

# THE APPLICATION OF THEORY OF PLANNED BEHAVIOR IN SINGLE-USE PLASTIC BAGS CONSUMPTION IN BANDUNG

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**Abstract:** *It's estimated that a total of 9.85 billion plastic bags are generated every year for the supermarkets in Indonesia, which brings challenges as it could harm both the environment and humans. Moreover, the awareness of plastic bags and managing plastic waste is still very low in Indonesia. Several efforts have been made to reduce the use of plastic bags; however, many still use it at the supermarket. Thus, this study aimed to analyzes the drivers of reducing plastic bags behavior among 445 consumers in Bandung with the use of the theory of planned behavior (TPB). The research was conducted using questionnaires and analyzed using Partial Least Square (PLS) – SEM method, with SmartPLS Software. The results indicate that consumers' subjective norm and perceived behavioral control positively and significantly influence the intention to reduce the use of plastic bags, except for attitudes which has insignificant effects. While consumers' perceived behavioral control and intention to reduce the use of plastic bags positively and significantly affect the behavior to reduce the use of plastic bags. These findings might be useful to create strategies to reduce the single-use plastic bags consumption in Indonesia, by focusing on increasing consumer's subjective norm and perceived behavioral control.*

**Keywords:** *behavioral decision, structural equation modelling, theory of planned behavior*

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## Introduction

A plastic bag is actually really convenient; cheap, light, portable, and durable (Miller, 2012), but they also have significant negative effects for the environment (Jakovcevic et al. 2014). It takes between 1000 years or longer for a plastic shopping bag to break down and decompose (Braun & Traore, 2015), with the usage lifespan of each bag is only a few minutes, not even an hour (Spranz, 2017). It was proven that about 300 million tons of plastic are produced annually, and 8 million tons ended up in the sea (Lukman, 2018). Each year, more than a million birds, marine mammals, and turtles die from swallowing plastics (Jeftic et al., 2009). Even worse,

ocean life is also contaminated by microscopic-sized plastic or microplastic. This microplastic later transferred along with the food web, and ended up eaten by humans, which is an issue of concern (Sharma & Chatterjee, 2017).

In Indonesia, an average of 700 plastic bags per person were used each year (Wowshack Team, 2018). From the data of Jambeck et al. (2015), Indonesia was predicted as the second-largest country with the amount of plastic waste contaminated in the sea. Considering Indonesia's high population and the characteristics of the society who really like grocery shopping, Indonesia has a high usage of plastic bags (Kuswardhani & Zulhelfa, 2016). Moreover, the awareness of using plastic bags and managing plastic waste is still very low (Alamendah, 2016). Ironically, since plastic bags are free of charge in the supermarket, most people tend to use these excessively (Kuswardhani & Zulhelfa, 2016). It's estimated that there are 9.85 billion plastic bags produced each year for supermarket outlets in Indonesia (Trisianty, 2019).

There have been several efforts in Indonesia to reduce the single-use plastic bags, as it had drawn the attention of the government. Some campaigns were started by local agencies and individuals in several locations in Indonesia. The efforts surely paid off, as up until 2019, Bogor, Balikpapan, Jambi, Banjarmasin has prohibited the supply of single-use plastic bags in shopping centers, also Bali, which have prohibited the use of plastic bags (Wildan, 2019). In Bandung, the Government of Bandung City stated a local regulation (Perda No. 17 tahun 2012) which is to give an effort to reduce the usage of plastic bags. The government have done a trial of the paid plastic bags in supermarket and minimarket; Rp200, - per piece, that occurred for 3 months in 2016, resulting in a decrease of plastic bags usage up to 30% (Purba, 2016). The most recent campaign in Bandung is the Kang Pisman (Kurangi, Pisahkan, Manfaatkan) movement, which one of the goals is to persuades the society to stop the use of plastic (Kang Pisman, 2019).

Unfortunately, the condition is not getting significantly better, as proven in a small observation that was done in several supermarkets in Bandung. The observation was conducted in two large supermarkets in Bandung. The result shows that 33 out of 42 people, or 78% of them still use plastic bags to carry their groceries in the first supermarket, while in the second supermarket, 38 out of 42 people, or 90% of the customers still use plastic bags to carry their groceries. Thus, there must be some reasons for their behavior. Developing a more thorough understanding of what motivates the behavior is important for a sustainable environment.

The approaches that are commonly used to investigate psychological variables of the pro-environmental behavior are the theory of planned behavior (TPB) and the norm-activation model (NAM) (Aguilar-Luzön et al., 2012; Klöckner, 2013; Klöckner & Oppedal, 2011; Shi et al., 2017). However, according to a meta-analysis of Klöckner (2013), the variables of TPB are closer to behavior than NAM variables. It has also been used for many studies regarding the pro-environmental behavior, and have confirmed its validity (Greaves et al., 2013; Wan et al., 2017; Wang et al., 2016). In TPB, intention is assumed as the central factor to perform a behavior, which is predicted by attitudes towards the behavior, subjective norms (SN) which is the expectation of significant others, and perceived behavioral control (PBC) which is people's perception of the ease or difficulty of acting and performing the behavior (Ajzen, 1991).

