





Driving green purchasing: how knowledge and consciousness shape attitudes and intentions to use plastic bottles in East Java

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ABSTRACT

As a country contributing 1.4 tons of plastic waste to the world's waters, Indonesia requires a mature green concept implementation from various stakeholders. However, it is regrettable that no FMCG company has a comprehensive strategy to commit to switching from single-use plastics. This concept enables companies to play in an underutilized niche market. This study fills the knowledge gap by investigating the complex relationship between environmental knowledge, environmental concern, consumer attitudes, and purchase intentions for plastic-bottled beverages. Data were obtained through an online questionnaire distributed to 297 respondents in the East Java. Data were processed using path analysis, revealing that environmental knowledge and concern, as well as consumer attitudes, have a positive and significant relationship with green purchase intention. Environmental knowledge and concern also positively and significantly affect consumer attitudes. Moreover, positive consumer attitudes can reduce the influence of environmental knowledge and concern on purchasing environmentally friendly products. This confirms that positive consumer attitudes towards environmentally friendly products are not the only factor influencing their purchase intentions.

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Introduction

Currently, Indonesia can contribute 1.4 tons of plastic waste per month to the waters (Block et al., 2024). Like two sides of the same coin, increased consumption is always tied to waste management issues in a country. Greenpeace International in 2018 stated that the fast-moving consumer goods (FMCG) industry, particularly the bottled beverage category, is the largest contributor to plastic waste globally. In 2021 alone, research showed 849,321 units of plastic bottle waste and 415,245 units of plastic bags polluting the environment (Wahyuni, 2021). Other data indicate that at least 40% of global plastic production is designated for product packaging in this industry (Salomonus, 2021). One solution is the implementation of a green concept. It should be noted that the application of the green concept in manufacturing companies, especially FMCG in Indonesia, is still low. Several barriers limit companies from optimally applying the green concept, such as costs, lack of education and awareness, and high competition intensity (Roschangar et al., 2015). Moreover, the lack of understanding of its benefits makes the adoption of this concept less attractive. However, the implementation of this concept can be a competitive advantage for a company (Arseculeratne & Yazdanifard, 2013).

This concept allows companies to play in a new niche market that is underutilized by competitors. This assertion is confirmed by a Forbes article in 2023, which shows a shift in consumer behavior patterns: consumers are now more likely to avoid products using single-use plastics. As market preferences and awareness of environmental impacts change, understanding consumer purchase intentions can help companies map out new opportunities. Another opinion states that the application of the green concept can help companies increase competitiveness and improve corporate reputation (Mani & Ndubuisi, 2023). This can be a significant opportunity for companies concerned about business sustainability and the environment. In Indonesia, the trend towards a green

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lifestyle has been evident since 2018. A survey by Kedai KOPI indicates that this trend is dominated by Gen Z (14-24 years) and Millennials (25-40 years) (Annur, 2022).

Other research also shows that young people in Indonesia today have a higher concern for environmental issues (Putri & Pratiwi, 2022). This behavior of caring for environmental sustainability is formed due to the high exposure to technology-based information that people receive daily. Nugroho (2021) argues that living in the digital era makes consumers have high social character, are flexible, care about the environment, and tend to be collaborative. Companies can capitalize on this increase by exploring more deeply by understanding consumer behavior through their purchase intentions. Hawkins & Mothersbaugh (2010) emphasize that consumer behavior, which continues to change over time, makes purchase intentions a useful tool for business actors to gather important information. Thus, research on purchase intentions will always be relevant in helping business actors develop products and services that meet consumer needs and wants (Zandstra et al., 2013).

In addition to a general understanding of the green concept, a deeper understanding of green consumers is also necessary. Green consumers can be defined as individuals who make purchases considering the environmental impact of the goods, they consume (Peattie, 2010). The more consumers are aware and concerned about environmental issues, the greater the potential for positive change (Saragih, 2016). Zhuang et al. (2021) mention in their research that the biggest drivers of green purchase intention are environmental knowledge and concern. Other research also shows that environmental concern has a positive and significant effect on green purchase intention (Fabiola & Mayangsari, 2020; Qomariah & Prabawani, 2020).

Aligned with these findings, Moslehpour et al. (2023) indicate that environmental knowledge is a key element influencing consumer attitudes and behaviors, particularly towards environmentally friendly products. This knowledge includes understanding environmental issues such as climate change, air pollution, resource sustainability, and the impact of human activities (Kaiser & Fuhrer, 2003). The higher the environmental knowledge of a person, the greater the likelihood they will choose or intend to use green products. This statement is supported by several studies showing a positive correlation between environmental knowledge and green purchase intention (Fabiola & Mayangsari, 2020; Moslehpour et al., 2023; Qomariah & Prabawani, 2020; Zaremohzzabieh et al., 2021). However, some studies found different results when examining the impact of environmental knowledge on green purchase intentions. To understand the research gap in this study, the researcher has explained it in **Table 1**.

Table 1: Gap Research

Researchers	Variable Relationship	Research Result
Moslehpour <i>et al.</i> (2023)	1. EC → GPI 2. EK → GPI	1. Significant 2. Significant
Fabiola & Mayangsari (2020)	1. EK → GPI 2. EC → GPI	1. Significant 2. Significant
Simanjuntak <i>et al.</i> (2023)	1. EK → GPI	1. Not Significant
Indriani <i>et al.</i> (2019)	1. EK → GPI	1. Not Significant
Qomariah & Prabawani (2020)	1. EK → GPI 2. EC → GPI	1. Not Significant 2. Not Significant

Source: Author (2024)

Research results indicate there is no correlation between environmental knowledge and green purchase intention (Indriani et al., 2019; Qomariah & Prabawani, 2020; Simanjuntak et al., 2023). It is explained that this can be due to the inconsistency between attitudes and personal values in an individual. Sometimes, individuals have good environmental knowledge, but their attitudes or personal values may not align with the intention to purchase environmentally friendly products. This underpins the addition of the mediating role of consumer attitude in this research. The addition of this variable is also based on several studies explaining the mediating influence of consumer attitudes on the relationship between environmental knowledge and concern and green purchase intention (Indriani et al., 2019; Moslehpour et al., 2023; Zaremohzzabieh et al., 2021).

