IJRBS-Arsyistawa & Hartono

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The effect of eco-label and perceived consumer effectiveness toward green purchase

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ARTICLE INFO

ABSTRACT

Although many studies on green marketing were conducted, factors influencing consumers toward their green purchases, for instance, perceived consumer effectiveness, still need to be explored. This study investigates factors such as eco-labels, product attributes, perceived consumer effectiveness, and environmental concern about green product purchases. The study surveyed 200 Indonesian students who purchased and used The Body Shop products. Overall, all the proposed hypotheses are supported. Specifically, eco-labels positively affect both products attributes and perceived consumer effectiveness. While both product attributes and perceived consumer effectiveness positively influence environmental concerns. The last hypothesis related to environmental concerns and green purchases also shows a positive relationship. Lastly, a green marketing strategy is discussed and proposed as the study's implication.

Introduction

ccording to American Marketing Association (AMA), green marketing is known as marketing activities that are environmentally friendly and combine practices such as modification, manufacturing processes, packaging, and advertising. Green Marketing is one of the companies' significant initiatives that shows beneficial results worldwide (Kushwaha & Sharma, 2015). Nature phenomena of the environment alert consumers' courtesy since most conventional products on the market contain environmentally destructive chemicals, while people become more critical in determining which products to use. Consumers are concerned about the left earth's resources, health, and environmental damage. Consumers decide to choose products that are responsible for the environment. This condition encourages companies to pay more attention to ecological aspects by creating green products. Kotler & Keller (2006, p.93) stated that "green marketing is the movement which directs towards organization production of environmentally responsible products." Green marketing is defined as an activity that positively impacts the environment and reduces the negative impact, which has become an essential aspect of marketing (Trott & Sople, 2016).

TPB increases the predictability of the purchase intention model for environmentally friendly products (Jebarajakirthy & Lobo, 2014). The theory of Planned Behaviour (TPB) is a more modern form of development than the Theory of Reasoned Action (TRA). TPB was developed as a conceptual framework to explain the factors behind the behavior. The theory of Planned Behaviour "allows us to examine the influence of individual and social environmental and non-intentional determinants of intention" (Han et al., 2010). The model optimizes the potential relationship between intention and its determinants by measuring each construct at an equivalent level of specificity. The TPB model has been validated in studies that discuss the purchase intention of green products (Cai et al., 2017; Jin et al., 2020; Paul et al., 2016; Waris & Hameed, 2020), purchasing behavior of green products (Amoako et al., 2020; Albayrak et al., 2013; Cerri et al., 2018; Sharma & Foropon, 2019; Song et al., 2019).

Previous studies examining eco-friendly labels and consumers' perceived effectiveness as a determinant or predictor of purchasing eco-friendly products still need to be explored in developing countries like Indonesia. Even though eco-friendly brands play an important role in determining consumer attitudes towards environmentally friendly products (Waris & Hameed, 2020), research on the analysis of factors influencing consumer purchases of ecologically friendly products still needs to be carried out (Jin et al., 2019). Therefore, this study investigates the role of environmentally friendly labels, product attributes, consumer perceived effectiveness, and environmental concern for purchasing environmentally friendly products.

Literature Review

Theoretical and Conceptual Background

Eco Labels

Eco-labels are information tools to convince consumers of the authentic environmental claims attached to the product (Atkinson & Rosenthal, 2014). Eco-labels are an element of a marketing concept for green products (Kushwaha & Sharma, 2015). In this study, eco-labels are defined as symbols that are easily found on products or packaging, companies, or the quality of green products (Gosselt et al., 2019).

Product Attributes

Product attributes such as price, quality, and brand are essential attributes that consumers consider when purchasing Eco-labels products (Dubihlela & Ngxukumeshe, 2016). Product attributes regarding eco-labels have a dominant role compared to conventional product attributes, such as product quality (Song et al., 2019). This is due to the variety of product attributes influencing consumers to consider green purchases (Sharma & Joshi, 2017). Consumers assume that product attributes with eco-labels will direct consumers to green purchases; consumers feel that what they do is one of the actions to save the environment.

Perceived Consumer Effectiveness

Consumer perceived effectiveness can predict environmentally conscious behavior where "some people believe that their actions produce certain outcomes that bring about change, while others have little confidence in their ability to make a difference" (Kim & Choi, 2005, p.593). The relationship between perceived consumer effectiveness and environmental concern has attracted researchers' attention (Cho et al., 2013).