Therefore, TPB is appropriate and reasonable to be selected as the basic theoretical framework for this study.

There have been several studies that used TPB to research the pro-environmental behavior or intention (Greaves et al., 2013; Ohtomo & Ohnuma, 2014; Sun et al., 2017; Wan et al., 2017; Wang et al., 2016), but there has not been any specific research that discusses the TPB variables towards the reducing plastic bags behavior, specifically in Bandung City. It's hoped that by knowing the behavior and behavior drivers could benefit the government, supermarket, or pro-environmental organization, business, or community by implementing the suitable strategy that hopefully could reduce the usage of plastic bags in Indonesia.

## Literature Review

Pro-environmental behavior is commonly defined as purposeful action that can reduce negative impacts on the environment (Kollmuss & Agyeman, 2002; Stern, 2000). Some different kinds of actions are included in the pro-environmental behavior, such as recycling (Ari & Yilmaz, 2016; Echegaray & Hansstein, 2017; Khan et al., 2019; Kumar, 2019; Ma et al., 2018; Zhang et al., 2016) green purchase intentions (Chen & Tung, 2014; Moser, 2015; Zhou et al., 2013), and waste management (Begum et al., 2009; Rigamonti et al., 2014; Sasaki & Araki, 2014). Waste reduction, reuse, and recycling could be summed up as three major environmental behaviors (Li et al., 2019). These waste management behaviors are also related to consumption practices such as purchasing recycled products (Barr et al. 2005).

Theory of Planned Behavior (TPB) is a popular social psychological theory for explaining behavioral choices and understanding psychosocial determinants of human social behavior (TPB; Ajzen, 1985, 1991), which has been used in various fields of social sciences (psychology, sociology, marketing, etc.) and is considered as one of the most frequently used frameworks in the literature (Nosek et al. 2010; Ohtomo & Ohnuma, 2014; Ari & Yilmaz, 2016). The TPB model has been used and approved in several studies of pro-environmental behavior (Ari & Yilmaz, 2016; Chen & Tung, 2014; Davis et al., 2009; Echegaray & Hansstein, 2017; Khan et al., 2019; Kumar, 2019; Ma et al., 2018; Moser, 2015). This theory assumes that human actions came from consciously controlled or deliberative decision-making. According to TPB, intention is the primary antecedent of behavior, and it indicates the effort people are willing to give to perform the behavior (De Groot, 2007). The intention is further predicted by the attitude towards behavior, subjective norm, and perceived behavioral control.

Attitude towards behavior refers to the degree to which a person has a favorable or unfavorable evaluation of the behavior in question (Ajzen, 1991). Attitude also includes judgment on whether the behavior is considered as good or bad (Leonard et al., 2004). In the context of pro-environmental behavior, many studies have confirmed that there is a positive relationship between attitude and intention (Khan et al., 2019; Kumar, 2019; Ma et al., 2018; Mostafa, 2007; Ohtomo & Ohnuma, 2014; Sun et al., 2017; Wang et al., 2018). Subjective norm is defined as an individual's perceptions of social pressures from significant others, whether to perform or not to perform the behavior (Ajzen, 1991). The subjective norm captures the individual's feelings about the social pressure that felt about a given behavior. (Han et al., 2010; Taylor and Todd, 1995). Most studies have found that subjective norm is an important variable of behavior intention (Dean et al., 2011; Teng et al., 2013; Chen & Tung, 2014; Han et al., 2010; Ohtomo

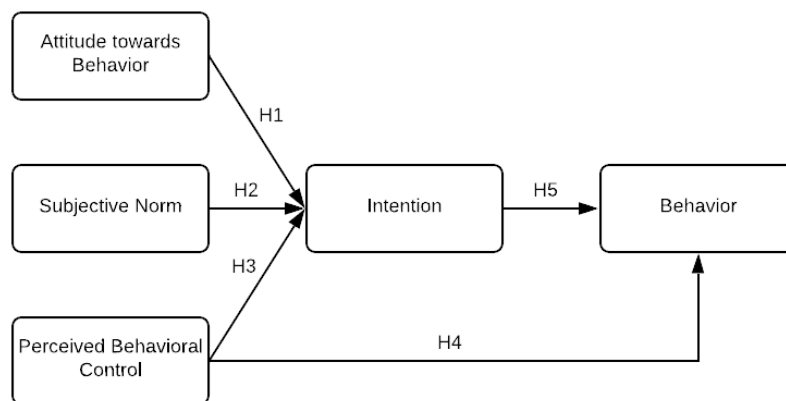
& Ohnuma, 2014; Sun et al., 2017; Taufique & Vaithianathan, 2018), which stated that a positive relationship between subjective norm and behavior intention exists.

