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The Impact of Green Product Innovation, Green Perceived Quality to Purchase Intention Moderated by Lifestyle on Stainless Steel Straw

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ABSTRACT

The purpose of this study was to determine the effect of green product innovation, green perceived quality to purchase intention moderated by lifestyle on stainless steel straw. There is a direct influence of green product innovation, green perceived quality, and life style to purchase intention. Lifestyle does not moderate the relationship between green product innovation and purchase intention. However, lifestyle moderates the relationship between green perceived quality and purchase intention. Based on the results, restaurants and cafes should use stainless steel straws because the consumers have a lifestyle with the perception that eco-friendly products can reduce the impact of environmental pollution therefore, they intend to visit restaurants and cafes that use stainless steel straws.

Keywords: Green Perceived Quality, Green Product Innovation, Lifestyle, Purchase Intention

INTRODUCTION

Since long ago, the world has been preoccupied with contaminating plastic products, including Indonesia. This is due to the large number of people in Indonesia who use plastic for their everyday's life for the reason that it is much cheaper, practical than other materials. Products made from plastic such as plastic bags, food and beverage wrappers and others can pollute the environment because they cannot be rapidly recycled and take a long time to decompose.

Data from the Ministry of Environment (KLH) states that since 1950, approximately 8.3 billion tons of plastic have been produced every day and our people produce 189 thousand tons of garbage per day. Of that amount, 15% is plastic waste or 28.4 thousand tons of plastic waste per day, followed by paper waste (8%), metal (4.3%), glass, wood and other materials (12.7%). Based on the International Coastal Cleanup Report, ten types of waste that dominate the coastal world are cigarette butts, food wrappers, plastic bottle caps, plastic beverage bottles, beverage cans, plastic straws and stirrers, glass drink bottles, metal bottle caps, plastic shopping bags, and other plastics packaging (Oceanconservancy.org).

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Figure 1.1 Ten types of waste that dominate the world coast
Source: oceanconservancy.org

According to research from Sustainable Waste Indonesia (SWI), 24% of waste in Indonesia remains unmanaged well, while 7% of it is recycled and the other 69% is in Final Disposal Sites which will eventually end up at sea. From these problems, Indonesia was declared as a contributor to waste, especially the second largest marine plastic waste in the world after China with an estimated number of 0.48-3.2 million metric tons per year (Jambeck, 2015). At present it is estimated that the sea has accommodated 150 million tons of plastic waste and predicted that by 2050, it will accommodate 250 million tons of plastic waste (Gallo, 2011).

Plastics are long chain hydrocarbon polymers consisting of millions of monomers which are bonded to one another and cannot be broken down by microorganisms (Trisunaryanti, 2018). In the process, plastic takes 200-1000 years to decompose. Plastics will break down into particles in small sizes that allow it to be consumed by marine biota. This will lead to their death, since the plastic particles will interfere with both metabolisms, and the digestive system of marine life. In addition, the number of plastic particles consumed by marine biota allows it to move into the human body through the food chain scheme. A research conducted by the Ocean Conservancy found that 28% fish in Indonesia contained plastic.

In addition, plastic will also cause death on coral reefs. According to the Australian Coral Reef Research Center (ARC) on the Indonesian sea, 26 parts per 100 square meters of coral reef have been exposed to plastic waste.

By the government, a policy has been issued in order to reduce the use of plastic through a circular letter KLHK No. S.1230 / PSLB3-PS / 2016 containing the price and mechanism for applying paid plastic bags. This policy has been tested in various regions in Indonesia and apparently has no significant impact on reducing plastic waste. Some business owners remain making their plastic bags free, as well as local governments have different attitudes in overcoming this rule (Ekawati, 2016). In

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addition to these policies, the government has appealed to the people for doing 3R (Reuse, Reduce, Recycle). This is applied to the use of plastic straws, as plastic straws are taken into account in the 10 contributors to garbage in the ocean.

According to data owned by Divers Clean Action consisting of a group of environmentalists, especially the sea, the use of plastic straws in Indonesia reaches 93,244,847 sticks every day. This is heavily problematic since plastic straws are easy to get and find in everyday life such as in small restaurants and fast food restaurants definitely using straws to serve drinks. To implement the 3R (Reduce, Reuse, Recycle) policy, the production of Stainless-Steel Straw is an effective way to reduce disposable plastic straws due to its continual use.

