ANALYSIS OF ZERO PLASTIC BAG POLICY EFFECT ON GREEN BEHAVIOUR WITH STRUCTURAL EQUATION MODELING (SEM) METHOD

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ABSTRACT
Plastic bag is a product that is very often used in everyday life. Plastic bags are one of the biggest contributors to the volume of waste in Indonesia. Therefore, a policy related to the use of plastic bags is called a zero plastic bag. This policy requires plastic bag users to switch to using environmentally friendly bags. This study was conducted to analyze the effect of the zero plastic bag policy on Makassar City community behavior related to the environment or green behavior if this policy is applied in the City of Makassar. To determine the effect of the zero plastic bag policy on people's behavior patterns about the environment using the SEM (Structural Equation Modeling) method. Initial identification was carried out by distributing questionnaires to respondents using plastic bags, especially retail consumers in Makassar City. The questionnaire contained green behavior variables which consisted of five variables. Then the results of data collection using a questionnaire are processed using descriptive analysis and then look for the effect of zero plastic bag policies on green behavior using the SEM method. The results of the identification of the influence of zero plastic bag policy based on four variables namely environmental knowledge, environmental attitude, green advertising, and green consumption on green behavior are that of the four variables that have a positive influence on green behavior are environmental attitude, green advertising, and green consumption. The results of this study can be used as policy input and see how effective this policy is when applied in Makassar City.

Keywords: Plastic waste, zero plastic bag, green behavior, Structural Equation Modeling (SEM)
activities. The increase in the production of plastic bags is clearly against the environmental policy which demands to always use environmentally friendly products. The plastic bag used is a potential waste that has a large volume in Indonesia and is difficult to decompose. Based on data from the Ministry of Environment and Forestry in 2016, every year Indonesia produces around 9.85 billion pieces of plastic bag waste every year. This waste comes from approximately 90 thousand modern retail outlets throughout Indonesia. Meanwhile, plastic waste is a type of waste that takes between 20 and 500 years to decompose.

The government has made several policies to reduce the volume of plastic waste, including the paid plastic bag policy that has been implemented in several modern retail outlets in Indonesia. However, this policy is still considered not very effective. According to Yayasan Lembaga Konsumen Indonesia (YLKI), this policy is actually inaccurate because all operational costs of business actors have been included in the costs that have been charged to consumers through the price they have to pay. In addition, there are also policies related to plastic bags made by the government by increasing the production volume of biodegradable plastic bags, namely plastic bags that are easily biodegradable. However, this policy is still considered ineffective because the type of biodegradable plastic is not fully biodegradable and requires a large cost for the biodegradable plastic bag industry to produce it. To reduce the volume of plastic waste, you can start with yourself by reducing the use of single-use plastics to leave single-use plastics forever. Therefore, a new policy was made by the government in several regions in Indonesia, such as Bali, namely Zero Plastic Bag. This policy requires plastic bag users to switch to other types of shopping bags, such as paper bags or tote bags.

Zero plastic bags are considered capable of reducing the volume of plastic waste. Several regions have implemented this policy, one of which is Denpasar City. The Denpasar City Government has implemented this policy since December 2018. The implementation of this policy is quite effective because according to the DLHK Kota Denpasar, the volume of plastic bag use in traditional markets and other business activities has decreased by 54.26% for traditional markets and 86.27% for another business types.

The success of Denpasar City in reducing the volume of plastic waste usage can also be applied to other big cities. Therefore, a research will be conducted on the effect of the zero plastic bag policy on community behavior patterns towards the environment (green behavior). This research will be conducted in Makassar City with the aim of knowing the green behavior of the people of Makassar City if the zero plastic bag policy is implemented in Makassar City. The method used to see this effect is to use the Structural Equation Modeling (SEM) method.

2. Research Method

The data collection method used to obtain data is by direct field observation, by distributing questionnaires to several retail customers who use plastic bags, especially those who have implemented paid plastic bags. The results of the questionnaire were then processed using descriptive statistics, then we wanted to know the effect of the zero plastic bag policy on green behavior, to determine the value of the effect, SEM method was used using SmartPLS 3 software. Through distributing questionnaires, questionnaires are distributed to several retail consumers in Makassar City. The questions on the questionnaire consist of 25 questions which are indicators of 5 variables. In addition, there are secondary data such as literary studies.