Researchers view that individual consumption behavior change has great potential in addressing current environmental challenges. In this context, environmental knowledge and concern are identified as key elements that can influence consumer attitudes and purchase intentions for environmentally friendly products (Dunlap & Catton, 1979). This study fills the knowledge gap by investigating the complex relationships between environmental knowledge, environmental concern, consumer attitudes, and purchase intentions for environmentally friendly products. These findings are important for stakeholders who want to promote more environmentally responsible consumption. To explore the relationship between each variable in this study, researchers chose East Java as the research location for individual consumption behavior towards environmentally friendly products. East Java is the second most densely populated province in Indonesia.

In terms of research representation, results in this province can better represent consumer behavior in Indonesia. Additionally, East Java is a province with a diverse population from various backgrounds, allowing researchers to study green purchase intention in different contexts. Another consideration is the strong economic growth in East Java, which may indicate that the population tends to have higher purchasing power, influencing their tendency to buy environmentally friendly products. These reasons make East Java an ideal research object to answer and explain social phenomena generally. With a focus on individual behavior in consuming bottled

beverage products, this study will further explain how individuals can become agents of change in promoting more environmentally responsible consumption.

Literature Review

Green Purchase Intention

Green purchase intention can be defined as the willingness of consumers to buy a product or service that tends to be ecologically beneficial, even though the cost to the consumer tends to be higher (Hartmann & Apaolaza-Ibáñez, 2012). Ecological benefits can be understood as the positive impacts or advantages gained by the environment because of human activities or certain factors (Martin & Lyons, 2018). Franco (2013) retrieved that this also involves understanding that every human activity can impact the balance and sustainability of ecosystems. From the above explanations, green purchase intention means the desire or tendency of consumers to buy environmentally friendly goods or services or those that have a positive impact on the environment. Several factors can influence a person's intention to buy environmentally friendly products, including attitudes towards the environment, environmental knowledge, demographic factors, accessibility, and social influence (Griskevicius et al. (2010). In this study, the researchers will use four items to measure the green purchase intention (GPI) variable in consumers, with these measurement items adopted from (Zhuang et al., 2021). The items used in this study refer to items previously used in research by (Chan, 2001) including product replacement, brand replacement, and consider to buy.

Consumer Attitude

Consumer attitude is a predisposition exhibited by an individual (Ikechukwu et al., 2012). Further explained, consumer attitude is an inclination to act towards everything, including rejecting or accepting, which arises within an individual based on everything they have previously learned. The attitude that emerges in consumers is not merely a temporary feeling or evaluation; instead, consumer attitude refers to a much more consistent and enduring perspective (Solomon et al., 2019). This means that the attitude may remain the same over a certain period. It shows that customer attitudes stem from deeper thinking and experiences rather than an immediate reaction to a stimulus (Peter & Olson, 2010). Based on the above explanations, it can be interpreted that consumer attitude is a long-lasting individual evaluation that can shape their consumption behavior. At least five factors can influence or shape consumer attitudes towards something, according to Peter & Olson (2010) including: consumer knowledge, consumer experience, marketing communication, environmental opinions, and personal values and beliefs. In the context of this study, consumer attitude refers to individual views, evaluations, and emotions towards environmentally friendly products and environmental sustainability issues. To measure the consumer attitude variable in this study, the researchers will adopt three items used in the research by (Mani & Ndubuisi, 2023). These indicators refer to previous research conducted by Crano & Prislin (2008) and they include: cognitive component, affective component, and conative component.

Environmental Knowledge

Environmental knowledge can refer to an individual's level of knowledge matter of fact information or their awareness of environmental issues, conditions, and practices (Dunlap & Van Liere, 1978). This can also include knowledge about specific environmental issues as well as broader ecological principles. According to Kollmuss & Agyeman (2002) environmental knowledge involves a deeper understanding than merely comprehending a set of facts. Another opinion asserts that environmental knowledge can be defined as an individual's awareness and understanding of environmental issues, policies, and their ability to implement this knowledge in responsible decision-making (Polonsky et al., 2012). Therefore, environmental knowledge can be identified through understanding facts, ideas, and theories that support a better comprehension of the issues, conditions, and complexities of the relationship between humans and the environment. In the context of this study, environmental knowledge refers to an individual's knowledge of environmental issues and their ability to understand and evaluate their impact on society and the environment. To measure the environmental knowledge variable, the researchers adopt four indicators used in the research by Sousa et al. (2021) which refer to the research by Kaiser & Fuhrer (2003), including: declarative knowledge, procedural knowledge, effectiveness knowledge, and social knowledge.

Environmental Concern

According to Dunlap & Van Liere (1978) environmental concern can be defined as a general attitude reflecting the extent to which an individual cares about environmental issues. This concern includes feelings of responsibility, worry, and the importance of being aware of environmental problems. Another definition states that environmental concern encompasses an individual's concern about the impact of human activities on the environment (Schultz, 2001). This concern can also include an individual's understanding of how human activities can affect the environment. Additionally, environmental concern can be identified as an individual's interest in or commitment to environmental issues, including awareness of environmental problems and their willingness to act (Stern et al., 1999). Based on these expert views, environmental concern can be interpreted as an individual's understanding and concern about the problems and impacts of human activities on the environment, such as concern about the current state of their environment. In the context of this study, environmental concern refers to the level of attention and care individuals have towards environmental issues and sustainability. To measure this variable, the researchers adopt several items used in the research by Cruz & Manata (2020)

which refer to the study conducted by Schultz (2001) items used include: biospheric concern, egoistic concern, and social altruistic concern.