Environmental Concern

Consumers who are a high sense of environmental concern have higher expectations of utilizing green products (Andreas, 2018). Concern for environmental issues may sometimes convert into directly pro-environmental action, but consumers who care more about the environment are more likely to purchase products with an eco-label. This is true for consumers in both developed and developing nations (Kim & Choi, 2005). Environmental concern plays an important role when consumers buy eco-labeled products (Kucher et al., 2019).

Green Purchase

Chen & Chang (2012) stated that green purchase is for consumers who buy certain products produced from and for environmental needs. Consumers will buy green products based on the information about eco-labels (Hameed & Waris, 2020). Consumers' green purchase strongly reflects their actions and beliefs (Sharma & Joshi, 2017). Consumers more concerned about the environment are willing to pay more for renewable energy than groups less concerned about the environment (Albayrak et al., 2013)

Empirical Review and Hypothesis Development

Eco-labels and Product Attributes

Song et al., (2020) proved that eco-labels influence product attributes; however, there is some controversy over the role of eco-labels; this study confirmed that eco-labels tend to be important indicators of product attributes. Eco-labels are a significant predictor of product attributes, Song et al., (2019) showed the research gaps by showing that eco-labels influence consumer perceptions of product attributes. Lestari et al., (2020) concluded that eco-labels are essential for creating consumers' positive attitudes toward green products. Eco-labels ease consumers into understanding the intangible attributes of the product, including the manufacturing process and the value of choosing the product (Cai et al., 2017). Waris & Hameed (2020) supported that eco-labels strongly predict the functional value of product attributes. Eco-label information can ease consumers purchasing eco-label products; otherwise, product attributes without eco-labels detailed information will confuse consumers (Sharma & Kushwaha, 2019).

HI: Eco-labels positively influence product attributes

Eco-labels and Perceived Consumers' Effectiveness

Song et al., (2020) showed that eco-labels positively impact perceived consumers' effectiveness. Eco-labels ease consumers to purchase eco-labels products because their packaging persuades consumer decisions (Amos et al., 2014). Based on the phenomenon of consumers who found difficulties in recognizing eco-label products, to reduce this misunderstanding, the role of eco-labels very

helpful to inform the consumers about intangible product attributes, such as the manufacturing process and the value of choosing a product (Song et al., 2020). Sharma & Kushwaha (2019) found that eco-labels are the best way to inform about eco-labels products, which eases the consumers to gain product information. Brecard (2014) confirmed that the research conducted by the Gallup Organization in Europe found that most consumers purchase reason based on the eco-labels of these products. Hameed & Waris (2018) discovered that consumers are adaptive to eco-labels and influenced by product benefits which lead by eco-labels detail, so the perceived effectiveness of consumers is positively influenced by eco-labels.

H2: Eco-labels positively impact perceived consumer effectiveness

Product Attributes and Environmental Concern

Many studies show the high potential between green products and product attributes (Song et al., 2019). Product attributes such as eco-labels play a dominant role compared to conventional attributes (Song et al., 2019). The cause is that the differences in product attribute influence consumers to consider green purchase (Sharma & Joshi, 2017). Pohjolainen et al., (2016) found a positive relationship between product attributes and environmental concerns. Environmental concern increases the order quantity for eco-labels products compared to conventional products (Zhang et al., 2015). Product attributes do not significantly affect environmental concerns. In comparison, environmental concerns are more related to consumers' actualization, emotion, and commitment to environmental problems because environmental concerns are more involved with emotional responses and consumer reactions to environmental issues (Song et al., 2019). Product attributes tend to be consumers' determination to increase their environmental concerns (Song et al., 2020). Also, Pohjolainen et al., (2016) found a positive relationship between perceptions of product attributes and environmental concern.

H3: Product attributes positively impact environmental concern

Perceived Consumer Effectiveness and Environmental Concern

Vermeir & Verbeke (2006) shows that perceived consumer effectiveness significantly impacts environmental concern. Tan (2011) adds that consumers with a high level of perceived consumer effectiveness are likelier to show positive attitudes toward the environment than lower levels of perceived consumer effectiveness. Then, Laskova (2007) argues that perceived consumer effectiveness can contribute positively to the positive outcome of environmental concerns. The influence of environmental concern on the perceived consumer's effectiveness is confirmed by Waris & Hameed (2020); this reflects that consumers concerned about environmental problems tend to pay more attention to the causes and effects of purchasing eco-labels products. Song et al., (2020) proved that environmental concern is closely related to perceived consumer effectiveness. Perceived consumer effectiveness is a variable that leads to pro-environmental behavior, Waris & Hameed (2020) confirmed that perceived consumer effectiveness is the most influential predictor of environmental concern. Waris et al., (2020) prediction proved that perceived consumer effectiveness has a positive effect on environmental concern; research findings confirmed the positive effect of environmental concern is the perceived consumers' effectiveness in receiving the information and their ability to overcome environmental problems.