2.1. Data Processing and Analysis Methods

The data processing method used in this study is to process data from questionnaires that have been distributed with descriptive statistics and then look for the value of the effect between the zero plastic bag policy and green behavior using the SEM method using the Smart PLS software.

2.1.1. Variables dan Indicators

The variable and indicator identification stage refers to several studies including Novianti & Kartika (2017) and doPaco, Shiel, & Alves (2018). Based on the study of the research literature, the variables related to the zero plastic bag policy were determined.

2.1.2. Models dan Hypotheses

The indicators of each environmental attitude variable, environmental knowledge variable, green consumption variable, and green advertising variable are made if the zero plastic bag policy is applied. The hypotheses built in this study are:
1. H1: Environmental Attitude has a positive effect on Green Behavior
2. H2: Environmental Knowledge has a positive effect on Green Behavior
3. H3: Green Advertising has a positive effect on Green Behavior
4. H4: Green Consumption has a positive effect on Green Behavior

3. Results and Discussion
3.1 Descriptive Statistical Data Processing
Descriptive statistics are used to describe the data in the questionnaire and the demographic data of the respondents. Furthermore, cross tabulation analysis was carried out on the demographics of the respondents to determine whether there was a relationship between demographics and the zero plastic bag policy on green behavior. Based on data collected as many as 125 respondents. Characteristics of respondents based on gender and age are shown in Figure 1.

![Figure 1. Characteristics of Respondents by Gender](image)

The diagram above shows that the number of male respondents is 56% and the number of female respondents is 44%, from this data it is known that the number of male respondents is more than the number of female respondents.

Meanwhile, based on age, the number of respondents aged <20 years was 4%, the number of respondents aged 20-25 years was 35%, and the number of respondents aged >25 years was 61% as shown in Figure 2. From these data, it is known that the number of respondents over the age of 25 is more dominant.

![Figure 2. Characteristics of Respondents by Age](image)

3.2 Processing of Structural Equation Modeling (SEM)
Data processing in this model consists of two parts, namely the measurement model (outer model) and the structural model (structural model/inner model).

3.2.1 Testing the Measurement Model (Outer Model)
Measurement models are used to evaluate the relationship between indicators and their latent variables. The assessment of the model in this measurement was carried out for reflective latent variables based on the loading factor value ≥ 0.7 (Chin, 1998). In SEM-PLS, the assessment of the measurement model includes testing for internal consistency and validity (convergent validity and discriminant validity).

a. Internal Consistency Test
Measurement of the internal consistency value uses the loading factor (outer loading) value and the composite reliability value. The following is Figure 3 which shows the results of the running model on the SmartPLS 3 software.
Figure 3. Results of Running Model on SmartPLS 3 Software
The following is Table 3 which shows the results of running the internal consistency test of the SmartPLS 3 software.

Indicators that do not meet the loading factor value are below 0.7, namely EA3 (0.628), EA4 (0.338), EA5 (0.052), EK4 (0.643), EK5 (0.687), GA5 (0.684), GB1 (-0.260), GB2 (0.301), GB3 (-0.053), GC2 (0.086), and GC3 (0.490). Therefore, this indicator is considered unreliable to describe the latent variable, so it must be removed from the model.

The iteration results after the EA3, EA4, EA5, EK4, EK5, GA5, GB1, GB2, GB3, GC2, and GC3 indicators are removed for the composite reliability values are Environmental Attitude (EA) (0.747), Environmental Knowledge (EK) (0.827), Green Advertising (GA) (0.874), Green Advertising (GA) (0.874), Green Behavior (GB) (0.776), and Green Consumption (GC) (0.860).

b. Validity Testing (Convergent Validity & Discriminant Validity)
There are two types of validity testing, namely convergent validity and discriminant validity. The validity of convergence is tested at the indicator level with its latent variables (Santosa, 2018). Convergence validity means that a set of indicators represents one latent variable and underlies the latent variable. This representation can be seen in the Average Variance Extracted (AVE) value (Santosa, 2018). Measuring the validity of convergence can be seen on the AVE value with a minimum value of 0.5 (Hair, Jr, et al., 2017).

