

## The Role of Environmental Awareness and Green Product Literacy on Green Purchase Behavior in Indonesia

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### ABSTRACT

Consumers consumption pattern is the focal point to reach sustainable development goals. Green purchase become one of actual action to mitigate negative impact of the environmental degradation. In order to protect the environment, consumers shifting into sustainable living era and forms a new market segment called green consumers. Recently, green purchase and green consumers become popular attribute to explore and investigate in consumer research. This study identified potential factors affecting green products purchase as consumer actual behavior. The main predictors environmental awareness and green product literacy, green product literacy also using for moderating effect. Research conducted with a survey and a purposive sampling method, using SEM PLS for data analyzed. The number of valid observations for the data analysis is 100. Based on direct hypothesis testing, it was found environmental awareness finding as a significant factor influencing green purchase behavior. Similarly, the direct effect of green product literacy was found to be as significant factor that influences green purchase behavior. Meanwhile, green product literacy has no moderating effect on the relation between environmental awareness to green purchase behavior. In this way, it will help policymakers and managers for formulating strategy to green consumers, especially in Indonesia.

**Keywords:** *environmental awareness, green product literacy, green purchase behavior, sustainable consumption, green consumers*

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## 1. INTRODUCTION

Consumers consumption pattern is the focal point to reach sustainable development goals. Previous study confirms environmental impacts increase alongside with consumption (Mont, Lehner, and Heiskanen 2015) In order to protect the environment, consumers shifting in sustainable living era and forms a new market segments called green consumers. Additionally, the rising awareness of these increasing environmental issues has also led to petitions from international communities to take action in adopting principles of sustainable development (Wright and Horst 2013) and green purchase become one of actual action to mitigate and reduce negative impact of the environmental degradation.

In other side, lack of information to the consumers about green products often results in an attitude-behaviour gap between their environmental concern and actual buying behaviour thus hindering the market share for green products (Ohtomo and Hirose 2007). In addition, even though the number of green products is expected to increase in order to protect the environment, it is still difficult to predict consumer reactions and their actual behavior toward purchasing the green product, especially the fact of differences in perception, attitude, and values of every region on previous studies compared Indonesian situation and condition. Moreover, majority of the previous study only focused on the purchase intention (Hanss et al. 2016). Meanwhile, when exploring green purchase behavior, many studies have reported a gap between consumers' expressed favorable attitudes and actual purchasing practices (Tanner and Kast, 2003; Vermeir and Verbeke, 2006; Vermeir and Verbeke, 2008; Joshi &

Rahman, 2015). Many consumers showed a positive attitude toward purchases of green products (67%), but only a small number of consumers (4%) purchased those products (Hughner, 2007; Joshi & Rahman, 2015). With consideration of this issue, this study underlines the individual awareness and green product literacy as main factor of green purchase behavior as the actual behavior of consumers.

Study (Delafronz, Taleghani, and Nouri 2014) revealed, customers that buy green product are more conscious of environmental issues and purchasing green products is influenced by green product literacy (Chen et al. 2022). It means, the role of consumers awareness on environmental issues and product literacy among consumer might be the effective attributes to understanding green purchase behavior. The objective of this paper is to the augment understanding sustainable consumption based on green purchase behavior through environmental awareness and green product literacy. Understanding consumers behaviour for purchase green product is importance to the policy makers whose interested in stimulating the demand for green products and augment their market share in the market for sustainable products.

## 2. RESEARCH METHODS

### 2.1 Hypotesis and Research Framework

Green Purchase defined as consumer's activities to save resources and protect the environment. It means that green product purchase is the actual action of environmental behaviour. People who are concerned about environmental safety, follow green buying behaviour, and consume green products are considered as green consumers (Kar and Rashad 2014). Buying green products, insulating home with new equipment, and buying environment-friendly and energy-efficient cars are green purchase behaviours (Shabani et al. 2013). Consumers who concern more about environmental issues have a more possibility to purchase green products (Y. Kim and Choi 2005).

