope is very broad (Lee, 2010). This very broad level of coverage is related to the basic needs of humans who cannot survive without the environment. Therefore, any knowledge related to human life and the environment can be called environmental knowledge (Mantzicopoulos & Patrick, 2011). Environmental knowledge is knowledge that includes various facts, things that have an impact on the environment, and individual environmental responsibilities that lead to sustainable development (Fryxell & Lo, 2003). Thus, environmental knowledge is an

individual's level of understanding of an object, facts, and everything around it that has an impact on the environment, and a sense of responsibility for sustainable development.

#### **2.4. Environmental Attitude**

Attitude is the extent to which a person evaluates something that provides benefits or not, on the behavior shown by consumers (Ajzen, 1991). Another opinion is the intention of a person who comes from within the self toward objects that come from outside the self that are the basis and preparation for behavior (Lian et al., 2014). So, attitudes can be said to be a psychological process that includes perceptions, emotions, and behaviors that have long-term and consistent characteristics. Meanwhile, environmental attitudes are a combination of beliefs about environmental conditions in particular, as well as the entire environment, people, and objects that are directly related to the environment (Enfield & Mathew, 2012). Attitude towards the environment is the extent of the individual's commitment and support to objects and elements in the environment (Abdollahzadegan et al., 2013). Thus, an individual's attitude towards the environment is a consistent and long-term belief in objects and the conditions of the surrounding environment.

#### **2.5. Environmental Knowledge and Environmental Attitude**

Environmental knowledge consistently and positively influences environmental attitudes (Arcury, 1990). This means that increasing knowledge about the environment can change environmental attitudes. As stated by Liu et al., (2020) environmental knowledge is an important factor in efforts to improve environmental attitudes. Strengthened by previous studies that prove the high level of knowledge and positive attitude towards the environment among the students (Erhabor & Don, 2016). Knowledge has a great influence on attitudes related to the environment (Malik, 2020). A person's level of knowledge affects attitudes towards the environment and environmental problems.

Various kinds of literature suggest that green knowledge can affect a person's attitude in terms of environmentally friendly products. As an opinion (Liu et al., 2020) that environmental knowledge can improve environmental attitudes. Other research found that people with higher environmental knowledge were optimistic about environmental attitudes (Zheng et al., 2018). Likewise, people who have a more optimistic environmental attitude automatically show good environmental behavior (Indriani et al., 2019). A person's level of knowledge greatly determines a positive environmental attitude (Dhir et al., 2021; Kumar et al., 2017). These various opinions are the basis for building hypothesis 1 as follows:

*H<sub>1</sub>: Environmental knowledge has a positive and significant effect on environmental attitude*

#### **2.6. Environmental Knowledge and Green Purchase Intention**

Environmental knowledge is the most important factor for environmentally friendly behaviors (Hines et al., 1987). Knowledge about the environment that a person has, has a great influence on environmental problems. This is because, with the increase in environmental knowledge, consumers can get a lot of information, so that the intention to buy also increases (Roh et al., 2022). Consumers who know environmental issues will have a positive attitude towards environmentally friendly products which can affect purchase

intentions (Hong et al., 2023). Thus, the level of knowledge about the environment and environmental issues greatly determines that consumers have the intention to buy environmentally friendly products.

Previous studies have found that environmental knowledge positively and significantly influences the green purchase intentions of consumers in Algeria (Alalei & Jan, 2023). Consumers who have a higher level of environmental knowledge are sure to have consumer purchase intentions on environmentally friendly products (Putri & Hayu, 2024). This is in line with the opinion that someone who has environmental knowledge correlates intending to buy environmentally friendly fashion products (Zhang et al., 2024). Sufficient knowledge about the environment and awareness of the problems it causes will lead to buying and consuming environmentally friendly and sustainable products in the younger generation (Pereira et al., 2024). Therefore, hypothesis 2 can be formulated as follows:

*H<sub>2</sub>: Environmental knowledge positively and significantly affects green purchase intention.*