H4: Perceived consumer effectiveness positively influence environmental concern

Environmental Concern and Green Purchase

Consumers who are more concerned about the environment will show a strong purchase intention to purchase eco-labels products (Heo & Muradhilaran, 2019). Environmental concern has a strong relationship with green purchases; environmental concern is a strong predictor because of its strong implications for consumers to find their own identity, such as being entangled in environmental issues (Chikosha & Potwana, 2021). In the green purchase context, Waris & Hameed (2020) stated that consumers who are concerned about the environment positively influence pro-environmental behavior. Consumers with high levels of environmental concern will find it easier to purchase environmentally friendly products and vice versa (Sharma & Foropon (2019). Environmental concern is the main predictor of product purchases (Song et al., 2020). Environmental concerns affect green purchases, indicating that environmental concerns shape purchasing behavior influenced by eco-labels products (Song et al., 2019). It verifies that environmental concerns influence the green purchase behavior of eco-labeled products.

H5: Environmental concern positively effect green purchase

Research and Methodology

Research design and data collection

This study uses a quantitative approach with primary data obtained directly from questionnaires distribution. The Likert scale is used in this study ranging from 1(strongly disagree) to 5 (strongly agree). This study collected data from 200 respondents who used and purchased The Body Shop products in the Yogyakarta area from July to August 2022. The sampling technique used in this study is non-probability sampling with a convenience sampling approach. A pilot test was conducted to test the validity and reliability of the instrument prior it is used for bigger sample testing.
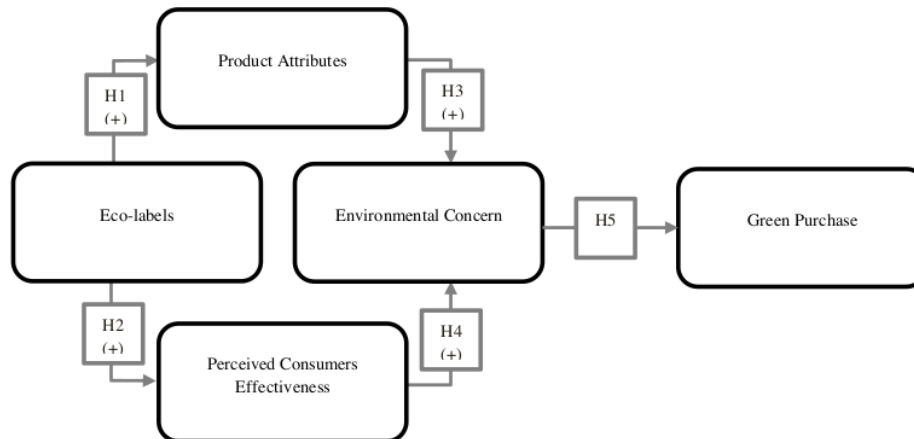
Figure 1: Reseach Model

The research model was estimated using Partial Least Square - Structural Equation Modelling (PLS-SEM) method for two main reasons. First PLS-SEM can handle a complex model with many structural model relationships. Second, PLS-SEM is more suitable when the data is big in which the probability of non-normal distribution is also high (Hair et al., 2016). The statistical tool used in this study to run PLS-SEM method was SmartPLS v.3.2.8.

Measurement

There are sixteen measurement items designed for this study in which all of them are adopted and adapted from previous literature. A pilot test has been conducted to test the validity and reliability of the instrument before used for bigger sample testing. Three items from Nittala (2014) to measure eco label. Product attribute is measured by three items of Praxmarer (2011). This study uses three items from Kim & Choi (2005) to assess perceived consumers effectiveness. Three items from Straughun & Roberts (1999) to measure environmental concern. Lastly, green purchase is measured by items adapted from Kimi & Choi (2005). The complete questionnaire items can be seen in Table 2.