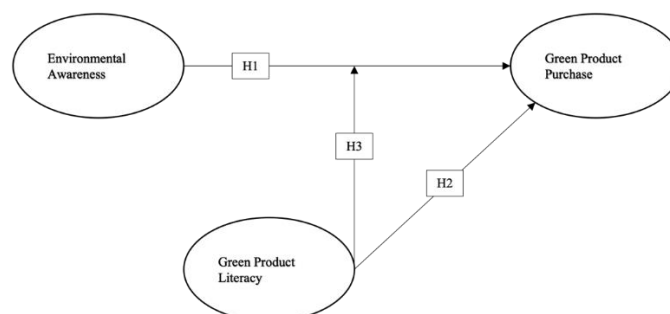
**Green product literacy** could help to develop the foundation of belief about a particular issue related to green products and services (Chen et al., 2022; Kim & Stepchenkova, 2020). Based on Biswas (2020) stated that green product literacy could reflect consumers attitudes toward purchasing green products. The other previous studies identify the association between knowledge and attitude toward green product purchasing behaviour (Liobikiene and Poškus 2019). In addition, consumers with a high level of knowledge about environmental protection would have a high consumption of their own or their family (Huang, Yang, and Wang 2014).

**Environmental Awareness.** (Mourad and Ahmed 2012) defined environmental awareness as the knowledge of consumers to recognize products based on the performance of eco-friendly products. Consumers with environmental awareness known as consumers who tend to consider the environmental impact of the products they choose to consume or tend to use their power as consumers to make changes to the environment (Barbarossa and Pastore 2015). The study shows that consumers with stronger environmental awareness are more likely to purchase products as a result of their environmental claims and social responsibility (Song, Qin, and Yuan 2019).

Based on study literature highlight the green product purchase reflected by environmental awareness and green product literacy, thus this study proposed the following hypothesis

- H1: Environmental awareness significantly affecting green purchase behavior
- H2: Green product literacy significantly affecting green purchase behavior
- H3: Green Product Literacy moderating the relation of environmental awareness on green purchase behavior

Based on a study of the theory environmental awareness, green product literacy and green product purchase of consumer behaviour, this study analyzed and found hypothetical designs. The design is examined through a model illustrated in Fig. 1.



**Figure 1. Research Framework**

## 2.2 Research Method

This quantitative research has been conducted with a survey applying a purposive sampling method to the consumers who already have experience with green products in Indonesia (purchased green products in the last 6 months) and consumers aged >17 years old that have decision for themselves for their consumption choices. This study contains three main variables including environmental awareness, green product literacy and green product purchase. All the construct testing for validity and reliability test.

Furthermore, data were processed through Structural Equation Model -Partial Least Square (SEM-PLS) approach using SmartPLS apps. For using the SEM-PLS technique, the size of the sample and suggest minimum of 100 samples. Thus, this research will use 100 consumers in Indonesia.

## 3. RESULTS AND DISCUSSION

The survey in this study uses a questionnaire which is divided into two parts, the first part contains questions to determine the demographic profile of the respondents (gender, age, occupation, education level, category of green products purchased in the last 6 months). Then, the second part contains questions to find out the effect of environmental awareness on green purchase behavior based on the indicators of variable in this study. The following are the results obtained from this study.

### 3.1 Socio-demographic Characteristics of Respondents (Gender, Age, Education, and Income)

The demographic information of the survey shows the number of participants was 100 whereas 65% of are females and 35% males. For age category, 83% of the respondents were 20-29 years old, 10% were 13-19 years old, and 7% were 30-39 years old. On occupation category, 48% of the respondents were students, while 17% of them were professionals, 16% were operational, 12% were entrepreneurs, and 6% were in managerial positions. This indicates that most participants are employed. The result observations for the level of education shows 29 % respondents were bachelor's degree while 37% were master's degree level and none of them higher than that. Respondent in senior high school were 33% out of all respondents and also none of them lower than then senior high school level. Last, the survey also monitored the category of green products from respondents purchased in the last 6 months and showed most of them purchase food & beverage category, was 60% of respondents and 20% chose self-care products, 9% on household goods, 4% on fashion, 3% on electronic, 2% on environmentally friendly services, and 1% on automotive category.