Perceived Behavioral Control refers to “the perceived ease or difficulty of performing the behavior” (Ajzen, 1991) or the degree of control an individual is having over the action. Perceived behavioral control could affect behavior in two ways; it has implications on intention, and it can directly predict behavior (Ajzen, 1991, 2006). Pro-environmental studies have shown that PBC positively affect intention (Albayrak et al., 2013; Chen & Tung, 2014; Han et al., 2010; Thøgersen, 2007; Moser, 2015; Paul et al., 2016) and behavior (Ohtomo & Ohnuma, 2014; Wang et al., 2013; Wang et al., 2018; Ma et al., 2018). Intention refers to individuals’ determination of how hard people are willing to try, how much effort they are willing to give, in order to perform the behavior (Ajzen, 1991, 2006). Intention is the direct predictive variable of behavior (Wang et al., 2016). Some studies have confirmed that intention is able to directly predict the behaviors (Lee et al., 2014; Ohtomo & Ohnuma, 2014; Taufique & Vaithianathan, 2018; Wang et al., 2018).

### Conceptual Framework and Hypotheses

This research is using the TPB as the framework model, developed by Ajzen (1991), shown in Figure 1. The relationships between the variables are as follows: attitude, subjective norm, and perceived behavioral control affect the intention to reduce the use of plastic bags, while perceived behavioral control and intention directly affect the behavior to reduce the use of plastic bags.

Figure 1. Conceptual Framework



Based on the literature review and conceptual framework, the hypotheses are:

H1: Attitude towards using plastic bags is positively related to grocery shoppers’ intention to reduce plastic bags.

H2: Subjective norm is positively related to grocery shoppers’ intention to reduce plastic bags.

H3: Perceived Behavioral Control is positively related to grocery shoppers’ intention to reduce plastic bags.

H4: Perceived Behavioral Control is positively related to grocery shoppers’ behavior to reduce plastic bags.

H5: Intention is positively affecting grocery shoppers’ behavior to reduce plastic bags.

## **Methodology**

### **Research Design**

This study uses a quantitative research method to gather all the numerical data. Quantitative data could also mean the data has been quantified and is in numerical form (Saunders & Lewis, 2012). The data collected using an online survey method will be used to assess the behavior of reducing plastic bags.

### **Population**

The target population are people aged 20 to 55 who live in Bandung City. People outside the age range are unable to participate in the survey, as they are considered as not actively gone grocery shopping. The total population of Bandung City aged 20 to 55 years old retrieved from Badan Pusat Statistik data in 2018 is 1,391,760.

### **Sampling Procedures**

This study uses non-probability sampling technique, with purposive sampling method. Non-probability sampling is a technique that uses non-randomized methods (conditional) to calculate the sample. It does not aim to choose a random sample from the population of interest. Rather, subjective methods are used to choose which elements are included in the sample (Battaglia, 2011). Non-probability sampling depends on the researcher's opinion rather than random choice (Malhotra, 2010). The purposive sampling technique also referred to as judgmental sampling or expert sampling, is used to produce a sample that can be considered "representative" of the population (Battaglia, 2011). It chooses the participant based on the quality that they have. The criteria of respondents for this research are people aged 20 to 55 who live in Bandung City and is an active grocery shopper.

Slovin's formula is frequently used to calculate the appropriate sample size from the population. Thus, for this research, the researcher uses Slovin's formula to determine the sample size from people aged 20 to 55 years old who live in Bandung City, which is 1,391,760 people, with the accepted error limit is 0.05 with the basis of the 95% confidence level, resulting in 400 respondents.

### **Data Collection**

There are two types of quantitative descriptive data collection methods; observation and survey (Malhotra, 2015). This research is using the survey method. The survey method is used to gather data from the respondents (Malhotra, 2010) and could be executed by using several methods, such as personal interviews, survey through telephone, online interview, mail survey, etc. (Hair et al., 2013). The survey type that is being used in this research is through online surveys, with google form platform.

All questions in the questionnaire were measured with a 5-point Likert type scale ranging from 1 (strongly disagree) to 5 (strongly agree). In order for the respondent to have a better understanding of the questions, all of the questions are in simple Bahasa Indonesia and could be completed in less than 10 minutes.

Attitude towards behavior is measured using five items, three of them adopted from Hidrue et al. (2011), Sun et al. (2017), and Wang et al. (2016), while the rest are adopted from Leijdekkers et al. (2015). Subjective norm is measured using seven items adopted from Leijdekkers et al. (2015). Perceived behavioral control is measured using eight items, two adopted from Leijdekkers et al. (2015), one item from Ajzen (1991), Ajzen & Fishbein (1980), Han et al. (2010), and Han et al. (2015), three items from Miller et al. (2015), Untaru et al. (2014), and Wang et al. (2018), and the rest is from Ohtomo & Ohnuma (2014). Three items are used to measure intention, which two items adopted from Ohtomo & Ohnuma (2014) and one item from de Leeuw et al. (2015). Behavior is measured using four items, one from Amenábar Cristi et al. (2020), two items from Ohtomo & Ohnuma (2013), and one item from Ferdous & Das (2013).