Hypotheses Development

Environmental Knowledge and Green Purchase Intention

According to the social psychology theory often referred to as the Value Belief Norm (VBN) Theory, it examines how norms, values, and beliefs influence an individual's behavior (Stern *et al.*, 1999). Furthermore, in the context of pro-environmental behavior, individuals with extensive knowledge about environmental issues tend to have values and beliefs that support their environmentally friendly actions. This is consistent with the findings of research conducted by Moslehpour *et al.* (2023) which shows that knowledge about environmental issues and the intention to purchase eco-friendly products are positively correlated. The good environmental awareness possessed by a customer influences their intention to consider the source and type of products they should purchase. Another study also found that individuals with higher levels of environmental knowledge tend to have stronger intentions towards eco-friendly products (Fabiola & Mayangsari, 2020). Based on this explanation, it prompts the researcher to formulate the hypothesis in this study, as follows:

H₁: Environmental knowledge has a positive and significant effect on green purchase intention.

Environmental Concern and Green Purchase Intention

The Stimulus Organism Response (SOR) Theory is a psychological framework that explains the relationship between stimulus, individual response, and behavior (Mehrabian & Russell, 1974). According to the SOR theory, environmental concern can be triggered by external stimuli, which in turn impacts an individual's tendency to make eco-friendly purchases. Consistent with the research findings by Fabiola & Mayangsari (2020) their study shows that environmental concern has a positive correlation with the intention to purchase eco-friendly products. It is further explained that individuals with a higher level of environmental concern tend to think more carefully about their consumption patterns, often choosing to consume more environmentally friendly products. Referring to other findings by Moslehpour *et al.* (2023) their research indicates that individuals in Taiwan and Mongolia exhibit similar attitudes concerning the relationship between these two variables. Individuals with a higher level of environmental concern are likely to have a stronger intention to purchase eco-friendly products. Based on these explanations, the researcher intends to formulate the research hypothesis as follows:

H₂: Environmental concern has a positive and significant effect on green purchase intention.

Environmental Knowledge and Consumer Attitude

In 1991, Icek Ajzen developed the Theory of Planned Behavior (TPB). This theory is an extension of the Theory of Reasoned Action and is used to study human behavior, including consumer behavior. The theory focuses on how a person's attitudes, intentions, and perceived barriers influence their behavior (Ajzen, 1991). Research findings demonstrate that a broad understanding of the environment will affect a person's perception of the environment. This will be reflected in environmentally friendly attitudes (Simanjuntak *et al.*, 2023). Another study indicates that better knowledge possessed by individuals can lead to more responsible choices in everything they consume, which in turn results in better attitudes and actions toward the environment (Zaremohzzabieh *et al.*, 2021). In line with previous research Indriani *et al.* (2019) state that knowledge about environmental issues is crucial in encouraging Egyptian consumers to become more environmentally friendly. In other words, individuals with good environmental knowledge are likely to have a positive attitude towards eco-friendly products. Based on these findings, the research hypothesis can be formulated as follows:

H₃: Environmental knowledge has a positive and significant effect on consumer attitude.

Environmental Concern and Consumer Attitude

The study conducted by Stern *et al.* (1999) developed and tested the Value Belief Norm Theory in the context of support for environmental movements. They examined how individual principles, beliefs, and social norms influence attitudes toward environmental movements. The research findings indicate that people who are highly concerned about their environment and believe that their actions affect their environment tend to have positive attitudes and support environmental initiatives. According to this theory, social norms, individuals' views on how their actions impact the environment, and their beliefs about the effects of their actions on the environment play crucial roles in shaping consumer attitudes toward environmental issues. Consistent with this explanation, similar research findings indicate that environmental concern has a positive correlation with perceived behavioral control and attitude but does not show a strong correlation with subjective norm (Hong *et al.*, 2023). Additionally, other research results show that environmental concern has a positive and significant relationship with consumer attitude (Moslehpour *et al.*, 2023; Zaremohzzabieh *et al.*, 2021). From the research explanations above, it can be explained that a consumer's concern for the environment leads to a positive attitude toward eco-friendly products. Based on these findings, the research hypothesis can be formulated as follows:

H₄: Environmental concern has a positive and significant effect on consumer attitude.

Consumer Attitude and Green Purchase Intention

According to the Theory of Planned Behavior, there are three components that influence the intention to perform a behavior: individual attitude toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991). Attitude refers to how a person views the behavior. In the context of this research, attitude reflects how someone evaluates purchasing eco-friendly products. If a person has a positive attitude toward eco-friendly products, such as believing they are beneficial for the environment, they are more likely to have the intention to buy such products. Consistent with the views in this theory, research findings indicate that consumer attitude toward green purchase intention is more predictive than the other two TPB constructs (Zaremohzzabieh *et al.*, 2021). Furthermore, other research findings also show a strong correlation between consumer attitude and green purchase intention (Hong *et al.*, 2023; Indriani *et al.*, 2019; Moslehpour *et al.*, 2023; Simanjuntak *et al.*, 2023). Based on the above explanations, the researcher can formulate the fifth hypothesis in this study as follows:

H₅: Consumer attitude has a positive and significant effect on green purchase intention.