### 3.2 Reliability and Validity Analysis

This study conducted model measurement and fitness analyses to ensure a reliable and valid finding. Convergent validity of constructs was assessed with factor loadings, average variance extracted (AVE), and composite reliability. The validity count by factor loading with  $\geq 0.70$  for each construct. For reliability, Cronbach's Alpha exceeds the recommended threshold value of 0.60 (Churchill, Surprenant, and Surprenant 2013) and composite reliability (CR) is higher than the cut-off value of 0.70 (Fornell and Larcker F. 1981). The following factor loading, Cronbach's Alpha, Average Variance Extracted (AVE), and Composite Reliability (CR) were present in the following Table 2.

**Table 1. Validity and Reliability of the Construct**

Construct		Factor Loadings	Cronbach Alpha	AVE	Composite Reliability
Environmental Awareness	EWS1	0.867	0.819	0.733	0.892
	EWS2	0.843			
	EWS3	0.859			
Green Product Purchase	GPP1	0.837	0.769	0.685	0.867
	GPP2	0.784			
	GPP3	0.860			
	GPL1	0.791			
Green Product Literacy	GPL2	0.922	0.833	0.752	0.900
	GPL3	0.822			
Moderating Effect			1.000	1.000	1.000

According to Table 2, the factor loadings values for nine constructs in this study all factor loadings are higher than 0.50, showing convergent validity for each constructs were accepted (Hair et al. 2010). However, for the Model Fit test by using the value SRMR showing model was fit (0.075) a value less than 0.10 or 0.08 (Hu L.T. and M. 1999) are considered a good fit. (Henseler, Hubona, and Ray 2016) introduce the SRMR as a goodness of fit measure for PLS-SEM that can be used to avoid model misspecification.

### 3.3 Results of Hypotheses Testing

This study calculates 3 hypotheses, two direct and one indirect effect. To explain the hypotheses, result of this research, see the following Table 3 for Direct Effects and Table 4 for Indirect Effects.

**Table 2. Direct Effect**

H	Relationship Test	Original Sample (O)	Standard Deviation	T-Statistic	P-Values
1	EWS → GPB	0.547	0.092	5.915	0.000
2	GPL → GPB	0.307	0.094	3.255	0.001

Table 3 illustrates the results of the SEM-PLS. The dependent variable are environmental awareness and green product literacy and dependent variable is green purchase behavior. Based on the result the environmental awareness was found to be statistically significant toward green purchase behavior (t-value= 5.915; p = 0.000). When environmental awareness increased by one standard deviation, green purchase behavior raised by 5.915 and **supported H1**. Similarly, green product literacy significantly affects green purchase behavior (t-value =3.255; p = 0.001). When green product literacy increases by one standard deviation, green green purchase behavior raised 3.255 and **supported H2** (see Figure 2)

**Table 4. Specific Indirect Effect**

H	Relationship Test	Original Sample (O)	Standard Deviation	t- values	P-values
3	Moderating Effect Green Product Literacy	0.029	0.049	0.588	0.057

According to table 4, the result of the specific indirect effect **H3** show green product literacy has not moderating effect on the relation of environmental awareness on green product purchases (t-value = 0.588; p = 0.057) **not supported H3** (see Figure 2).