Results

Respondent demographics

This study successfully obtained 200 respondents from various backgrounds in Yogyakarta. In Table 1, it can be seen there are consisting of 50.5% (N = 101) females and 49.5% (N = 99) males. In term of age, most of the respondents were 21 to 23 years old (N = 70, or 35%) and 24 to 26 years old (N = 56, or 28%) and 17 to 20 years old are 19% (N = 38). There are 18% aged more than 26 years old (N = 36). Based on education level, most of the respondents are a bachelor degree students (N = 105, or 52.5%) and the rest of 47.5% are master degree students (N = 95).

Table 1: Respondent Profile

Variables	Description	Total	Proportion
Gender	Male	99	49.5
	Female	101	50.5
Age	17 years – 20 years	38	19
	21 years – 23 years	70	35
	24 years – 26 years	56	28
	> 26 years	36	18
Education Level	Bachelor Degree	105	52.5
	Master Degree	95	47.5

Outer or measurement model estimation

The outer model or measurement model is estimated by evaluating model or construct validity and reliability. Validity in PLS-SEM can be divided into discriminant and convergent (Hair *et al.*, 2016). Loading factor and average variance extracted (AVE) are used to evaluate convergent validity, whereas cross loading is used to assess discriminant validity. As for items reliability is evaluated using Cronbach's alpha (a) and composite reliability (CR). Table 2 shows the model's convergent validity and reliability estimation. All the 16 items measurements have loadings greater than 0.60 and it can also be seen that all variables have an AVE score above 0.50. Therefore, according to Hair *et al.*, (2016), present research model has no issue with convergent validity. When it comes to reliability analysis, as indicated by Cronbach's Alpha and CR, all the variables scored greater than 0.70. It indicates that the 16 items measurements are internally consistent or reliable.

Discriminant validity can be measured by comparing all latent variables' square root AVE values. The square root AVE of each construct should be greater than the correlation with other constructs. It is also known as Fornell- Larcker's criterion as shown in Table 3, all the square root AVE scores for each construct in this model are greater than the correlation with the other constructs. Discriminant validity is also measured by evaluating the Fornell-Larcker's criterion and cross loading of each item in which has a > 0.70 value that shown discriminant validity of all items was valid. Overall, it can be concluded that the measurement model of this study is great.

Inner or structural model estimation

In PLS-SEM, following Hair *et al.*, (2016) procedure, the structural or inner model evaluation is measured by certain indicators, such as R-Square and Q^2 Predictive Relevance. it can be concluded that the eco-labels model on product attributes gives a value of 0.371, which can be interpreted that the product attribute variable that can be explained by the eco-labels' variable is 37.1% while the rest is 68.9 (100%-37,1%) is explained by other variables outside this study.

The eco-labels model on perceived consumers effectiveness gives a value of 0.481, which can be interpreted that the perceived consumers effectiveness variable that can be explained by the eco-labels' variable is 48.1% while the remaining 51.9 (100%-48.1%) is explained by other variables outside this study. In the product attribute model and perceived consumers effectiveness on environmental concern, it gives a value of 0.518, which can be interpreted that the environmental concern variable that can be explained by the product attribute variable and perceived consumers effectiveness is 51.8% while the remaining 48.2 (100%- 51.8%) is explained by other variables outside of this study.

In the model of environmental concern for the green purchase, it gives a value of 0.111, which can be interpreted that the variable of green purchase which can be explained by the variable of environmental concern is 11.1% while the rest is 88.9 (100%-11.1%) is explained by other variables outside this study. The predictive relevance value or the observation value in the model in this study has a value > 0 so that it means that the observed value is good. The test results of the fit model shown an SRMR value of 0.075 < 0.10 and an NFI value of 0.818 which is close to a value of 1, thus the research model is declared fit.

Both t- and p-values evaluate the path relationship significance among variables in the model. In SmartPLS, t-values and p-values are generated after performing bootstrapping. It is a procedure to draw a large sample from the original sample replacement (Hair et al., 2016).