Environmental Knowledge and Green Purchase Intention Through Consumer Attitude

In this study, it is hypothesized that consumer attitude mediates the relationship between environmental knowledge and green purchase intention. This hypothesis is based on the Theory of Planned Behavior, which explains that a consumer's attitude plays a crucial role in certain behaviors (Ajzen, 1991). Environmental knowledge is a strong factor that can shape a consumer's attitude. An individual's environmental knowledge, including their understanding of environmental issues, knowledge of scientific facts about the environment, and various environmental-related information, tends to shape their attitude toward environmental sustainability. Ultimately, this knowledge tends to encourage an individual's intention to contribute to environmental conservation. The relevance of this theory is also proven in several studies, which show that consumers with higher levels of environmental knowledge tend to have positive attitudes towards the environment, and therefore, they are more likely to have intentions to make eco-friendly purchases (Indriani *et al.*, 2019; Moslehpour *et al.*, 2023; Zaremohzzabieh *et al.*, 2021). Based on the above explanation, the hypothesis in this study can be formulated as follows:

H₆: Environmental knowledge has a positive and significant effect on green purchase intention through consumer attitude.

Environmental Concern and Green Purchase Intention Through Consumer Attitude

In simple terms, environmental knowledge and environmental concern refer to the same context but have specific conceptual differences. Environmental concern tends to refer to an individual's feelings about environmental issues, including both worries and a sense of responsibility for environmental damage. According to the research by Zaremohzzabieh *et al.* (2021) it was found that a consumer's attitude toward the environment is shaped by their environmental concern. The article further explains that an individual's empathy towards environmental issues tends to lead to a positive attitude, which also impacts their intention to purchase eco-friendly products. Consistent with this research Moslehpour *et al.* (2023) found that consumer attitude fully mediates the relationship between environmental concern and green purchase intention. Both studies reaffirm the relevance of the Theory of Planned Behavior in the relationship among these three variables. The theory further explains that a person's attitude can be triggered by their belief in certain consequences (Ajzen, 1991). In the context of this study, the belief is that when an individual is focused on environmental issues and believes that their consumption behavior impacts the environment, they tend to have a positive attitude towards environmental issues. Based on these explanations, the research hypothesis can be formulated as follows:

H₇: Environmental concern has a positive and significant effect on green purchase intention through consumer attitude

Based on the observations presented in the background section of the study, along with the support of existing theories and previous research, the researcher was able to identify at least three variables that are relevant in influencing green purchase intention, namely: environmental knowledge, environmental concern, and consumer attitude. Therefore, a conceptual framework for the research can be formed. This conceptual framework can also be used as a basis for formulating the research hypotheses. In **Error! Reference source not found.**, the researcher can explain the conceptual framework that displays the model structure to illustrate the relationships between Environmental Knowledge (X₁), Environmental Concern (X₂), Consumer Attitude (Z), and Green Purchase Intention (Y).

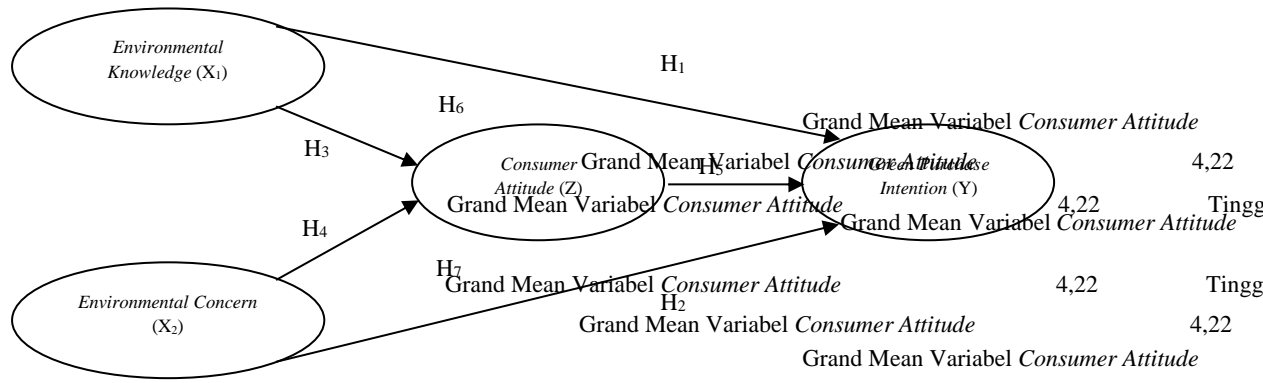


Figure 1: Conceptual Framework; Source: Author (2024)

Research and Methodology

A quantitative research method is used in this study, with consumers of plastic-bottled beverages in East Java as the research population. The representative sample size is calculated using the approach by Hair et al. (2010) where this approach can be done by multiplying 5-10 times the number of items used in the study. Then as a preventive step from obstacles in data collection, the researcher increased the sample size by 10% of the minimum number, so that the number of samples in this study was 297 respondents. This study uses a 5-point Likert scale as the measurement scale. Each research variable is measured through four indicators adopted from several relevant previous studies. As shown in

Table 2, the measuring instruments for environmental knowledge, environmental concern, consumer attitude and green purchase intention. Path analysis is employed as the data analysis method, using SPSS version 25 software. To ensure the reliability of the research results, the researcher conducted pilot tests, including validity and reliability tests, as well as classical assumption tests, including normality and heteroscedasticity tests.

The sampling technique used in this study is non-probability sampling with a purposive sampling approach. East Java is divided into 8 clusters: Labanegoro, Wilis Utara, Wilis Selatan, Malang Raya, Metropolitan, Probomajang, Ijen, and Madura. To capture the phenomenon of environmentally friendly purchasing behavior, especially for plastic bottled beverages in East Java, several criteria were set to limit the existing population areas, including regions with residents aged 18-65 years, regions with diverse occupations and incomes, and regions with high urbanization rates. While considering the need to the research problems, the researcher selected the Metropolitan Cluster as the representative area that can illustrate the consumer behavior to be observed. To obtain proportional responses, the researcher used a controlled quota sampling approach, dividing the population into several groups known as stratum, then calculating based on the proportion of each stratum member. The distribution of proportions in each stratum can be seen in

Table 3.