## Data Analysis

SEM-PLS method is used for predictive models when there are many factors that are highly collinear (Tobias, 1997). PLS could reduce the bias caused by multiple regression and establish the relationship between behaviors that will influence consumer pro-environmental intention (Tobias, 1997). There are several steps needed to be conducted to process the data, using SmartPLS 3.0, which started with developing a conceptual model containing inner and outer models on a framework.

## Results

### Reliability and Validity

Table I. Validity, Reliability, and Coefficient of Determination (R<sup>2</sup>)

Construct	Indicators	Outer Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)	R Square
Attitude	ATT1	0.92	0.919	0.919	0.793	
	ATT2	0.781				
	ATT3	0.961				
Subjective Norm	SN6	0.793	0.754	0.754	0.605	
	SN7	0.762				
Perceived Behavioral Control	PBC6	0.814	0.752	0.754	0.605	
	PBC7	0.74				
Intention	INT2	0.905	0.848	0.85	0.74	0.798
	INT3	0.814				
Behavior	BHV1	0.671	0.773	0.785	0.554	0.574
	BHV2	0.655				
	BHV3	0.885				

The validity test was used to indicate whether the instrument is measuring what it is supposed to measure (Wiid & Diggins, 2009). To assess the convergent validity, the average variance extracted (AVE) of each variable is evaluated. The data will be considered as valid if the value

of AVE is larger than 0.5 (Bagozzi et al., 1988). From Table I above, AVE values of all constructs are above 0.5, so it could be concluded that all of the variables are valid. The reliability test was used to show the consistency of the variable towards what it is supposed to measure (Hair et al., 2010). The data is preferred to have a value higher than 0.70, but if it's exploratory research, 0.4 or higher is still acceptable (Hulland, 1999). Table 4.9 above shows the indicator reliability and internal consistency reliability. All of the constructs' Cronbach's Alpha value is higher than 0.7, which means that it's reliable. Similarly, all of the constructs' composite reliability values are also higher than 0.7, which also means that it's reliable. While some indicators of the constructs are less than 0.7, but still achieved the minimum score of 0.4, thus it could be considered as reliable.

R<sup>2</sup> as stated by Wong (2013) is the coefficient of determination or the model's predictive accuracy. The value of R<sup>2</sup> varies from 0 to 1, with 1 means perfect accuracy. Sugiyono (2007) categorize the value of R<sup>2</sup> into five categories. Value of R<sup>2</sup> ranging from 0.00 - 0.19 is considered as very low, 0.20 - 0.39 is considered as low, 0.40 - 0.58 is considered as medium, 0.60 - 0.79 is considered as strong, while 0.80 - 1.00 is considered as very strong. From the R<sup>2</sup>, it's shown that the R<sup>2</sup> for Intention is 0.798. It means that the attitude, subjective norm, and perceived behavioral control strongly explains 79.8% of the variance in intention. The R<sup>2</sup> value of behavior is 0.574, which means that perceived behavioral control and intention explain 57.4% of the variance in behavior, and considered as medium effects.

## Hypotheses Testing and Discussion

Table II. Hypothesis Testing Result

	Hypotheses	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values	Result
H1	ATT -> INT	0.043	0.037	0.086	0.5	0.617	Accepted
H2	SN -> INT	0.645	0.652	0.139	4.626	0	Accepted
H3	PBC -> INT	0.268	0.267	0.11	2.434	0.015	Accepted
H4	PBC -> BHV	0.252	0.255	0.1	2.516	0.012	Accepted
H5	INT -> BHV	0.547	0.546	0.095	5.733	0	Accepted

To test the result of the hypotheses, path coefficient and T Statistics are used. The T-Statistics value has to be larger than 1.96 at the 0.05 (5%) significance level, to be considered as significant. Table II further shows the result data.

Attitudes positively influencing the intention to reduce plastic bags. It could be proven as the path coefficient values are positive, even though it's found not to be very large (0.043). It means that the more people have a positive attitude to reduce plastic bags, it could increase the intention to reduce plastic bags. The result also supported the previous finding by Kumar (2019), Ma et al. (2018), and Wang et al. (2018) that attitude positively affects the intention to pro-environmental behavior. However, it's also contrasting with those studies as in this study, attitude does not significantly affect the intention to reduce the use of plastic bags, as the T-Statistics value, 0.5 is lower than 1.96 (p=0.617). This finding is similar to Khan et al. (2019) findings that attitude impacts on the intention is not significant, in the context of recycling intention. This may happen because even though they have a positive attitude, consumers are

not participating or having the intention to reduce the use of plastic bags. As Khan et al. (2019) stated, as the standard of living in developing countries is different from developed countries, people may seek rewards financially from having participation in pro-environmental behavior. As they do not get personal advantages by doing pro-environmental behavior, they have less intention to do it.