Based on the above conditions, the researchers will conduct research on the Effect of Green Product Innovation, Green Perceived Quality, and Lifestyle on Purchase Intention on Stainless Steel Straw.

Green Product Innovation

Innovation of eco-friendly products helps preserve the environment and provide benefits to the community (Triguero, et al., 2013). According to Soylu & Dumville (2011), innovative ideas, product design, production and marketing the new eco-friendly products can be said to be products with eco-friendly innovation. Innovative eco-friendly products use recyclable and non-toxic materials, give no pollution and damage to the environment (Chiou et al., 2011). Hartmann and Ibáñez (2012) said consumers with eco-friendly awareness will intend to make purchases of these products.

Over the years, many authorities at both national and international agencies have attempted to establish standards or specification for product “greenness” through treaties, regulations, practices, and guidelines. Although the standards may vary, they are generally concerned with ecological and human health, as well as the social, cultural, and economic impacts of a product. Chuang & Yang (2014) mention that products considered to be superior as non eco-friendly products if they can reduce the environmental burden in reducing energy use, air emissions, waste discharged into the sea, and solid waste, to lessen environmental pollution. According to Wu and Chen (2014), eco-friendly innovation products are products designed, produced and distributed to consumers in order to reduce the effects of environmental pollution.

In the process of making eco-friendly innovation products, technological capability, knowledge capital, increased researches and development for companies are noteworthy. In addition to strengthen environmental policies and regulations in producing innovative products, it is necessary to reduce costs with a good managerial system and management tools related to the environment (Horbach, 2008).

H1: There is the influence of Green Product Innovation to Purchase Intention
Hartmann and Ibáñez (2012) said consumers’ eco-friendly product innovation awareness will intend to make purchases of these products.

Green Perceived Quality

Product quality is important and can be interpreted as the best product or service. To make consumers intend to buy company’s products, the quality is one prominent factor.

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Quality factor is a factor enabling to improve product performance and influence consumer purchase intentions (Asshidin et al., 2016).

Perception of the product or service quality is determined by consumer decisions regarding the product or service is either the best or better compared to other competitors' (Snoj, et al., 2004). Perceived Quality comes from consumers' subjective thoughts which will end in the decision to use a product. In addition, the perceived quality can also be concluded as a consumer evaluation of overall brand superiority based on intrinsic (performance and endurance) and extrinsic (brand name).

According to Chen & Chang (2013), consumers value an eco-friendly product or service based on their assessment of the quality aspects of the product. To measure green perceived quality, Chen & Chang (2013) mention there are 4 dimension such as (1) consumers will feel concern to eco-friendly products when the quality is good; (2) reliable eco-friendly products; (3) to reduce the impact of environmental pollution; (4) consumers have a professional and responsible view of eco-friendly products.

Gan et al., (2008) stated "If the company offers eco-friendly products at affordable prices, good quality, and available in many places, then consumers will purchase these products." According to Chang & Fong (2010), quality products are products with good performance, sturdy and reliable to meet the consumers' desire. Consumers will make a purchase due to their positive perception (Chen & Chang, 2013).

H2: There is the influence of Green Perceived Quality to Purchase Intention
Consumers will make a purchase if their perception of eco-friendly products is positive (Chen & Chang, 2013).

Lifestyle

Many factors can affect consumers when deciding to buy a product. This can come from internal factors and external factors such as environmental influences. As to internal factors, lifestyle factors are quite influential on the process of purchasing a product or service, and would trigger someone to make a purchase. There are several factors that can determine the consumer's lifestyle such as activity, personal and psychology (Solomon, 2009). Activity is a form of consumer action. Personal factor are factors within the consumers (called consumer tastes) that influence purchasing decisions. In addition, psychological factors are the actions of consumers in making decisions.

Diyah & Wijaya (2017) concluded that one of the indicators that consumers are eager to buy eco-friendly products are their orientation and healthy consumption lifestyle. Further, Margistris and Gracia (2008) mentioned that there is a relationship between the lifestyle of consuming eco-friendly products and positive attitude towards green products.

According to Rizwan et al., (2013) and Chen (2011) the society know that environmental pollution comes from the manufacturing industry sector and they take it more seriously. A healthy lifestyle is formed from the mindset of consumers such as interests, opinions about health awareness by no longer using synthetic products and being interested in recyclable products (Magistris & Gracia, 2008; Fraj & Martinez, 2007)

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Barry & Weinstein (2009) mentioned that lifestyle is one of the factors of psychographic segmentation. Lifestyle focuses on the relationship between products and customer interests in the form of values created based on daily needs.