Table 2: Operationalization of Variable

Variable	Indicator	Items	Code	Source
Environmental Knowledge	Declarative Knowledge	I know that plastic waste can pollute the environment.	EK.1	(Sousa <i>et al.</i> , 2021)
		I know that choosing products with recycled packaging is an environmentally friendly behavior.	EK.2	
	Procedural Knowledge	I know that recycling plastic waste can reduce environmental pollution.	EK.3	
		I learned that there are types of plastic that are easy to recycle.	EK.4	
	Effectiveness Knowledge	I know that products with recycled packaging can reduce the amount of plastic waste.	EK.5	
		I know that using tumblers can reduce the amount of plastic waste.	EK.6	
	Social Knowledge	I understand that everyone is responsible for reducing plastic waste.	EK.7	
		I understand that by behaving in an environmentally friendly manner, it will benefit the surrounding environment.	EK.8	
		I know that consumer behavior impacts green business practices.	EK.9	
Environmental Concern	Biospheric Concern	I am concerned about environmental issues because of their impact on flora.	EC.1	(Cruz & Manata, 2020)
		I am concerned about environmental issues because of their impact on fauna.	EC.2	
		I am concerned about environmental issues because of their impact on natural resources (land, water and minerals).	EC.3	
	Egoistic Concern	I am concerned about environmental issues because they affect my life.	EC.4	
		I am concerned about environmental issues because they affect my family's lives.	EC.5	
	Social Altruistic Concern	I am concerned about environmental issues because of their impact on the welfare of society.	EC.6	
		I am concerned about environmental issues because of their impact on future generations.	EC.7	
Consumer Attitude	Cognitive Component	I believe that the bottles used for bottled beverages are recyclable.	CA.1	(Mani & Ndubuisi, 2023)
		I believe that beverage bottles that come from the recycling process are of the same quality.	CA.2	
	Affective Component	I feel proud when I buy bottled beverage products that use recyclable bottles.	CA.3	
		I feel happy when more people buy bottled beverage products that use recyclable bottles.	CA.4	
	Conative Component	I prefer bottled beverage products that use recycled bottles.	CA.5	
		I support bottled beverage product manufacturers to use recyclable bottles.	CA.6	
Green Purchase Intention	Product Replacement	I always try to find product variants that are environmentally friendly.	GPI.1	(Zhuang <i>et al.</i> , 2021)
		I am willing to replace certain products that do not pay attention to environmental sustainability.	GPI.2	
	Brand Replacement	It is important for me to choose a brand that cares about environmental sustainability.	GPI.3	
		I am willing to leave certain brands that do not pay attention to environmental sustainability.	GPI.4	
	Consider to Buy	Product quality with an environmentally friendly concept strengthens my purchase intention.	GPI.5	
		The price of environmentally friendly products is not an obstacle to my purchase intention.	GPI.6	

Source: Author (2024)

Table 3: Sample Size Calculation for Each Stratum

Stratum	Total Population	Proportions	Sample Size
Kabupaten Sidoarjo	2,114,588	22%	66 Respondent
Kabupaten Gresik	1,344,648	14%	42 Respondent
Kabupaten Mojokerto	1,141,516	12%	36 Respondent
Kabupaten Pasuruan	1,626,029	17%	51 Respondent
Kota Surabaya	2,893,698	31%	91 Respondent
Kota Mojokerto	135,414	1%	4 Respondent
Kota Pasuruan	213,450	2%	7 Respondent
Additional Information:			
Overall Population	9,469,343 Citizen		
Representative Sample Size	297 Respondent		
How to calculate the proportion of each stratum	Number of Stratum Members ÷ Overall Population		
How to calculate the sample size	Total Proportions × Representative Sample Size		

Source: Author (2024)

Findings and Discussions

Respondent Characteristic

Regarding the distribution of respondent responses based on domicile categories, as attached, the numbers for each city or district were predetermined. In terms of gender characteristics, the researcher found that individuals identifying as female tend to be more active consumers of beverages in plastic bottles compared to those identifying as male. Regarding age groups, 43.77% of respondents were aged between 18 and 27 years, 37.04% were aged between 28 and 43 years, and only 19.19% were aged 44 years or older. These results indicate that most consumers purchasing beverages in plastic bottles are dominated by Generation Z and Millennial age groups. Further results show characteristics of respondents based on occupation, aligning with demographic data distribution reports from East Java Province, particularly in metropolitan clusters where the population is predominantly employed outside of agriculture and livestock sectors. Lastly, the researcher obtained insights that most respondents earn incomes primarily ranging from Rp3,000,001 to Rp5,000,000 per month. Approximately 36.70% of respondents fall into this income bracket, while 26.94% earn more than Rp5,000,001. Only about 36.36% of respondents earn less than Rp3,000,000 per month. This information, researchers attach in **Table 4**.

Path Analysis Results

To ensure that the instruments used in this study accurately measure what they are intended to measure, the researcher conducted testing on the instruments. Based on the results of these tests, the researcher obtained validity values where each measurement item had a Pearson correlation coefficient greater than 0.30 and positively valued, and Cronbach's alpha values for each variable were greater than 0.60. Therefore, it can be concluded that the research instruments used as measurement tools in this study meet the criteria for validity and reliability. After confirming that the instruments used to collect data in this study function well, it is important to verify whether the obtained data meet several assumptions for further examination in regression analysis. Following the testing, it can be explained that the data used in this study exhibit normal distribution and no multicollinearity symptoms were found. This is evidenced by obtaining a Monte Carlo significance value of 0.125, as well as tolerance values ≥ 0.1 and VIF values ≤ 10 .