In contrast, subjective norms influence the intention to reduce plastic bags positively and significantly ( $p=0$ ). It means that societal pressure could increase the intention to reduce the use of plastic bags. This finding is in line with previous studies by Dean et al. (2011), Han et al. (2010) and Taufique & Vaithianathan (2018) that the subjective norm affects the intention to perform pro-environmental behavior. Moreover, the subjective norm is found to have the most impact on the intention to reduce the use of plastic bags, having a 0.645 path coefficient value. Thus, it could be concluded that the direct effect of the subjective norm on intention to reduce plastic bags is positive and significant.

Similarly, perceived behavioral control also influences the intention to reduce the use of plastic bags positively and significantly. It means that if individuals perceive to have more control of the behavior, it would increase the intention to reduce the use of plastic bags. This finding supported the previous studies by Chen & Tung (2014), Han et al. (2010) in green hotel studies and Moser (2015), Paul et al. (2016) in the context of green product consumption in general. Perceived behavioral control also is second having the most impact on the intention to reduce the use of plastic bags after subjective norm. Thus, it could be concluded that the direct effect of the perceived behavioral control on the intention to reduce plastic bags is positive and significant.

Intention also showed a positive and significant effect on behavior to reduce the use of plastic bags. It also means that the more people have the intention to reduce plastic bags usage, the more likely that they will perform the behavior of reducing plastic bags. This finding supported the previous studies by Ohtomo & Ohnuma (2014), Taufique & Vaithianathan (2018), and Wang et al. (2018). This also further explains the previous finding by Ari & Yilmaz (2016) which stated that intention to use cloth bags affects the behavior to use fewer plastic bags. The intention is shown as having the most impact on behavior to reduce the use of plastic bags, with path significant value 0.547. Thus, it could be concluded that the direct effect of the intention on behavior to reduce plastic bags is positive and significant.

Perceived behavioral control is shown to have a positive and significant relationship with behavior, as the path coefficient values are positive. It means that the more people perceive reducing plastic bags usage as easy, they will be more likely to perform the behavior. It also explains the previous finding by Wang et al. (2018) that stated the positive relationship between the perceived behavioral control and the pro-environmental behavior, in the context of tourists' behavior towards the scenic spot. More studies in the context of reducing consumption (Ohtomo & Ohnuma, 2014; Wang et al., 2013) and recycling behavior (Ma et al., 2018) also have similar findings. Thus, it could be concluded that the relationship between perceived behavioral control towards behavior to reduce the use of plastic bags is positive and significant.



## Conclusion

The result of this research shows that all of the TPB constructs are having a positive and significant relationship with the intention to reduce plastic bags, except attitude which is positive but not significant. Subjective norms affect intention the most compared to other variables, while perceived behavioral control has the second-largest impact towards intention. Intention and perceived behavioral control positively and significantly affect the behavior to reduce the use of plastic bags. From the results, it is concluded that increasing subjective norm and perceived behavioral control are found to be important. Some measures have to be taken to increase the consumers' subjective norm and perceived behavioral control as the most significant variables of intention, which would then directly affect the behavior to reduce the use of plastic bags.

Several approaches could be done to increase the behavior to reduce the use of plastic bags. As the subjective norm has the largest impact towards intention, thus the government could give efforts to encourage people to reduce the usage of the plastic bags and protect the environment by creating a public advertisement, putting signage or verbal messages in the supermarket showing gratitude as to not using plastic bags thus taking a part in protecting the environment or create environmental campaign both online and offline. Government could also encourage the regional leaders to create local regulation to ban plastic bags usage, as it would create a societal pressure in the society. Also, other parties such as governments, friends, families, communities, schools, should try to encourage their significant others (who still use plastic bags) to reduce or stop using plastic bags.

Perceived behavioral control, as the second-largest determinant of intention, could be improved to ease the behavior of reducing plastic bags. Sun et al. (2017) stated that when consumers didn't have access to plastic bags, they most likely won't use it. Thus, the government could make regulation of paid plastic bags or give tax to plastic bags and reduce plastic bags production. As people in developing countries may seek rewards or personal advantages by doing pro-environmental behavior (Khan et al., 2019), it also means that punishment will also persuades people to perform the behavior. So, the concept of punishment could be enforced by fining those who use plastic bags in the supermarket, or in other words, paid plastic bags. As for the supermarkets, they could provide more reusable shopping bags with cheaper price, not giving out plastic bags for free, and include the intervention in the form of voice prompt, such as the cashier asks the customer whether they want to use plastic bags or not, which Ohtomo & Ohnuma (2014) found to increase the effect of perceived behavioral control towards reducing plastic bags intention.