H3: There is the influence of Lifestyle to Purchase Intention
Diyah & Wijaya (2017) contended one of the indicators that consumers want to buy eco-friendly products are consumers' orientation and healthy consumption lifestyle.

Purchase Intention
Consumer purchase intention is the possibility and desire of someone to choose eco-friendly products compared to traditional products (Rashid, 2009). A nearer point of view that green purchase intention refers to consumers' willingness to purchase. Motivation is one of the influencing factors to their intention (Ramayah et al., 2010). Many customers are willing to pay for less air pollution and willingness to pay some more amounts for reduced emissions through renewable fuels. Based on these conditions, producers need to change products used to be non eco-friendly to eco-friendly ones (Chen, 2010). By offering eco-friendly products to consumers and they notice their availability in the market, they intend to purchases these products (Verma, 2014; Datta, 2011; Chen, 2010; Gan et al., 2008;). According to Gogoi (2013), consumers do not trust the products offered at low prices, with simple packaging and if they have no idea about the products.

Pooladireishahri & Asgarpour (2015) said consumers prefer and make a purchase to certain eco-friendly product categories. Therefore, the company will put up the products for sale to make a profit. To find out their intention to purchase, it is necessary to know the perceptions and attitudes of consumers towards the products offered (Kotler & Keller). According to Netemeyer et al. (2005), their interest to eco-friendly products in which they live, make them buy the product.

Gogoi (2013) mentions that before deciding to buy a product the consumers are influenced by both internal and external motivation. Awareness of the presence of eco-friendly products at the market, knowledge of the product, interests, preferences and persuasion are processes before deciding to buy a certain product (Kawa et al. 2013).

Research Model

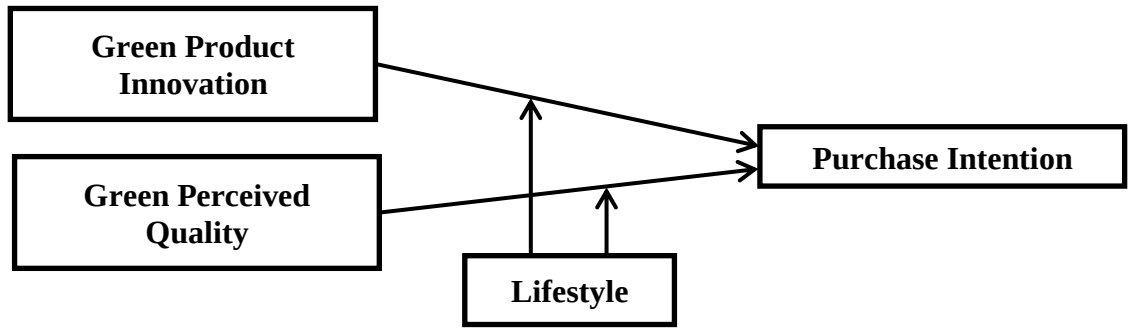

Figure 1: Research Model

Conceptual Hypothesis
H1 : There is the influence of green product innovation to purchase intention
H2 : There is the influence of green perceived quality to purchase intention

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H3 : There is the influence of lifestyle to purchase intention
H4 : Lifestyle moderates the relationship between green product innovation and purchase intention
H5 : Lifestyle moderates the relationship between green perceived quality and purchase intention

RESEARCH METHOD

Samples and Procedures

The study population is consumers who visited the Hyge coffee shop at Pluit Village Mall on May 6-15, 2019. Sampling is carried out by systematic random sampling technique. Determination of the number of samples is based on the criteria of Hair, Black, & Anderson (2010). Because there are 16 indicators of this study, the number of study samples is 160 respondents (16 x 10). However, to anticipate the damaged data, the authors distributed 200 questionnaires to respondents. Green product innovation data analysis results show that there are 8 data detected as outliers and not included in the next analysis. Thus, the final number of this sample is 192 respondents.

Data collection was carried out by the research team visiting coffee shops. Every fifth visitor was given a questionnaire. But before filling it, they were asked whether they had ever used stainless steel straws. If so, then they were asked to fill out a questionnaire. In the process of filling out the questionnaire the research team invited respondents to ask if there were things that were less clear from the questionnaire. The filling out of the questionnaire lasted 10-15 minutes and respondents were given souvenirs as a token of gratitude for their participation in this study.