## **2.7. Environmental Attitude and Green Purchase Intention**

Attitude is an interaction between a certain object and its evaluation in a person's memory. Therefore, attitude can be considered a way of expressing the psychological judgment of a product by consumers (Eagly & Chaiken, 2014). Several previous studies have focused on the relationship between attitudes and intention behaviors. Attitude is an important predictor of the buying intention of fashion products in India (Tiwari et al., 2024). Another study found that environmental attitudes were closely related to the intention to buy green products (Yadav & Pathak, 2017). Environmental attitudes among the millennial generation have been proven to influence the intention to buy organic products in Peru (Hoyos-Vallejo et al., 2024).

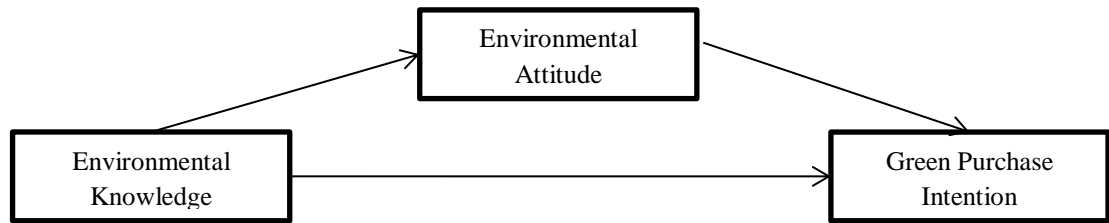
Furthermore, significant environmental attitudes can increase environmental behavioral intentions (Liu et al., 2020). Environmental attitudes are essential in increasing the purchase intention of environmentally friendly products (Trivedi et al., 2018). Environmental Attitudes conclusively play a role in influencing green buying intentions, especially related to the concept of replacing single-use plastic bags in modern retail (Fahmi et al., 2023). This is the basis for formulating hypothesis 3 as follows.

*H<sub>3</sub>: Environmental attitude positively and significantly affects green purchase intention.*

## **2.8. Role of Mediation Environmental Attitude**

Environmental knowledge has a positive relationship with the purchase intention of eco-friendly fashion products (Zhang et al., 2024). A person with a better understanding of the environment and the problems it causes will buy and consume environmentally friendly and sustainable products (Putri & Hayu, 2024). Likewise, environmental attitudes significantly affect green buying intentions (Fahmi et al., 2023; Trivedi et al., 2018). Environmental knowledge cannot directly affect the intention to buy green products but can have an indirect effect, namely through environmental attitudes as mediation (Tavitiyaman et al., 2024; Indriani et al., 2019). These reasons are the basis for formulating the following 4 hypotheses.

*H4: Environmental attitude mediates the influence of environmental knowledge on green purchase intention.*



**Figure 1. Research Model**

### 3. Method

The approach used in this study is quantitative. Quantitative research focuses on the analysis of phenomena or reality, then used to study populations and samples by collecting data in the form of scores or numbers. The object of research is women who have not yet become users of Tupperware products in Bandar Lampung City. The determination of the age and gender of the respondents refers to the opinion of (Pardede et al., 2024) that Tupperware consumers are dominated by women between the ages of 25 and 40. The sampling technique uses a purposive sampling technique. The criteria for female respondents, aged 25 to 40 years, are domiciled in Bandar Lampung City. The data obtained through the distribution of questionnaires was processed using SmartPLS.

**Table 2. Research Instrument**

Variables	Instrument
Green Purchase Intention (Maichum et al., 2017)	<ol style="list-style-type: none"> <li>1. I will buy eco-friendly products even though they are more expensive than other products</li> <li>2. I will buy eco-friendly products</li> <li>3. I chose Tupperware products because they are environmentally friendly</li> </ol>
Environmental Attitude (Maichum et al., 2016); (Paul et al., 2016)	<ol style="list-style-type: none"> <li>1. Eco-friendly products have a positive impact on the environment</li> <li>2. I think green products are a great idea</li> <li>3. I have a good attitude towards green products</li> <li>4. I believe that green products help reduce pollution</li> <li>5. I believe that green products help nature and its resources</li> </ol>
Environmental Knowledge (Maichum et al., 2017); (Yadav & Pathak, 2016).	<ol style="list-style-type: none"> <li>1. I always check the green label before buying a green product</li> <li>2. I want to have a better insight into the inputs, processes, and impact of the product before purchasing</li> <li>3. I try to get important information about eco-friendly products before buying</li> </ol>