### Table 1. Value Average Variance Extracted (AVE)

| Variable                        | Average Variance Extracted (AVE) |
|---------------------------------|----------------------------------|
| Environmental Attitude (EA)     | 0.596                            |
| Environmental Knowledge (EK)    | 0.615                            |
| Green Advertising (GA)          | 0.635                            |
| Green Behaviour (GB)            | 0.635                            |
| Green Consumption (GC)          | 0.673                            |

Discriminant validity can be tested at the level of indicators and latent variables. According to Barclay et al. (1995) in Santosa (2018) that there are no indicators that can provide loading values for other latent variables whose values are higher than the latent variables themselves. Based on this, it can be measured through cross loading of each indicator. Table 2 The following are the values of cross-loading for each indicator.

As for the level of latent variables, it is known that discriminant validity can be tested using the root of the AVE value based on the latent variable in question with the correlation between the latent variable and all other latent variables in the model (Santosa, 2018) which is also known as the Fornell-Larckel Criteria. If the Fornell-Larckel Criteria value is greater than the correlation value between latent variables and all other latent variables, it can be said that the discriminant validity is declared valid or feasible. Table 3 is a table of the Fornell-Larckel Criteria values.

### Table 2. Cross-Loading Value of Each Indicator

| Indicator | Environmental Attitude (EA) | Environmental Knowledge (EK) | Green Advertising (GA) | Green Behaviour (GB) | Green Consumption (GC) |
|-----------|-----------------------------|------------------------------|------------------------|----------------------|------------------------|
| EA1       | 0.761                       | 0.384                        | 0.533                  | 0.462                | 0.376                  |
| EA2       | 0.783                       | 0.357                        | 0.363                  | 0.483                | 0.452                  |
| EK1       | 0.447                       | 0.731                        | 0.434                  | 0.435                | 0.516                  |
| EK2       | 0.408                       | 0.839                        | 0.477                  | 0.502                | 0.509                  |
### Table 3. Fornell-Larckel Criterion Values

| Variable                      | Environmental Attitude (EA) | Environmental Knowledge (EK) | Green Advertising (GA) | Green Behaviour (GB) | Green Consumption (GC) |
|-------------------------------|-----------------------------|------------------------------|------------------------|----------------------|------------------------|
| Environmental Attitude (EA)   | 0.772                       |                              |                        |                      |                        |
| Environmental Knowledge (EK)  | 0.479                       | 0.784                        |                        |                      |                        |
| Green Advertising (GA)        | 0.578                       | 0.571                        | 0.797                  |                      |                        |
| Green Behaviour (GB)          | 0.612                       | 0.614                        | 0.758                  | 0.828                |                        |
| Green Consumption (GC)        | 0.538                       | 0.658                        | 0.568                  | 0.797                | 0.820                  |

#### 3.2.2 Structural Model Testing (Inner Model)

Testing the structural model of the effect of the relationship between zero plastic bag policy and green behavior was carried out by testing the coefficient of determination ($R^2$), size of effect ($f^2$), predictive relevance ($Q^2$), goodness of fit index (GoF), and hypothesis testing.

**a. Coefficient of Determination ($R^2$)**

The coefficient of determination ($R^2$) is a value that shows how good the model is based on the suitability of the data obtained (Santosa, 2018).

The value of $R^2 \geq 0.25$ which indicates that there is a strong influence (Cohen, 1988). Table 4 is a table of the coefficient of determination for endogenous variables.

**Table 4 Coefficient of Determination for Endogenous Variables**

| Variable      | R Square |
|---------------|----------|
| Green Behaviour (GB) | 0.813    |

**b. Size of Effect ($f^2$)**

The size of effect ($f^2$) is used to measure the effect of a variable on the dependent variable which is correlated with each other.

**Table 5. Size of effect ($f^2$)**

| Variable                               | Size of effect ($f^2$) |
|----------------------------------------|------------------------|
| Environmental Attitude (EA) → Green Behaviour (GB) | 0.025                  |
| Environmental Knowledge (EK) → Green Behaviour (GB) | 0.004                  |
| Green Advertising (GA) → Green Behaviour (GB) | 0.454                  |
| Green Consumption (GC) → Green Behaviour (GB) | 0.866                  |