Table 2: Validity and Reliability

Items	Code	Cross-loading	Mean	Fornell-Larcker Criterion	AVE	Cronbarch's Alpha	CR
Eco-label	LRL			0.875	0.765	0.846	0.907
If possible, I would like to buy The Body Shop products because they have a recycle label on them.	LRL 1	0.881	4.07				
The Body Shop manufacturer must advertise the environmental aspects of their products.	LRL 2	0.848	4.12				
Government must make eco-label mandatory	LRL 3	0.893	4.01				
Product attributes	AP			0.914	0.835	0.901	0.938
The Body Shop that eco-friendly designed product looks appealing	AP 1	0.911	4.02				
The Body Shop that eco-friendly designed product looks stylish	AP 2	0.912	4.02				
The Body Shop that eco-friendly product is of good quality	AP 3	0.918	4.00				
Perceived consumers effectiveness	EyDK			0.853	0.728	0.813	0.889
Each person's behavior can have a positive effect on society by signing a petition in support of promoting the environment	EyDK 1	0.878	3.98				
I feel I can help solve natural resource problem by conserving water and energy	EyDK 2	0.831	4.11				
I can protect the environment by buying products that are friendly to the environment	EyDK 3	0.850	4.04				
Environmental concern	KL			0.860	0.740	0.825	0.895
I would buy personal care products that are free of harmful ingredients.	KL 1	0.857	4.10				
I bought The Body Shop because it is recyclable.	KL 2	0.865	4.06				
For waste reduce, I use reusable shopping bags.	KL 3	0.859	3.97				
Green purchase	PPRL			0.790	0.624	0.800	0.869
I have switched products for environmental reasons.	PPRL 1	0.797	3.98				
When I have a choice between two identical products, I buy the one that is less harmful to others and the environment.	PPRL 2	0.767	4.36				
I make a special effort to buy household chemicals, such as detergents and cleaning solutions, that are environmentally friendly.	PPRL 3	0.785	4.13				
I have avoided buying products that are potentially harmful to the environment.	PPRL 4	0.810	4.21				

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Table 3: Structural Model Estimation

Path	Original Sample (O)	T Statistics (IO/STDEV I)	P Value	Decision
H1. Eco-labels have a positive impact on product attributes	0.609	13.031	0.000	supported
H2. Eco-labels have a positive impact on the Perceived consumer effectiveness	0.694	15.541	0.000	supported
H3. Product attributes has a positive impact on environmental concern	0.393	5.524	0.000	supported
H4. Perceived consumer effectiveness has a positive impact on environmental concern	0.412	5.736	0.000	supported
H5. Environmental concern has a positive impact on green purchase.	0.333	5.091	0.000	supported

R-Square (R^2)
Product attributes = 0.371
Perceived consumers effectiveness = 0.481
Environmental concern = 0.518
Greem purchase = 0.111

Q-Square (Q^2)
Product attributes = 0.305
Perceived consumers effectiveness = 0.345
Environmental concern = 0.372
Greem purchase = 0.061

Hypothesis Testing

The effect of the eco-labels' variable has an original sample coefficient of 0.609 on product attributes. The t-statistic value in this construct relationship is $13.031 > 1.96$, and the p-value is $0.000 < 0.05$. Thus, the first hypothesis which states "eco-labels has a positive effect on product attributes" is accepted. Coordinated with the research of Song et al., (2020) proves that eco-labels have a positive impact on product attributes. This is based on the eco-labels as a symbol attached to a product as a determinant of product quality (Atkinson & Rosenthal, 2014). Like Rasyid (2009), eco-labels are product attributes that aim to provide information about the positive impact of products on the environment. Song et al., (2019) proved that eco-labels are a significant predictor of product attributes, this is found from the phenomenon of eco-labels that affect consumer perceptions of product attributes. Previously, Cai et al., (2017) stated that eco-labels make it easier for consumers to understand intangible information on products. Then, Waris & Hameed (2020) support that in terms of functionality, eco-labels is a strong predictor. eco-labels information makes it easier for consumers to purchase green products (Sharma & Kushwaha, 2019).

The effect of the eco-labels' variable has an original sample coefficient on the perceived consumers effectiveness of 0.694 on the hypothesis results table. The t-statistic value in this construct relationship is $15.541 > 1.96$, and the p-value is $0.000 < 0.05$. Thus, the second hypothesis which states "eco-labels have a positive effect on perceived consumers effectiveness" is accepted. Song et al., (2020) proved that eco-labels affect the perceived consumers effectiveness, based on the phenomenon of consumers who have difficulties recognizing green products, the role of eco-labels helps consumers understand product information well. The same thing was found in the research of Sharma & Kushwaha (2019) that eco-labels are the best way to make it easier for consumers to get information related to these products. Consumers who are adaptive to eco-labels and are influenced by product benefits will lead to green purchases, so that the perceived consumers effectiveness is positively influenced by eco-labels (Hameed & Waris (2018).