This research instrument is adapted from the previous study, the green purchase intention variable. The environmental attitude variable was adapted from (Maichum et al., 2016); Paul et al., 2016), and the variable environmental knowledge of (Maichum et al., 2016). The green purchase intention and environmental knowledge variables were measured using three instruments, while the environmental attitude variable was measured with three instruments (Table 2). The answer is measured by a 5-point scale, in which 1 = do not agree

and 5 = very agree. The questionnaire of the three variables was distributed through Google Forms and WhatsApp.

#### 4. Result and Discussion

The characteristics of the respondents of this study are summarized in Table 3. The respondents of this study are all women. The majority of them are 36-40 years old (43.6%), with the majority of bachelor's education levels (75.2%), having a monthly income of more than Rp. 5 million (49.6%).

**Table 3. Respondent Characteristic**

Profile of respondent (1)	Total (2)	Percentage (%) (3)
Respondent age:		
1. 25-30 year	26	22.2
2. 31-35 year	40	34.2
3. 36-40 year	51	43.6
Education		
1. Senior High School	20	17.1
2. Diploma	9	7.7
3. Bachelor's Degree and more	88	75.2
Gender		
1. Female	117	100
2. Male	0	0
Income/month		
1. Rp. 3 - 4 million	29	24.8
2. Rp. 4 - 5 million	30	25.6
3. > Rp. 5 million	58	49.6

Validity and reliability in analysis using SmartPLS is a way to measure data or models. The validity and reliability analysis results in quantitative research need to be evaluated on the inner and outer models. The evaluation of the outer model used convergent validity, reliability, and discriminant validity. The validity of a variable is stated to have high validity if the *Average Variance Extracted* (AVE) value is more than 0.50 (Sarstedt et al., 2017). The results of the AVE test are summarized in Table 4, showing that the variables of green purchase intention, environmental attitude, and environmental knowledge obtained an AVE value of more than 0.50. Thus, all variables of this study can be declared valid.

**Table 4. The Test of Validity and Reliability**

Variable	Cronbach alpha	Composite Reliability	Average Variance Extract
Green Purchase Intention	0.786	0.875	0.699
Environmental Attitude	0.800	0.852	0.539
Environmental Knowledge	0.715	0.841	0.640

The reliability of a variable can be seen from the Composite Reliability (CR) value and the *Cronbach Alpha* (CA) value. The standard reliability value of a variable must have a  $\geq$  value of 0.7 (Hair Jr et al., 2014), but a value of  $\geq 6$  can still meet the standard of realism. The CR and CA values of the variables in this study are summarized in Table 4. The CR value of green purchase intention is 0.875, and the CA is 0.786; the environmental attitude gets a CR value of 0.852, and the CA value is 0.539, the CA value is less than 6, but because the CR value has met the standard, this variable can still be declared reliable. Environmental

knowledge obtained a CR value of 0.841 and a CA value of 0.715. This result shows that all variables can be declared reliable.

**Table 5. The Test of Discriminant Validity**

	Environmental Attitude	Environmental Knowledge	Green Purchase Intention
Environmental Attitude (EA)	0.734		
Environmental Knowledge (EK)	0.289	0.800	
Green Purchase Intention (GPI)	0.407	0.485	0.836

In addition to the Average Variance Extracted (AVE) value used to evaluate the validity of a variable's construct, discriminant validity or fornell-larcker criterion and Standardized Loading Factors (SLF). This method is done by comparing the correlation value between the construct and its indicators, which is ideally larger than the correlation value between other constructs. Table 5 summarizes the results of the discrimination validity test, which shows that each variable meets the set criteria because the variable has a higher variance with its indicator than other variables. Meanwhile, the SLF values summarized in Table 6 show that all the constructs of this research variable obtained a value of more than 5 (> 0.5), which can be declared valid. It can be concluded that all variables of this study have high validity.