**c. Predictive Relevance ($Q^2$)**

Another criterion used to evaluate the structural model is to calculate predictive relevance ($Q^2$). If the value of $Q^2$ is greater than 0 it means that there is predictive relevance, while
the value is less than 0 means that there is no predictive relevance. If the model shows predictive relevance, it can be said that the model can accurately predict data that is not used in evaluating the model (Santosa, 2018).

| Table 6. Predictive Relevance (Q²) |
|-------------------------------------|
| Variabel                            | Q²  |
| Green Behaviour (GB)                | 0.485 |

d. Goodness of Fit Index

Goodness of Fit (GoF) is used to validate the overall model which is a single measure to validate the combined measurement model and structural model (Haryono, 2017). The formula used is as follows.

\[ \text{GoF} = \sqrt{\text{Com}} \times \sqrt{R^2} \]

The criteria for the GoF value are 0.10 (small GoF), 0.25 (medium GoF), and 0.36 (large GoF) Tenenhaus et al., (2004) in Novawanda (2019). Then the GoF measure for the model of the effect of the zero plastic bag policy on green behavior is as follows.

\[ \text{GoF} = \sqrt{0.631} \times \sqrt{0.813} = 0.716 \]

e. Hypothesis testing

Hypothesis testing is carried out to assess the significance of the influence between variables. The following is the calculated T value and P value between variables. From Table 7 above it can be seen that the relationship between latent variables positive effect this can be seen from the path coefficient value is positive. Meanwhile, the significance level of the relationship between latent variables can be seen from the t value which is greater than the t table value of 1.65 and the p value below 0.05. Based on the results of the calculation of t count and p value, the decisions are H1, H3, and H4 are accepted. Meanwhile, H3 was rejected.

| Table 7. Calculate T Value and P value |
|---------------------------------------|
| Hypothesis                    | Path                              | T Statistics (| O/STDEV |) | P Values | Information |
| H1 Environmental Attitude (EA) -> Green Behaviour (GB) | 2.059 | 0.040 | Accepted |
| H2 Environmental Knowledge (EK) -> Green Behaviour (GB) | 0.551 | 0.582 | Rejected |
| H3 Green Advertising (GA) -> Green Behaviour (GB) | 3.393 | 0.001 | Accepted |
| H4 Green Consumption (GC) -> Green Behaviour (GB) | 5.579 | 0.000 | Accepted |

3.3 Data Collection Analysis

In this study, data was collected by distributing questionnaires offline and online. As for the purpose of distributing questionnaires offline so that respondents can be controlled when filling out the questionnaire. For the assessment of the questionnaire using a Likert scale of 1-6. The meaning of the value is 1 strongly disagrees to 6 strongly agrees. The characteristics of the respondents used in the distributed questionnaires are gender and age. In addition, the questionnaire also wants to know the perceptions of consumers who are willing to bring their own shopping bags. And the results obtained are that the respondents who are more willing to carry their own shopping bags based on age characteristics are male, but the difference between the values and the women is not so significant. Meanwhile, based on the age criteria, those who are willing to bring their own shopping bags are in the large age range of 25 years.

3.4 Analysis of Data Processing Model

This section will explain the analysis of the processing model that has been built to determine the effect of the zero plastic bag policy on green behavior consisting of analysis of the measurement test model (outer model), structural model test (inner model), and hypothesis testing.

3.4.1 Analysis of the Measurement Test Model (Outer Model)

The assessment of this measurement model consists of measuring internal consistency and validity (convergent validity and discriminant
validity). Measurement of the internal consistency value uses the loading factor (outer loading) value and the composite reliability value. From the results of running from 125 respondents' data, the loading factor value for the indicators EA3 (0.628), EA4 (0.338), EA5 (0.052), EK4 (0.643), EK5 (0.687), GA5 (0.684), GB1 (-0.260), GB2 (0.301), GB3 (-0.053), GC2 (0.086), and GC3 (0.490) have not met the standard loading factor value, namely 0.7. So the indicators EA3, EA4, EA5, EK4, EK5, GA5, GB1, GB2, GB3, GC2, and GC3 should be removed from the model. Then running the data again after the indicators EA3, EA4, EA5, EK4, EK5, GA5, GB1, GB2, GB3, GC2, and GC3 are deleted, the results show that all indicators have a loading factor value above 0.7 and it can be said that reliable or able to describe the latent variable.