Although this research has produced several findings and implications, there are limitations to this research. First, this research is conducted in the Bandung area, with the age of 20 - 55 years old. Thus, the limitation might be broadened by not only in the Bandung area, but maybe in a larger scale, like in Indonesia, or several big cities in Indonesia. The age limitation might also be broadened by not having the limitation of people aged 20 - 55. It's also limited to people who are an active grocery shopper (gone shopping minimum once a month), but could be broadened by not having this limitation, and also not only limiting the use of plastic bags in the supermarkets, but also in other conditions such as traditional market. The result could also be affected by the cultures and nationalities of the respondents, so further studies could use a more generalized method. There are many indicators and items that are eliminated because those items did not fulfill the criteria or are an outlier. Therefore, further research could develop more

comprehensive tools to assess each of the variables. Many variables could influence the behavior to reduce the use of plastic bags, or become mediating variable on behavior to reduce the use of single-used plastic bags. Those variables could be added for future research about reducing the use of plastic bags.

## References

- Aguilar-Luzón, M., García-Martínez, J., Calvo-Salguero, A., & Salinas, J. (2012). Comparative Study Between the Theory of Planned Behavior and the Value-Belief-Norm Model Regarding the Environment, on Spanish Housewives' Recycling Behavior. *Journal Of Applied Social Psychology*, 42(11), 2797-2833. doi: 10.1111/j.1559-1816.2012.00962.x
- Ajzen, I. (1985). From intentions to actions: a theory of planned behavior. In: Kuhl, J., Beckman, J. (Eds.), *Action-control: From cognition to behavior* (11–39). Springer, Heidelberg.
- Ajzen, I. (1989). Attitude structure and behavior. In: Pratkanis, A.R., Breckler, S.J., Greenwald, A.G. (Eds.), *Attitude Structure and Function*. Lawrence Erlbaum, Hillsdale, NJ, pp. 241–274.
- Ajzen, I. (1991). The theory of planned behavior. *Organ. Behav. Hum. Decis. Process.* 50 (2), 179–211.
- Ajzen, I. (2006). *Constructing a Theory of Planned Behavior Questionnaire*. 1-12.
- Ajzen, I., Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*. NJ: Prentice-Hall, Englewood Cliffs
- Alamendah. (2009). *Dampak Plastik Terhadap Lingkungan*. Retrieved 12 October 2019, from <https://alamendah.org/2009/07/23/dampak-plastik-terhadap-lingkungan/>
- Albayrak, T., Aksoy, Ş., & Caber, M. (2013). The effect of environmental concern and scepticism on green purchase behaviour. *Marketing Intelligence & Planning*, 31(1), 27-39. doi: 10.1108/02634501311292902
- Amenábar Cristi, M., Holzapfel, C., Nehls, M., De Veer, D., Gonzalez, C., & Holtmann, G. et al. (2020). The rise and demise of plastic shopping bags in Chile – Broad and informal coalition supporting ban as a first step to reduce single-use plastics. *Ocean & Coastal Management*, 187, 105079. doi: 10.1016/j.ocecoaman.2019.105079
- Ari, E., & Yılmaz, V. (2016). Consumer attitudes on the use of plastic and cloth bags. *Environment, Development And Sustainability*, 19(4), 1219-1234. doi: 10.1007/s10668-016-9791-x
- Bagozzi, R., Yi, Y., & Phillips, L. (1988). *On the Evaluation of Structural Equation Models*. *Administrative Science Quarterly*, 74-94.
- Barr, S., Gilg, A., & Ford, N. (2005). Defining the multi-dimensional aspects of household waste management: A study of reported behavior in Devon. *Resources, Conservation And Recycling*, 45(2), 172-192. doi: 10.1016/j.resconrec.2004.12.007
- Battaglia, M. (2011). Nonprobability Sampling. *Encyclopedia of Survey Research Methods*.
- Begum, R., Siwar, C., Pereira, J., & Jaafar, A. (2009). Attitude and behavioral factors in waste management in the construction industry of Malaysia. *Resources, Conservation And Recycling*, 53(6), 321-328. doi: 10.1016/j.resconrec.2009.01.005
- Braun, Y.A. & Traore, A.S. (2015). Plastic bags, pollution, and identity women and the gendering of globalization and environmental responsibility in Mali. *Gend Soc* 29(6):863–887