**Table 6. The Test of Standardized Loading Factors & Multicollinearity**

Variable	Indicator	Standardized Loading Factor	VIF
Green Purchase Intention	GPI1	0.853	1.676
	GPI2	0.814	1.652
	GPI3	0.841	1.602
Environmental Attitude	EA1	0.585	1.639
	EA2	0.653	1.793
	EA3	0.731	1.415
	EA4	0.831	2.016
	EA5	0.837	1.954
Environmental Knowledge	EK1	0.818	1.678
	EK2	0.859	1.740
	EK3	0.715	1.206

Table 6. Summarize the results of the multicollinearity test. Variable if the VIF value is less than 5 in each indicator, it can be stated that there is no multicollinearity problem (Hair et al., 2014). Each indicator of the variables green purchase intention, environmental attitude, and environmental knowledge obtained a VIF value of less than 5 (<5), so that it can be stated that there is no multicollinearity problem.

The results of the hypothesis test of this study are summarized in Table 7, there are four hypotheses that tested the direct influence declared accepted, as well as the results of the indirect influence test. The conditions for testing the direct influence between variables and indirect influence are seen from the original sample value (O) to see the direction of the negative or positive relationship. To see whether the variable has an influence is seen from the t value > 1.96. Meanwhile, the significance of the influence between variables is seen from the P-value ≤ 0.05 (Sarstedt et al., 2017). Based on information from Table 7,

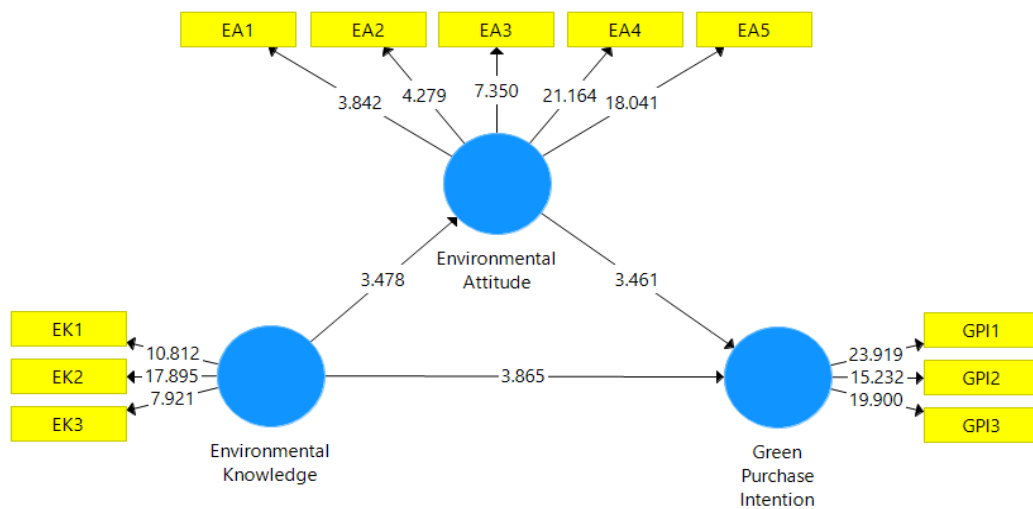


hypotheses 1 to 4 are accepted. The results of testing this research model as a whole are also shown in Figure 2.