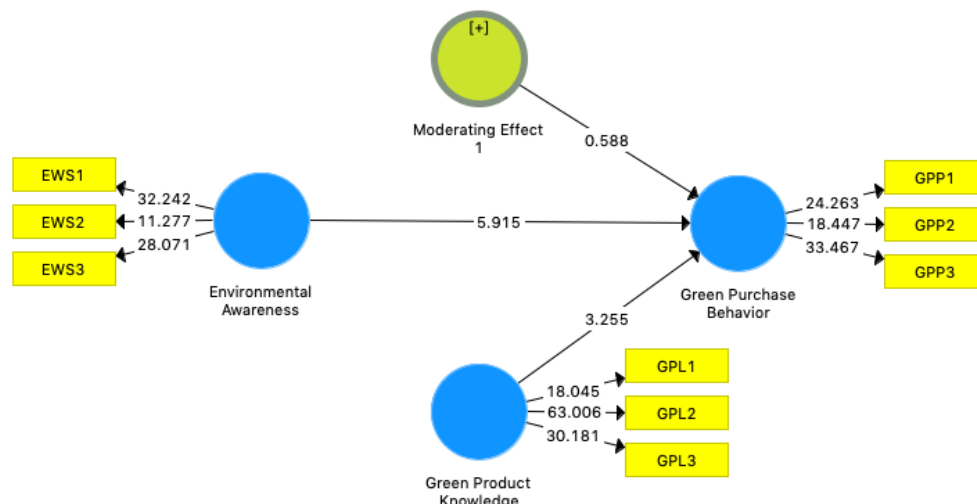


Figure 2. Output of Research Model

### 3.4 Discussion

Based on the result of this study, environmental awareness influences green product purchase, which means consumers with “a good level” of environmental awareness tend to implement actual behaviour by purchasing green products. This result confirms previous research by (Song, Qin, and Yuan 2019) found that environmental awareness has a significant effect on consumers purchasing behavior. Other studies suggested that consumers concerned about the natural environment not only prefer to purchase products less harmful to the environment but also are willing to pay more to do so (Laroche, Bergeron, and Barbaro-Forleo 2001).

This study also found green product literacy as a significant attribute on green purchase behavior. Meanwhile, this research contra with previous study conducted by (Amaliah, Jannah, and Sari 2022) that found green product literacy was not significant factor on green product purchase in new normal of covid-19 era. Assuming, in context of covid-19 era, green purchase behavior might occur most caused of fear of pandemic and resulting panic buying effect. Also considering that in developing countries, including Indonesia, consumers are still in a relatively early stage of a green lifestyle and have low green product literacy. However, (Bang et al. 2000) have shown that increasing consumers’ knowledge of new energy lead consumers to have a strong belief in the positive results of using new energy products.

## 4. CONCLUSIONS AND RECOMMENDATIONS

The findings suggest that environmental awareness and green product literacy as the most consistent predictor of green purchase behaviour. Thus, organizations aiming to increase market penetration for existing green product offerings would be recommended to develop campaigns directed at increasing consumer environmental awareness (e.g. educational marketing, advertising, promoting sustainable living). In order to promoting sustainable practice organization itself could implement green practice using renewable energy for the operational process, create programs for consumers to participate in actual actions (such as recycling programs, discounts for reuse packaging) and more importantly creating product innovation such as biodegradable or eco-friendly products can be the solution in overcoming environmental issues.

For educate the future generation, organization could be partnership with educational organization (such as school and university) to perform bigger impact by launch green program in school or campus in order to enhance student’s environmental awareness and green action to protect the planet. The more consumer aware of the environmental issues, the more opportunity green product could accept in the market and the less of impact we produce and reach on sustainability goals. Similarly, organization could create collaborative event with other green product producer (e.g Green Day Market, Greener’s Weeks). The Green event implement sustainable principle, such as buying with reusable containers, create recycling class and talk show about sustainable living and other creative activity that suit with green behavior.

Lastly, green product literacy might occur based on the situational and conditional factor. Therefore, the findings might be reflected by the fact that this study cannot perceive the dynamic changes of the consumers behavior toward green purchase. The sample population was limited to Indonesian citizens with alimited number of respondents. Future investigations can explore the existing model of this study with other nations and large of scale. This study highlighted the consumers environmental awareness and green product literacy impact on consumption toward green purchase behavior.

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