- Chen, M., & Tung, P. (2014). International Journal of Hospitality Management Developing an extended Theory of Planned Behavior model to predict consumers' intention to visit green hotels. *International Journal of Hospitality Management*, 36, 221–230. <https://doi.org/10.1016/j.ijhm.2013.09.006>
- Davis, G., O'Callaghan, F., Knox, K. (2009). Sustainable Attitudes and Behaviours Amongst a Sample of Non-academic Staff – A Case Study from an Information Services Department. 10. Griffith University, Brisbane, pp. 136–151, *International Journal of Sustainability in Higher Education*.
- De Groot, J., & Steg, L. (2007). General beliefs and the theory of planned behavior: The role of environmental concerns in the TPB. *Journal of Applied Social Psychology*, 37(8), 1817–1836. <https://doi.org/10.1111/j.1559-1816.2007.00239.x>
- de Leeuw, A., Valois, P., Ajzen, I., & Schmidt, P. (2015). Using the theory of planned behavior to identify key beliefs underlying pro-environmental behavior in high-school students: Implications for educational interventions. *Journal Of Environmental Psychology*, 42, 128-138. doi: 10.1016/j.jenvp.2015.03.005
- Dean, M., Raats, M., & Shepherd, R. (2011). The Role of Self-Identity, Past Behavior, and Their Interaction in Predicting Intention to Purchase Fresh and Processed Organic Food. *Journal Of Applied Social Psychology*, 42(3), 669-688. doi: 10.1111/j.1559-1816.2011.00796.x
- Echegaray, F., & Hansstein, F. (2017). Assessing the intention-behavior gap in electronic waste recycling: the case of Brazil. *Journal Of Cleaner Production*, 142, 180-190. doi: 10.1016/j.jclepro.2016.05.064
- Ferdous, T., & Das, T. (2014). A study about the attitude of grade eight students for the use of plastic in Gwarko, Balkumari, Lalitpur district. *Procedia - Social and Behavioral Sciences*, 116, 3754–3759. <https://doi.org/10.1016/j.sbspro.2014.01.836>
- Greaves, M., Zibarras, L. D., & Stride, C. (2013). Using the theory of planned behavior to explore environmental behavioral intentions in the workplace. *Journal of Environmental Psychology*, 34, 109–120. <https://doi.org/10.1016/j.jenvp.2013.02.003>
- Hair Jr., J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate Data Analysis*. Publisher by Pearson Prentice Hall in Upper Saddle River, NJ.
- Hair, J.F., Celsi, M.W., Ortinau, D.J. & Bush, R.P. (2013). *Essentials of Marketing Research*. 3rd ed. New York, NY: McGraw-Hill.
- Han, H., Hsu, L., & Sheu, C. (2010). Application of the Theory of Planned Behavior to green hotel choice: Testing the effect of environmental friendly activities. *Tourism Management*, 31(3), 325-334. doi: 10.1016/j.tourman.2009.03.013
- Han, H., & Jin, H. (2015). International Journal of Hospitality Management Hotel customers' environmentally responsible behavioral intention : Impact of key constructs on decision in green consumerism &. *International Journal of Hospitality Management*, 45, 22–33. <https://doi.org/10.1016/j.ijhm.2014.11.004>
- Han, H., & Kim, Y. (2010). An investigation of green hotel customers' decision formation: Developing an extended model of the theory of planned behavior. *International Journal Of Hospitality Management*, 29(4), 659-668. doi: 10.1016/j.ijhm.2010.01.001
- Hidrue, M.K., Parsons, G.R., Kempton, W., & Gardner, M.P. (2011). Willingness to pay for electric vehicles and their attributes. *Resour Energy Econ* 33(3):686–705
- Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: a

- review of four recent studies. *Strategic Management Journal*, 20(2), 195–204.
- Jakovcevic, A., Steg, L., Mazzeo, N., Caballero, R., Franco, P., Putrino, N., & Favara, J. (2014). Charges for plastic bags: Motivational and behavioral effects. *Journal of Environmental Psychology*, 40, 372–380. <https://doi.org/10.1016/j.jenvp.2014.09.004>
- Jambeck, J. R., R. Geyer, C. Wilcox, T. R. Siegler, M. Perryman, A. Andrady, R. Narayan, and K. L. Law. (2015). Plastic waste inputs from land into the ocean. *Science* 347 (6223): 768–71.
- Jeftic, L., Sheavly, S. B., Adler, E., & Meith, N. (2009). Marine litter: A global challenge. Nairobi, Kenya: Regional Seas, United Nations Environment Programme.
- Kang Pisman – Kurangi, Pisahkan, Manfaatkan. (2019). Retrieved 5 November 2019, from <https://www.kangpisman.com/>
- Khan, F., Ahmed, W., & Najmi, A. (2019). Resources , Conservation & Recycling Understanding consumers ' behavior intentions towards dealing with the plastic waste : Perspective of a developing country. *Resources, Conservation & Recycling*, 142(September 2018), 49–58. <https://doi.org/10.1016/j.resconrec.2018.11.020>
- Klöckner, C., & Oppedal, I. (2011). General vs. domain specific recycling behaviour—Applying a multilevel comprehensive action determination model to recycling in Norwegian student homes. *Resources, Conservation And Recycling*, 55(4), 463-471. doi: 10.1016/j.resconrec.2010.12.009
- Klöckner, C. A. (2013). A comprehensive model of the psychology of environmental behaviour—A meta-analysis. *Global Environmental Change*, 23(5), 1028–1038. <https://doi.org/10.1016/j.gloenvcha.2013.05.014>
- Kollmuss, A., & Agyeman, J. (2002). Mind the Gap: Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?, *Environmental Education Research*, 8:3, 239-260
- Kumar, A. (2019). Resources , Conservation & Recycling Exploring young adults ' e-waste recycling behaviour using an extended theory of planned behaviour model : A cross-cultural study. *Resources, Conservation & Recycling*, 141(June 2018), 378–389. <https://doi.org/10.1016/j.resconrec.2018.10.013>
- Kuswardhani, M., & Zuhelfa, M. (2016). The Effect of Government Policy on Using Fewer Plastic Bags Towards Society's Awareness of Going Green. *Proceedings Of The Asia Tourism Forum. 2016 - The 12Th Biennial Conference Of Hospitality And Tourism Industry In Asia*. <https://doi.org/10.2991/atf-16.2016.83>
- Lee, Y., Kim, S., Kim, M., & Choi, J. (2014). Antecedents and interrelationships of three types of pro-environmental behavior. *Journal Of Business Research*, 67(10), 2097-2105. doi: 10.1016/j.jbusres.2014.04.018
- Leijdekkers, S. (2015). *Effective Interventions on littering behaviour of youngsters What are the ingrediënts ?*.
- Leonard, M., Graham, S., & Bonacum., D. (2004). The human factor: the critical importance of effective teamwork and communication in providing safe care. *Qual. Saf. Health Care* 13, 85–90
- Li, D., Zhao, L., Ma, S., Shao, S., & Zhang, L. (2019). Resources , Conservation & Recycling What influences an individual ' s pro-environmental behavior ? A literature review. *Resources, Conservation & Recycling*, 146(November 2017), 28–34. <https://doi.org/10.1016/j.resconrec.2019.03.024>
- Lukman, J. (2018). *A Plastic Ocean': In a world of plastic life is not so fantastic*. July 10,