The questionnaire consisted of 2 parts: 1) the respondent profile included gender, age, spending / month, job, frequency of buying coffee, and the source of knowledge of stainless-steel straws, and 2) the main variables of the study included, green perceived quality, lifestyle, and purchase intention.

Measurement

Green product innovation was measured by three question items (for example, "Stainless steel straws are not made from plastic therefore it does not pollute the environment"). Respondents were asked to rate how far they agreed or disagreed with each item on the Likert scale (1 = strongly disagree, 5 strongly agree). The results of the validity and reliability test show that this scale is valid (Pearson Correlation for all indicators ranges from 0.464 to 0.784 and significant at 0.01) and reliable (Cronbach's Alpha = 0.668).

Green perceived quality was measured by Chen & Chang's scale (2013). This scale consists of four question items (for example, "Stainless steel straws are superior to plastic straws because they reduce environmental pollution"). Respondents were asked to rate how far they agreed or disagreed with each item on the Likert scale (1 = strongly disagree, 5 strongly agree). The results of the validity and reliability test show that this scale is valid (Pearson Correlation for all indicators ranges item on the Likert scale (1 = strongly disagree, 5 strongly agreed)). The results of the validity and reliability test show that this scale is valid (Pearson Correlation from 0.673 - 0.824 and significant at 0.01) and reliable (Cronbach's Alpha = 0.758).

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Lifestyle was measured by the Setiadi scale (2015). This scale consists of four question items (for example, "Consumers with an opinion that using stainless steel straws can reduce plastic waste"). Respondents were asked to rate how far they agreed or disagreed with each item on the Likert scale (1 = strongly disagree, 5 strongly agree). The results of the validity and reliability test show that this scale is valid (Pearson Correlation for all indicators ranges from 0.730 - 0.828 and significant at 0.01) and reliable (Cronbach's Alpha = 0.798).

Purchase intention was measured by a scale developed from Kotler and Keller (2015) and Chen and Chang (2013). This scale consists of four question items (for example, "After getting information, consumers will consider buying stainless steel straw products"). Respondents were asked to rate how far they agree or disagree with each question item on the Likert scale (1 = strongly disagree, 5 strongly agree). Validity and reliability test results show that this scale is valid (Pearson Correlation for all indicators ranges from 0.599 - 0.809 and significant at 0.01) and reliable (Cronbach's Alpha = 0.729).

Data analysis

This research used various statistical methods. First, frequency, mean, and standard deviation were used to describe the characteristics of the respondent, and the main variables of the study. Pearson correlation was used to analyze the relationship between research variables. Hierarchical regression analysis was used to examine the effect of interaction variables between green product innovation and lifestyle, and interaction variables between green perceived quality and lifestyle on purchase intention. Simple slope analysis was used to find out more about the form of interactive

RESULTS AND DISCUSSION

Profile of Respondent

Table 1 presents the profile of respondents. From this table it can be observed that the number of male respondents (49%) is not much different from the number of female respondents (51%). Generally, respondents (65%) age between 17-25 years. As to their spending per month, most respondents (70.5%) have an income of Rp. 1,500,000 - Rp. 3,000,000 and Rp. 3,000,001 - Rp. 5,000,000. The occupation of respondents is quite varied; however, the biggest percentage is in the category of students (41.15%) and employees (25.52%). Frequency of buying coffee in a week is 3 times a week (41,67%) and the source of knowledge of stainless-steel straws comes from the social media (51.50%) and friends (34%).

Tabel 1. Profile of Respondent (N = 192)

Variabel		N	%
Gender	Male	94	49,00
	Female	98	51,00
Age	17-25th	128	66,50
	25-35th	36	19,00
	>35th	28	14,50
Spending/month	Rp. 1.500.000 - Rp. 3.000.000	71	37,00

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	Rp. 3.000.001 - Rp. 5.000.000	64	33,50
	>Rp. 5.000.000	57	29,50
Job	Student/undergraduate students	79	41,15
	Entrepreneur	35	18,23
	Employee	49	25,52
	Housewife	20	10,42
	Others	9	4,69
Frequency	1 time	32	16,67
	2 times	56	29,17
	3 times	80	41,67
	More than 3 times	24	12,50
The source of knowledge of stainless-steel straws	Friends	65	34,00
	Family	21	11,00
	Sosial Media	99	51,50
	Others	7	3,50

Bivariate Analysis

Table 2. Correlation Coefficient between Research Variables

Variables	**1**	**2**	**3**	**4**
1. Green product innovation	1,00			
2. Green perceived quality	.650**	1,00		
3. Lifestyle	.739**	.740**	1,00	
4. Purchase intention	.575**	.796**	.858**	1,00
Mean	3,956	3,961	3,697	3,794
Std. Deviation	0,499	0,588	0,684	0,563

Note:
**. Correlation is significant at the 0.01 level (2-tailed).