The validity test consists of two types, namely convergent validity and discriminant validity. Convergence validity is measured by calculating the AVE (Average Variance Extracted) value with a minimum value requirement of 0.5. The AVE (Average Variance Extracted) value shows the magnitude of the diversity of manifest variables or indicators of a latent variable in the model being built (Haryono, 2017). From the results of data processing, it is obtained that the AVE value is at a value above 0.5, thus it can be said that it has met the minimum value, meaning that each latent variable can explain an average of more than half of the corresponding indicator variants (Haryono, 2017).

Discriminatory validity (discriminant validity) is measured by the value of cross loading and Criteria Fornell-Larckel (Novawanda, 2019). Based on the data processing that has been done, the cross loading value between indicators with the latent variable is the largest compared to the loading value with other latent variables. Based on this, it can be said that the discriminant validity of the indicator level has been fulfilled. Discriminant validity for the level of latent variables can be measured using the Fornell-Larckel Criteria, from the measurement results it is found that all the AVE values of latent variables are greater than the correlation of these variables with other latent variables, thus the discretionary validity of the variable level can be said to have been fulfilled and can be continued. to the next stage, namely the structural test (inner model).

### 3.4.2 Analysis of the Measurement Test Model (Inner Model)

The structural test analysis was carried out by looking for the coefficient of determination ($R^2$) to measure the predictive strength of the endogenous variables in the model (Novawanda, 2019). Based on the data processing that has been done, it is found that all endogenous variables in the model have a coefficient of determination ($R^2$) $\geq 0.25$, based on this, it can be concluded that the predictive power model of the endogenous variables is classified as strong (Cohen, 1988). As for the measure of influence ($f^2$) measurements are taken to measure the effect of a variable on the correlated dependent variable. From the calculation results, the variable with the highest influence is obtained, namely Green Consumption (GC) $\rightarrow$ Green Behaviour (GB) dan Green Advertising (GA) $\rightarrow$ Green Behaviour (GB).

Furthermore, for the predictive relevance test ($Q^2$) it was found that the endogenous variable had a value greater than 0, namely 0.485, it can be said that the model has predictive relevance. The goodness of fit test is carried out in order to validate the model that has been built as a whole, both the measurement test and the structural model test. The GoF SEM PLS criteria used in this study were based on Tenenhaus et al. (2004), with the criteria for the GoF values are 0.10 (small GoF), 0.25 (medium GoF), and 0.36 (large GoF). From the calculation results, the GoF model index is 0.716, based on this value, it can be said that the model has a large GoF, which indicates that the model is fit. Furthermore, the measurement of the hypothesis test was carried out based on the calculated $T$ value compared to the $T$ table (1.65) and continued by looking for the $P$ value with the criteria $P$ value $<0.05$. From the results of hypothesis testing, it is concluded that H1, H3, and H4 are accepted, while for H2 is rejected.

### 3.4.3 Model Hypothesis Analysis

In the model that has been built, it is found that decisions related to the hypothesis, namely H1, H3, and H4 are accepted, while H2 is rejected. H1 states that Environmental Attitude has a positive effect on Green Behavior, H3 states that Green Advertising has a positive effect on Green Behavior, and H4 states that Green Consumption has a positive effect on Green Behavior. This shows that the higher human
habitual behavior based on environmental awareness, especially after the implementation of the zero plastic bag policy will encourage community habit patterns to do things that can minimize environmental impacts. Meanwhile, in terms of green advertising, it can be said that the greater consumer behavior in choosing products by looking at the advertising aspect that involves environmental elements, especially after the implementation of the zero plastic bag policy, it will also encourage higher community habits in minimizing environmental impacts. Then for green consumption shows the meaning that if an individual action in using a variety of products by considering environmental aspects, especially after the implementation of the zero plastic bag policy, it will also encourage greater community habits in minimizing environmental impacts.

3.5 Managerial Implications

This study found that for the model the effect of the zero plastic bag policy on green behavior has a positive effect on the variable environmental attitude, green advertising, and green consumption if the zero plastic bag policy is applied to build one's green behavior. From these results, steps can be taken that can support government policies related to zero plastic bags that focus more on environmental attitude, green advertising, and green consumption in order to form a pattern of green behavior that is good for the community.