Based on the information provided in **Table 5**, it can be explained that simultaneously, the variables environmental knowledge, environmental concern, and consumer attitude collectively influence green purchase intention by 18.2%. The ANOVA output yielded a significance value of 0.000, which is less than or equal to 0.05 at a 5% significance level. Therefore, from these results, it can be inferred that the regression model is statistically significant, indicating evidence of a relationship between the three independent variables tested and the dependent variable. These results also indicate that environmental knowledge, environmental concern, and consumer attitude have positive and significant effects on green purchase intention. This suggests that an increase in environmental knowledge, environmental concern, and consumer attitude can lead to meaningful increases in green purchase intention. Additionally, it is explained that simultaneously, environmental knowledge and environmental concern together influence consumer attitude by 33.5%, with the remaining percentage being attributed to other factors not explored in this study.

Based on the information which also provided in **Table 5**, it can be explained that the regression model involving environmental knowledge and environmental concern on consumer attitude is statistically sound. This indicates that evidence has been found of a relationship between the two independent variables tested and their dependent variable. Furthermore, the testing results reveal that there is a positive and significant influence exerted by environmental knowledge and environmental concern on consumer attitude. This implies that an increase in the values of environmental knowledge and environmental concern will significantly impact consumer attitude. Based on the results of testing using a Sobel calculator, the researcher found evidence of significant mediating effects provided by consumer attitude in the relationship between environmental knowledge and green purchase intention, with a path coefficient of 0.057. In another test examining whether there is a significant mediating role demonstrated by consumer attitude in the

relationship between environmental concern and green purchase intention, the results showed that consumer attitude significantly mediates this relationship, with a path coefficient of 0.038.

Table 4: Respondent Characteristic

Measurement	Item	Frequency	Percentage
Gender (n=297)	Male	136	45.79%
	Female	161	54.21%
Age (n=297)	18 Year Old – 27 Year Old	130	43.77%
	28 Year Old – 43 Year Old	110	37.04%
	≥ 44 Year Old	57	19.19%
Domicile (n=297)	Kabupaten Sidoarjo	66	22.22%
	Kabupaten Gresik	42	14.14%
	Kabupaten Mojokerto	36	12.12%
	Kabupaten Pasuruan	51	17.17%
	Kota Surabaya	91	30.64%
	Kota Mojokerto	4	1.35%
	Kota Pasuruan	7	2.36%
Status (n=297)	Student	39	13.13%
	Government Official	28	9.43%
	Agriculture/ Farming/ Fisheries	19	6.40%
	Healthcare Professionals	73	24.58%
	Educators	67	22.56%
	Entrepreneur	71	23.91%
Earnings (n=297)	<Rp1.000.000	38	12.79%
	Rp1.000.001 – Rp3.000.000	70	23.57%
	Rp3.000.001 – Rp5.000.000	109	36.70%
	> Rp5.000.001	80	26.94%

Source: Processed Data (2024)

Table 5: Regression Result Recapitulation

Model	Path Coeff.	Sig.	R-Square	ANOVA	Justification
Path 1 EK → GPI	0.187	0.008	0.182	0.000	Significant
Path 2 EC → GPI	0.175	0.010			Significant
Path 3 CA → GPI	0.148	0.023			Significant
Path 4 EK → CA	0.386	0.000	0.335	0.000	Significant
Path 5 EC → CA	0.260	0.000			Significant
Path 6 EK → CA → GPI	0.057	0.032	-		Significant
Path 7 EC → CA → GPI	0.038	0.043			Significant

Source: Processed Data (2024)

Discussion

Relationship Between Environmental Knowledge and Green Purchase Intention

The findings of this study indicate that there is a positive and significant influence exerted by environmental knowledge on green purchase intention among consumers. This emphasizes that consumers' environmental knowledge, including declarative knowledge, procedural knowledge, effectiveness knowledge, and social knowledge in reducing environmental impact, significantly influences their behavior in considering environmentally friendly purchases. These findings are consistent with the Value Belief Norm (VBN) theory as published by Stern et al. (1999), which focuses on explaining individual behavior closely related to the environment. Further

elaboration in their article suggests that individual values, beliefs, and norms are key factors shaping their intention to engage in pro-environmental behaviors. This paradigm effectively explains the relationship between environmental knowledge and intention to purchase environmentally friendly products, where strong environmental knowledge enhances individuals' environmental values, strengthens their beliefs in environmental protection, and increases their awareness of social norms associated with pro-environmental behavior. Moreover, the findings of this study align with those of Fabiola & Mayangsari (2020); Moslehpour et al. (2023) which similarly found a positive and significant correlation between these variables.

Relationship Between Environmental Concern and Green Purchase Intention

Referring to the second finding in this study, it was found that there is a positive and significant influence exerted by the variable of environmental concern on green purchase intention. This result indicates that individuals' higher concern for everything related to the environment enhances their intention to use or consume eco-friendly products. The concern referred to in this study includes both a sense of responsibility and worry about the adverse impacts of human activities that threaten environmental sustainability. Consistent with the paradigm of the Stimulus-Organism-Response (SOR) Theory published by Mehrabian & Russell (1974) which explains how individuals react to stimuli from their environment, this theory can elucidate the relationship between environmental concern and green purchase intention. In this research context, environmental issues can trigger an individual's concern, ultimately leading to a response such as behaving more environmentally friendly or intending to use eco-friendly products. Furthermore, these findings reinforce the research by Fabiola & Mayangsari (2020) which suggests that individuals with high levels of environmental concern tend to carefully consider their consumption patterns. Similar insights were also highlighted in the study by Moslehpour et al. (2023) focusing on consumer behavior patterns in Taiwan, indicating an increased intention to purchase eco-friendly products as a consequence of heightened individual attention to environmental conservation efforts.