Regression Analysis

To test the hypothesis, this study used hierarchical regression analysis. However, before conducting the regression analysis, the independent variable and the moderator variable were mean-centered first to avoid the problem of multicollinearity (Dawson, 2014). The assumption test results show that the regression model does not contain problems:

- Multicollinearity (VIF value <5)
- Heteroscedasticity (there are no clear patterns on scatterplot charts)
- Data normality (Kolmogorov-Smirnov test results are not significant, p = 0.118)

The hierarchical regression analysis steps are carried out by: Step 1, inserting the predictor variables (Green Product Innovation and Green Perceived Quality) into the

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regression model to test the main effects of the predictors; Step 2, incorporating the variable moderator (Lifestyle) into the regression model to test the main effect of the moderator; Step 3, incorporating the interaction of Green Product Innovation and Lifestyle and the interaction of Green Perceived Quality and Lifestyle interactions into the regression model to test the moderating effect. Table 3 presents the results of hypothesis testing with hierarchical regression analysis. This table implies that the full model is able to explain the variation in purchase intention of 82.6%.

In model 1, Green Product Innovation and Green Perceived Quality have a significant and positive effect on Purchase Intention (B = 0.112, p < 0.1). Accordingly, H1 is accepted. Likewise, Green Perceived Quality has a significant and positive effect on Purchase Intention (B = 0.701, p < 0.001). Thus, H2 is accepted. In model 2, Lifestyle has a significant and positive effect on Purchase Intention (B = 0.594, p < 0.001). Thus, H3 is accepted. In model 3, the Green Product Innovation and Lifestyle interaction variable does not affect the Purchase Intention (B = -0.023, p > 0.05). Whereas, Green Perceived Quality and Lifestyle interaction variables have a significant and positive effect on Purchase Intention (B = 0.046, p > 0.01). Therefore, H4 is not accepted, while H5 is accepted. In other words, Lifestyle only moderates the relationship between Green Perceived Quality and Purchase Intention.

Table 3 Results of regression analysis

	B	SE	β	R^2	ΔR^2	ΔF
Step 1				0,800	0,639	167,465***
(Constant)	15,186	0,098				
Green Product Innovation	0,112****	0,065	0,099			
Green Perceived Quality	0,701***	0,055	0,731			
Step 2				0,903	0,176	178,329***
(Constant)	15,221	0,071				
Green Product Innovation	-0,252***	0,054	-0,224			
Green Perceived Quality	0,391***	0,046	0,408			
Lifestyle	0,594***	0,045	0,722			
Step 3				0,909	0,011	5,7134**
(Constant)	15,101	0,081				
Green Product Innovation	-0,281***	0,053	-0,249			
Green Perceived Quality	0,384***	0,046	0,401			
Lifestyle	0,653***	0,049	0,793			
Green Product Innovation x Lifestyle	-0,023	0,014	-0,092			
Green Perceived Quality x Lifestyle	0,046**	0,015	0,181			