Based on the results of the research that has been done, a concept of managerial implications can be formulated that can be used to increase the effectiveness of implementing the zero plastic bag policy. In implementing the zero plastic bag policy, the government should conduct socialization by considering the three aspects that have been tested to have a positive effect on the habitual patterns of society in minimizing environmental impacts, namely:

1. Environmental Attitude
   Based on environmental attitude, what can be done is by conducting socialization related to the zero plastic bag policy related to some community behavior related to the environment, for example calling on bringing their own shopping bags, reducing the use of disposable food or beverage packaging, collecting used plastic bags that can still be used, and give an appeal to know how to process plastic waste into more useful goods.

2. Green Advertising
   Based on green advertising, what can be done to support the zero plastic bag policy through green advertising is to provide socialization or introduction related to the policy through advertising methods. For example, giving a zero plastic bag policy message to consumptive products, giving advice through posters or billboards on the road, giving advertising messages through retail or traditional markets which basically use a lot of plastic bags.

3. Green Consumption
   Based on green consumption, what can be done by looking at the green consumption aspect is to give an appeal to the public to support or use products that support the zero plastic bag policy. This can be done by cooperating with product manufacturers who can provide support related to the zero plastic bag policy.

The application of the zero plastic bag policy is expected to provide knowledge and increase public awareness of the importance of environmental protection and increase public green behavior. Thus people's behavior will be encouraged to be more environmentally friendly and wiser in using shopping bags by considering environmental aspects with the awareness of bringing their own shopping bags. This can be done by socializing the dangers of plastic waste and its impact on the environment. Then the local government, especially the city of Makassar, can hold activities for the community who are able to support the plastic waste reduction program. For example, by holding a plastic free day program once a month or once a week before the zero plastic bag policy is actually implemented.

4. Conclusions and Suggestions

4.1 Conclusions

The results of the identification of the effect of the zero plastic bag policy based on four variables, namely environmental knowledge, environmental attitude, green advertising, and green consumption on green behavior are that of the four variables that have a positive influence on green behavior are environmental attitude, green advertising, and green consumption.
From the results of hypothesis testing, it shows that of the four hypotheses built, there are three accepted hypotheses, namely the effect of environmental attitude on green behavior, the effect of green advertising on green behavior, and the effect of green consumption on green behavior. Based on the results of this hypothesis testing, input can be given to the government regarding the application of the zero plastic bag policy that socialization can be carried out to implement the policy so that the community's green behavior increases by considering these three aspects, namely environmental attitude, green advertising, and green consumption.

4.2 Suggestions

Suggestions that can be given based on the results of this study are that in implementing the zero plastic bag policy, the government should consider three main specs in socialization, namely environmental attitude, green advertising, and green consumption. In order to form and improve public green behavior in implementing zero plastic bag policies and increasing public awareness of the importance of protecting and protecting the environment.

Referensi (Harvard Style)

Wahyudi, J., Prayitno, H. T. & Astuti, A. D., 2018. Pemanfaatan Limbah Plastik sebagai Bahan Baku Pembuatan Bahan Bakar Alternatif. Pati: Jurnal Litbang.

Bahagia, Yunita, I. & Susanti, R. M., 2019. Analisis Implementasi Kebijakan Kantong Plastik Berbayar di Ritel Modern Banda Aceh. Serambi Engineering, Volume IV, pp. 549-556.

Novianti, A. I. & Kartika, L., 2017. Pengaruh Green Marketing Kebijakan Kantong Plastik Berbayar terhadap Green Behaviour Masyarakat Kota Bogor. Jurnal Riset Manajemen dan Bisnis, Volume 2, pp. 81-94.

doPaço, A., Shiel, C. & Alves, H., 2018. A New Model for Testing Green Consumer Behaviour. Journal of Cleaner Production.

Kasanah, A., 2015. Penggunaan Metode Structural Equation Modeling untuk Analisis Faktor yang Mempengaruhi Kualitas Pelayanan Perpustakaan dengan Program Lisrel 8.80, Semarang: s.n.

Fitriani, S., 2014. Pengembangan Green Behaviour Peserta Didik Pada Pembejarian IPS Melalui Model Pembelajaran Berbasis Proyek (Penelitian tindakan Kelas di SMP Negeri 16 Bandung Kelas VII-1 ), Bandung: Universitas Pendidikan Indonesia.