Relationship Between Environmental Knowledge and Consumer Attitudes

Further findings from this study reveal that environmental knowledge has a positive and significant influence on consumer attitude. It can be further explained that the relationship between these two variables is linear or unidirectional, wherein a consumer's attitude towards eco-friendly products is positively influenced by their high knowledge of current environmental issues. This means that the more information or knowledge an individual possesses, the higher their tendency to positively evaluate the benefits of eco-friendly products. This aligns with Ajzen's Theory of Planned Behavior from 1991, which builds upon the Theory of Reasoned Action (Ajzen, 1991). This theory in social psychology explains the determinants of individual behavior. It posits that environmental knowledge can influence an individual's attitude, subjective norms, and perceived behavioral control in taking actions to reduce negative impacts resulting from their behaviors. Simultaneously, Simanjuntak et al. (2023) also found that extensive understanding or knowledge of environmental issues and sustainability significantly affects individuals' attitudes or perceptions towards products that support environmental preservation. These research findings are consistent with the study conducted by Zaremohzzabieh et al. (2021) which identified a strong correlation between high environmental knowledge and consumer attitudes towards green products.

Relationship Between Environmental Concern and Consumer Attitudes

From this study, it was found that there is a positive and significant influence exerted by environmental concern on consumer attitude. This result suggests that individuals' high concern for environmental issues, including their concern for global ecosystem, personal sustainability, and social environmental impacts, shifts their attitudes towards interpreting eco-friendly products. The relationship between these variables can also be explained within the framework of the Value-Belief-Norm theory, which posits that individuals' principles, beliefs, and social norms influence their attitudes towards environmental movements (Stern et al., 1999). It further explains that social norms, individuals' perceptions of how their actions impact the environment, and their beliefs about how each action can influence the environment play pivotal roles in shaping their attitudes towards eco-friendly products. Hong et al. (2023) found in their research that only subjective norms were not significantly influenced by environmental concern, whereas perceived behavior control and attitude were significantly influenced. This indicates that higher individual concern for the environment and sustainability truly affect their attitudes towards environmental issues and eco-friendly products (Moslehpour et al., 2023; Zaremohzzabieh et al., 2021).

Relationship Between Consumer Attitudes and Green Purchase Intention

In this study, it was found that consumer attitude has a positive and significant influence on green purchase intention. This result implies that individuals' favorable attitudes towards the environment lead to an increased intention to consume eco-friendly products. Consumer attitudes encompass thoughts, feelings, and beliefs that their actions impact environmental sustainability, including their consumption behavior. This interpretation aligns with the Theory of Planned Behavior, which explains three main components influencing an individual's intention to act: their attitude, subjective norms, and perceived behavioral control (Ajzen, 1991). In the context of this research, attitude reflects how someone evaluates the purchase of eco-friendly products. If individuals hold a positive attitude towards eco-friendly products, perceiving them as beneficial to the environment, they are more likely to intend to purchase them. Similar findings were noted in the study by Zaremohzzabieh et al. (2021) indicating that the more positively consumers perceive eco-friendly products as capable of addressing current environmental issues, the more motivated they are to adopt or purchase these products. Several other studies have also highlighted a positive and significant relationship between consumer attitude and green purchase intention (Hong et al., 2023; Indriani et al., 2019; Moslehpour et al., 2023; Simanjuntak et al., 2023).

Relationship Between Environmental Knowledge and Green Purchase Intention Tough Consumer Attitudes

According to the findings of this study, consumer attitude significantly mediates the relationship between environmental knowledge and green purchase intention. Consumer attitude in this context only plays a partial mediating role, indicating that its inclusion in the relationship between environmental knowledge and green purchase intention does not alter the statistical significance of that relationship. This suggests that consumer attitude only partially explains the relationship between environmental knowledge and green purchase intention. The relationship among these three variables can also be explained by the Theory of Planned Behavior, which states that an individual's intention is based on three main factors: their evaluation of the behavior as good or bad, their beliefs about what others think of the behavior, and their perceived behavioral control (Ajzen, 1991). Consumer attitude in this study refers to their evaluation of eco-friendly products or behaviors, while environmental knowledge refers to an individual's understanding of environmental issues and the impact of human behavior on the environment. This finding is supported by previous research indicating a significant influence of environmental knowledge on green purchase intention through consumer attitude (Indriani et al., 2019; Moslehpour et al., 2023; Zaremohzzabieh et al., 2021).

Relationship Between Environmental Knowledge and Green Purchase Intention Tough Consumer Attitudes

Like the influence of consumer attitude in the previous relationship, in this case, consumer attitude also significantly mediates the relationship between environmental concern and green purchase intention. The partial mediating role of consumer attitude in this relationship suggests that only part of the relationship is explained by consumer attitude between environmental concern and green purchase intention. This finding indicates that individuals' high concern for the environment directs their perception that eco-friendly products are solutions to existing environmental issues, ultimately influencing their intention to purchase these products. Similar results were found in the study by Zaremohzzabieh et al. (2021) which explained that consumers' positive attitudes towards eco-friendly behaviors or products can be attributed to their high environmental concern, leading to a desire or intention to behave more sustainably. However, there is a slight difference from the findings of Moslehpour et al. (2023) where consumer attitude in their study fully mediated the relationship between environmental concern and green purchase intention. To make it easier to understand the relationship between variables, researchers include a visualization of the path diagram formed in **Error! Reference source not found.**