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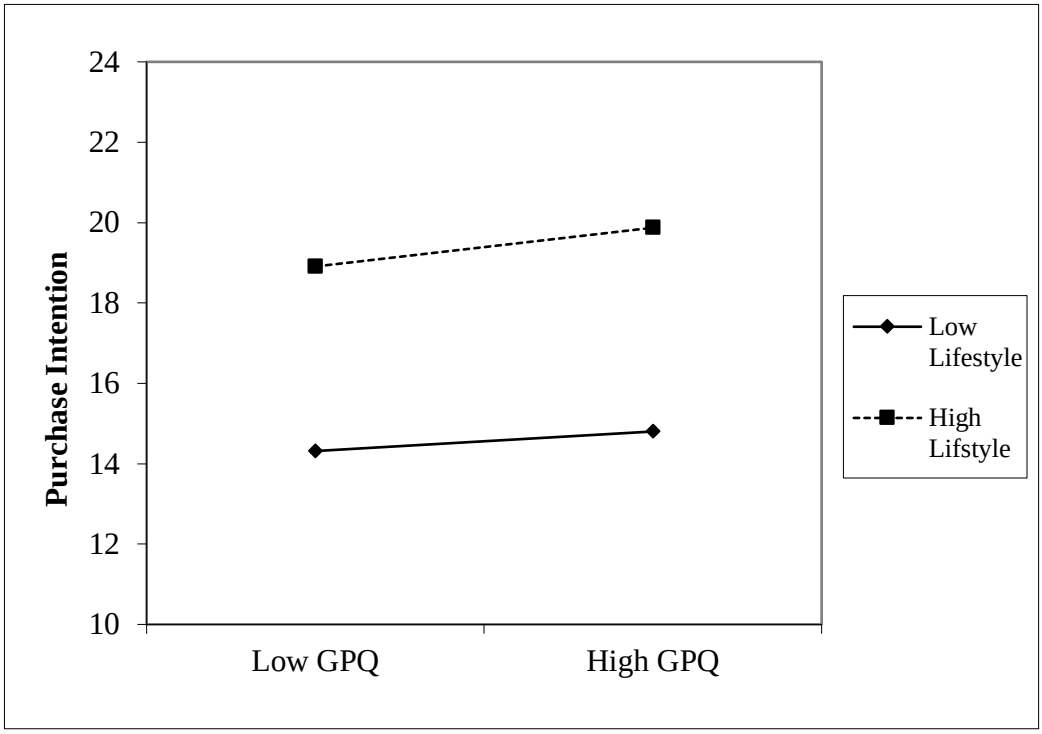
Notes:
1) Dependent variable = purchase intention
2) *< 0,5, **< 0,01, ***< 0,001, ****< 0,1

Simple Slope Test
In relation to H5 hypothesis, this study shows that there is an interaction effect between Green Perceived Quality and Lifestyle to Purchase Intention. To determine the form of interaction, this study conducted a simple slope analysis (Frazier, Tix, & Barron, 2004) to test whether the influence of Green Perceived Quality and Lifestyle to Purchase Intention was significant at Low Lifestyle (1 SD below mean) and High Lifestyle (1 SD above mean). Figure 1, the effect of Green Perceived Quality to Purchase Intention is significant at Low Lifestyle (B = 0.256, p < 0.001) and also High Lifestyle (B = 0.507, p < 0.001). However, the influence of Green Perceived Quality to Purchase Intention is greater in individuals with High Lifestyle than that in individuals with Low Lifestyle. This shows that Lifestyle acts as a moderator in the relationship between Green Perceived Quality and Purchase Intention.



Picture 2. Effect of Green Perceived Quality (GPQ) on Purchase Intention on Lifestyle Scores

Discussion
The results show that there is a direct influence of green product innovation, green perceived quality, and life style to purchase intention. The effect of green product innovation to purchase intention is that most consumers like innovative products, one of which is eco-friendly straw products using stainless steel that is cleanable and reusable. In addition, there is the effect of green perceived quality to purchase intention because consumers like eco-friendly products such as quality stainless-steel straws to reduce environmental pollution. Furthermore, they can be used many times compared

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to disposable plastic straws. Furthermore, consumer lifestyles such as orientation on eco-friendly products affect purchase intentions since many people today are aware about the environmental of plastic waste, one of which is plastic straws polluting the sea. Polluted sea will damage coral reefs and harm the government in relation to tourism.

Lifestyle moderates mean that lifestyle can strengthen or weaken the relationship between green perceived quality and purchase intention. It can be concluded that green perceived quality to purchase intention is stronger in consumers with high lifestyle than those with low lifestyles.

Furthermore, the results of this study indicate that there is an influence of Green Product Innovation to Purchase Intention. These results are in accordance with research conducted by Hartmann and Ibáñez (2012) implying that consumers with eco-friendly product innovation awareness will intend to make purchases of these products. There is the influence of Green Perceived Quality to Purchase Intention. The results of this study are consistent with research conducted by (Chen & Chang, 2013) stating that consumers will make a purchase if their perception to the quality of eco-friendly products is positive. The results of this study indicate that lifestyles affect consumer purchase intentions, therefore these results are consistent with research conducted by Diyah & Wijaya (2017) which shows one of the indicators that consumers want to buy eco-friendly products are their orientation and healthy consumption lifestyle.

CONCLUSIONS

There is a direct influence of green product innovation, green perceived quality, and life style to purchase intention. Lifestyle does not moderate the relationship between green product innovation and purchase intention. However, lifestyle moderates the relationship between green perceived quality and purchase intention.

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