Hair, J. F., M. Ringle, C. & Sarsted, M., 2013. Partial Least Squares Structural Equation Modeling: Rigorous Applications, Better Result and Higher Acceptance, s.l.: Long Range Planning.

Chin, W. W., 1998. The Partial Least Square Approach to Structural Equation Modelling in Modern Methods for Business Research, s.l.: New Jersey: Lawrence Erlbaum Associates Publisher.

Santosa, P. I., 2018. Metode Penelitian Kuantitatif Pengembangan Hipotesis dan Pengujiannya Menggunakan SmartPLS. Yogyakarta: Penerbit ANDI.

Hair, Jr, J. F., M. Hult, G. T., Ringle, C. & Sarstedt, M., 2017. A Primer on Partial Least Square Structural Equation Modelling (PLS-SEM). 2nd Edition ed. California: SAGE Publication, Inc.

Cohen, J., 1988. Statistical Power Analysis for the Behavioral Sciences. New York: Lawrence Erlbaum Associates Publishers.

Novawanda, O., 2019. Analisis dengan Pendekatan Push Pull Mooring (PPM) terhadap Consumer Behaviour pada Struktur Dual Channel Supply Chain (DCSC) Retail Apparel, Surabaya: Institut Teknologi Sepuluh Nopember.

Haryono, S., 2017. Metode SEM Untuk Penelitian Manajemen. Jakarta: Penerbit Luxima Metro Media.
Environmental knowledge

| Variable                  | Indicator                                                                 | Code | Reference               |
|---------------------------|---------------------------------------------------------------------------|------|-------------------------|
|                           | I feel very educated about the waste problem with the zero plastic bag policy |      | (Novianti & Kartika, 2017) |
|                           | I understand very well about the zero plastic bag policy and the benefits of implementing it on the environment | EK2  |                         |
|                           | I know when I should not use plastic bags based on a policy of zero plastic bag | EK3  |                         |
|                           | I can educate people around me about implementing the zero plastic bag policy | EK4  |                         |
|                           | I know the impact on the environment if the zero plastic bag policy is implemented | EK5  |                         |

Environmental Attitude

| Variable                  | Indicator                                                                 | Code | Reference               |
|---------------------------|---------------------------------------------------------------------------|------|-------------------------|
|                           | If the zero plastic bag policy is implemented, I will bring my own eco-friendly shopping bag | EA1  | (Novianti & Kartika, 2017) |
|                           | With the policy of zero plastic bag so I always try to not buy food or beverage packaging plastic | EA2  |                         |
|                           | I always collect the bags plastic secondhand shopping for reuse in order to support the policy of zero plastic bag | EA3  |                         |
|                           | I know how to process waste plastic I have become more goods has benefits | EA4  |                         |
| **Green Consumption** | I am willing to participate in protecting the environment from pollution | EA5 |
|-----------------------|--------------------------------------------------------------------------|-----|
|                      | It is important for me that the products I use do not damage the environment especially if a *zero plastic bag is applied* | GC1 (doPaço, et al., 2018) |
|                      | I consider the potential environmental impact when deciding to use a product if a *zero plastic bag is applied* | GC2 |
|                      | My buying habits will be influenced by my concern for the environment if *zero plastic bags are applied* | GC3 |
|                      | I will use products that support the *zero plastic bag policy* | GC4 |
|                      | I describe myself as someone who is responsible for the environment by using environmentally friendly products | GC5 |
| **Green Advertising** | I am interested in a product that promotes the *zero plastic bag policy* | GA1 (doPaço, et al., 2018) |
|                      | I tend to pay attention to advertising messages that talk about the environment | GA2 |
|                      | The use of green (eco-friendly) messages in advertising affects my attitude towards advertising | GA3 |
|                      | I respond positively to brands that use a green (eco-friendly) message in their advertisements | GA4 |
|                      | Green advertising (environmentally friendly) is an important form of advertising | GA5 |
| **Green Behaviour**  | I can minimize the damage to the environment | GB1 (Novianti & Kartika, 2017) |
|                      | My behavior can be protective and dedicated to a healthy environment | GB2 |
|                      | I realized that I was part of the environment that had been embedded in myself | GB3 |
|                      | I always take out the trash in its place and save energy | GB4 (Fitriani, 2014) |
|                      | I avoid and reduce the use of plastic bags | GB5 |