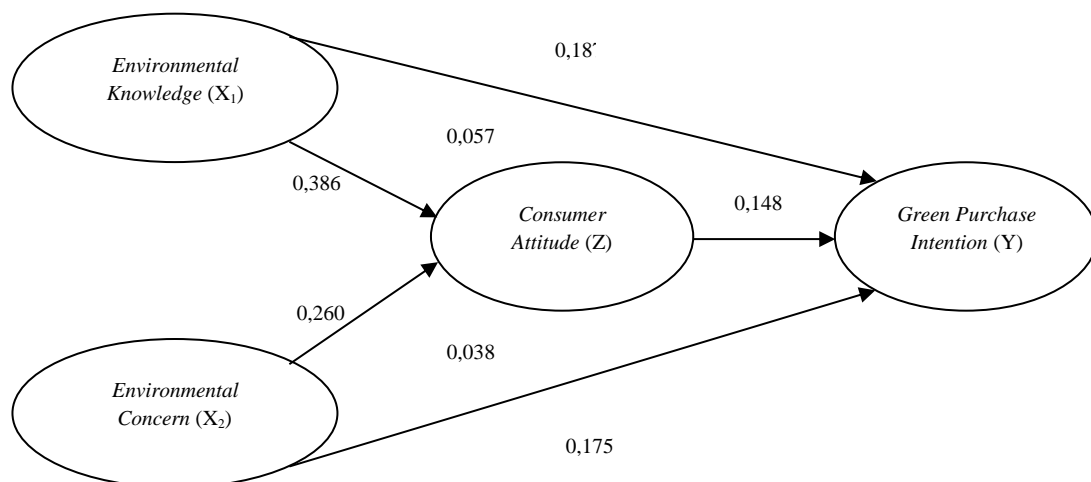


Figure 2: Path Diagram Visualization; Source: Processed Data (2024)

Implications

The findings of this study support the Theory of Planned Behavior (TPB), which asserts that individuals' purchase intentions are influenced by their attitudes, subjective norms, and perceived behavioral control. In this research, it was found that environmental knowledge and environmental concern positively and significantly influence consumers' intention to purchase environmentally friendly bottled beverages. This indicates that knowledge and concern for the environment can shape consumers' attitudes towards eco-friendly products, ultimately affecting their purchase intentions. Furthermore, this study extends understanding of the role of consumer attitude in mediating the relationship between environmental knowledge, environmental concern, and intention to purchase environmentally friendly products. The researchers discovered that consumer attitude towards bottled beverages partially mediates the relationship between their knowledge and concern for the environment and their purchase intentions. Partial mediation occurs when the mediator variable (consumer attitude) does not fully mediate the relationship between the independent variables (environmental knowledge and environmental concern) and the dependent variable (green purchase intention). This means that the independent variables still have a direct influence on the dependent variable, although this influence is weakened by the mediator

variable. This positive consumer attitude can diminish the impact of an individual's environmental knowledge and concern on their intention to purchase eco-friendly products.

This confirms that consumers' positive attitudes towards environmentally friendly products are not the sole factors influencing their intention to purchase such products. In the context of this study, several factors contribute to this scenario. Firstly, environmentally labeled products tend to be more expensive compared to conventional alternatives. Secondly, there is limited availability of environmentally friendly products in the market, such as beverages packaged using recycled materials, and thirdly, companies often face challenges in effectively communicating that environmentally friendly packaged beverages have comparable or even greater benefits for the environment. Therefore, it can be concluded that even if individuals have high environmental knowledge and concern, as well as a positive attitude towards eco-friendly products, they may not purchase them if these products are not affordable, readily available, or effectively communicated in terms of their quality and environmental benefits. This underscores the importance of consumer attitudes as a critical factor in promoting environmentally friendly consumption. However, it also highlights the need to address other factors that can enhance consumer uptake of eco-friendly products.

The findings of this research reveal that the increase in green lifestyle practices in Indonesia is indeed factual and substantiated. Through this study, researchers found evidence that consumers in East Java tend to possess high knowledge and concern regarding environmental issues, particularly in the context of plastic waste management. The environmental knowledge and concern among these individuals lead to their positive evaluation of eco-friendly products and stimulate their intention to use such products. However, the limited understanding of these principles among businesses results in a scarcity of environmentally labeled bottled beverage products circulating in society. Currently, most of the bottled beverage industry still predominantly uses easily recyclable plastics, with only a few businesses experimenting with packaging made from recycled materials. In addition to addressing the concrete issue of plastic waste management in Indonesia, this concept can also serve as a competitive advantage strategy for companies. By implementing this concept, companies aim to enhance their positive image among consumers, differentiate themselves from competitors, improve production efficiency, and foster a culture of innovation within the organization. Utilizing packaging made from recycled materials allows companies to promote their commitment to environmental sustainability. Moreover, educating consumers about the use of recycled packaging demonstrates the company's proactive role in reducing plastic waste in Indonesia. This approach not only sets the company apart from competitors but also attracts more consumer attention, ultimately leading to increased profitability.

Conclusion

Based on the research findings and discussion on the influence of environmental knowledge and environmental concern on green purchase intention through consumer attitude in East Java Province, it can be concluded that consumers' high awareness and concern regarding environmental issues drive their intention to consume eco-friendly products, specifically bottled beverages. Additionally, consumers' heightened knowledge and concern for environmental sustainability also influence their positive attitudes towards the benefits of eco-friendly products. The positive attitudes formed as a result of accumulated consumer knowledge and concern further encourage them to intend to purchase more environmentally friendly products. Although consumer attitude in this study serves a partial mediating role, it remains crucial to consider. Consumers' positive attitudes towards eco-friendly products still play a significant role in determining their intention to purchase such products.

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Institutional Review Board Statement: Ethical review and approval were waived for this study, due to that the research does not deal with vulnerable groups or sensitive issues.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy.

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