**Table 7. The Hypothesis Testing**

Hypothesis	Original Sample (O)	T Statistics	P Values	Description
EK => EA	0.289	3.114	0.002**	Accepted
EK => GPI	0.401	3.951	0.000**	Accepted
EA => GPI	0.291	3.495	0.001**	Accepted
EK => EA => GPI	0.084	2.282	0.023*	Accepted

\*\* Sig < 1%; \* Sig < 5%



**Figure 2. Research Model Test Results**

Based on the research results, green knowledge has a positive and significant effect on environmental attitudes. This means that if a person has a high level of knowledge, then automatically, a person has a high attitude towards the environment as well. This research found that environmental knowledge can improve environmental attitudes (Liu et al., 2020). Likewise, other research findings show that people with higher environmental knowledge will be optimistic about showing environmental attitudes (Zheng et al., 2018). A person's level of knowledge greatly determines a positive environmental attitude (Dhir et al., 2021; Kumar et al., 2017). Thus, environmental attitudes are largely determined by a person's level of knowledge about the environment and the problems it causes.

The results of this study also found that environmental compliance has a positive and significant effect on green purchase intentions. This emphasizes that consumers who have a higher level of environmental knowledge have consumer purchase intentions on environmentally friendly products. Without better knowledge about the environment, it is difficult to make a consumer have the intention to buy environmentally friendly products. The results of this study that someone who has environmental knowledge correlates intending to buy environmentally friendly fashion products (Zhang et al., 2024). This means that a person who has enough knowledge about the environment will have a high awareness

of the problems caused by human behavior, so they will be more likely to intend to buy and consume environmentally friendly and sustainable products (Pereira et al., 2024). Therefore, companies must always strive to provide better knowledge and information about the environment, and environmental issues on an ongoing basis to target consumers so that they can have better knowledge and ultimately have the intention to buy environmentally friendly products.

The results of this study prove that environmental attitudes have a positive and significant effect on green buying intentions. This confirms that if a person's environmental attitude increases, the intention to buy environmentally friendly products will also increase. The importance of a positive attitude towards a better environment in an effort to increase green buying intentions must be a concern for companies. The results found that environmental attitudes have an important role in increasing the purchase intention of environmentally friendly products (Liu et al., 2020; Trivedi et al., 2018). Furthermore, the results of this study show that environmental attitudes are an important factor in efforts to improve green buying intentions (Fahmi et al., 2023).

The indirect influence between environmental knowledge and green purchase intention is also discussed in this study. This study succeeded in proving that environmental attitudes can play a role as a mediating variable for the influence of environmental knowledge with green purchase intentions. This research supports that environmental attitudes can bridge the indirect influence between environmental knowledge and green buying intentions (Tavitiyaman et al., 2024; Indriani et al., 2019). It emphasizes that consumer knowledge about a better environment can not necessarily increase the intention to buy environmentally friendly products, but must be through a positive attitude towards the environment. Consumers' attitude towards the environment is shown by having a level of confidence that eco-friendly products have a positive impact on the environment, can help reduce pollution, help protect nature and its resources, and believe that green products are a good idea.

## **5. Conclusion and Limitations**

The results of this study show that environmental knowledge affects environmental attitudes and green buying intentions. Environmental attitudes can be a mediator between environmental knowledge and green buying intentions. It shows that environmental knowledge, directly and indirectly, affects green buying intentions through environmental attitudes. does not have a significant direct influence on consumers' environmentally friendly purchase intentions. The limitations of this study include only examining female respondents, and only one region/city. Future research can expand the research area and research respondents from the male gender also to obtain better results in terms of the intention to buy environmentally friendly products so that generalizations of research results can be obtained. In terms of age, it can be done in the millennial or Gen Z generation. It is important to see respondents at a younger age in terms of knowledge about the environment as well as attitudes and intentions to buy environmentally friendly products among Gen Z.

This is to see how the younger generation behaves towards environmentally friendly products.

This research model can also be developed by involving other variables, such as environmental concerns, as antecedents of green purchase intention, because they are important factors in increasing purchase intent (Malhotra & Shaiwalini, 2024). While consequential variables of green purchase intention like green product purchase decisions (Mutmainah & Wahidhani, 2024) and brand loyalty (Nguyen et al., 2023). Purchase decisions are essential and a continuation of intent. Likewise, with loyalty, the company expects that consumers not only have the intention to buy but actually act to decide to buy and rebuy or be loyal because loyalty is the strength of the company (Sam et al., 2023).

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