The effect of the product attribute variable has an original sample coefficient on Environmental Concern of 0.393. The t-statistic value in this construct relationship is $5.524 > 1.96$, and the p-value is $0.000 < 0.05$. Thus, the third hypothesis which states "Product attributes have a positive effect on environmental concern" is accepted. Gan et al., (2008) found that consumers who have a sense of environmental concern are more likely to buy environmentally friendly products. The positive relationship between product attributes and environmental concern has been discussed by Pohjolainen et al., (2016). In the research of Song et al., (2019) it was found that product attributes did not significantly affect environmental concern, it is possible that environmental concern is more related to actualization assistance, emotions, and consumer commitment to the environment. On the other hand, Song et al., (2020) found that product attributes are one aspect of consumer determination to increase their sense of environmental concern.

Meanwhile perceived consumers effectiveness variable has an original sample coefficient on Environmental Concern of 0.412. The t-statistic value in this construct relationship is $5.736 > 1.96$, and the p-value is $0.000 < 0.05$. Thus, the fourth hypothesis which states "The perceived consumers effectiveness has a positive effect on environmental concern" is accepted. The relationship between

perceived consumers effectiveness and environmental concerns in the study of Vermeir & Verbeke (2006) has a significant impact. Tan (2011) has discussed that perceived consumers effectiveness of high-level consumers will show a positive attitude towards the environment, and vice versa with perceived effectiveness of low-level consumers will show a sense of not caring about the environment. Waris & Hameed (2020) confirmed the relationship of perceived consumers effectiveness to environmental concerns, consumers who are concerned with environmental issues tend to pay attention to the causes and effects of purchasing environmentally friendly products. Supported by Song et al., (2020) that the perceived consumers effectiveness has a close relationship with environmental concerns. In line with Waris & Hameed (2020) that the perceived consumers effectiveness is the most influential predictor of environmental concern. Similar results were found in Waris et al., (2020) who found that the perceived consumers effectiveness positively affects by environmental concern.

The effect of the environmental concern variable has an original sample coefficient on the green purchase of 0.333. The t-statistic value in this construct relationship is $5.091 > 1.96$, and the p-value is $0.000 < 0.05$. Thus, the fifth hypothesis which states "environmental concern has a positive effect on green purchase" is accepted. Environmental concern has an important role in the process of green purchase (Kucher et al., 2019). Heo & Muradhilaran (2019) agreed that consumers with a sense of environmental concern will purchase green products. Although Qomariyah & Prabawani (2020) did not find an effect between environmental concern and green purchase, research by Sharma & Foropon (2019) found that consumers who have a low sense of environmental concern do not purchase green products, the opposite consumers with a high sense of environmental concern will purchase green products.

In the context of green purchases, Waris & Hameed (2020) argued that consumers with a sense of environmental concern show positive attitudes towards pro-environment behaviours. Environmental concern shapes consumer behaviour towards green purchase, it is found that there is a positive relationship between environmental concerns and green purchases (Song et al., 2019).

Conclusion

Eco-labels have a positive and significant effect on product attributes. When The Body Shop add Eco-labels such as recycling labels and provide detailed information that supports other environmental aspects of the product, it will attract consumers to make green purchase. Consumers assume that products designed to be environmentally friendly are of good quality. Eco-labels have a positive and significant effect on the perceived consumers effectiveness. Eco-labels make it easier for consumers to recognize environmentally friendly products, because the role of Eco-labels helps consumers understand product information well. Product attributes have a positive and significant impact on environmental concern. The Body Shop who provide information about the environment on their products will give consumers a new perspective on the environment, so that consumers will choose products that can be recycled and are free of materials harmful to the environment.

The perceived consumers effectiveness has a positive and significant impact on environmental concern. Consumers who are worried about environmental problems tend to pay attention to the causes and effects of their actions so they will choose to buy environmentally friendly products. Consumers feel as one who participates in preserving and protecting the environment by green purchase, as consumers feel they help solve natural resource problems by saving water and energy.

Environmental concern has a positive and significant impact on the green purchase. Consumers switch to environmentally friendly products that are free of hazardous materials and avoid purchasing products that are potentially harmful to the environment. Thus, when consumers are faced with two product choices, consumers will choose products that are less harmful to the environment. Consumers will make special efforts to purchase household chemicals, such as detergents and cleaning solutions, that are environmentally friendly.

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