Retrieved on October 7, 2019 from  
<https://www.thejakartapost.com/life/2018/07/10/a-plastic-ocean-in-a-world-of-plastic-life-is-not-so-fantastic.html>

- Ma, J., Hipel, K., Hanson, M., Cai, X., & Liu, Y. (2018). An analysis of influencing factors on municipal solid waste source-separated collection behavior in Guilin, China by Using the Theory of Planned Behavior. *Sustainable Cities And Society*, 37, 336-343. doi: 10.1016/j.scs.2017.11.037
- Malhotra, N.K. (2010). *Marketing Research: An Applied Orientation*. 6th ed. Upper Saddle River, NJ: Pearson Education.
- Malhotra, N.K. (2015). *Essentials of Marketing Research: A Hands-on Orientation*. Essex, England: Pearson Education.
- Miller, D., Merrilees, B., Coghlan, A. (2015). Sustainable urban tourism: understanding and developing visitor pro-environmental behaviours. *Journal of Sustainable Tourism* 23, 26-46.
- Moser, A. K., & Moser, A. K. (2015). *Thinking green , buying green ? Drivers of pro-environmental purchasing behavior*. <https://doi.org/10.1108/JCM-10-2014-1179>
- Mostafa, M. (2007). Gender differences in Egyptian consumers? green purchase behaviour: the effects of environmental knowledge, concern and attitude. *International Journal Of Consumer Studies*, 31(3), 220-229. doi: 10.1111/j.1470-6431.2006.00523.x
- Nosek, B., Graham, J., Lindner, N., Kesebir, S., Hawkins, C., & Hahn, C. et al. (2010). Cumulative and Career-Stage Citation Impact of Social-Personality Psychology Programs and Their Members. *Personality And Social Psychology Bulletin*, 36(10), 1283-1300. doi: 10.1177/0146167210378111
- Ohtomo, S., & Ohnuma, S. (2014). Resources , Conservation and Recycling Psychological interventional approach for reduce resource consumption : Reducing plastic bag usage at supermarkets. *"Resources, Conservation & Recycling,"* 84, 57-65. <https://doi.org/10.1016/j.resconrec.2013.12.014>
- Paul, J., Modi, A., & Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of Retailing and Consumer Services*, 29, 123-134. <https://doi.org/10.1016/j.jretconser.2015.11.006>
- Rigamonti, L., Grosso, M., Møller, J., Martinez Sanchez, V., Magnani, S., & Christensen, T. (2014). Environmental evaluation of plastic waste management scenarios. *Resources, Conservation And Recycling*, 85, 42-53. doi: 10.1016/j.resconrec.2013.12.012
- Sasaki, S., Araki, T., Tambunan, A., & Prasadja, H. (2014). Household income, living and working conditions of dumpsite waste pickers in Bantar Gebang: Toward integrated waste management in Indonesia. *Resources, Conservation And Recycling*, 89, 11-21. doi: 10.1016/j.resconrec.2014.05.006
- Saunders, M. & Lewis, P. (2012). *Doing Research in Business and Management*. 1st ed. London: Pearson Education.
- Sharma, S., & Chatterjee, S. (2017). Microplastic pollution, a threat to marine ecosystem and human health: a short review. *Environmental Science And Pollution Research*, 24(27), 21530-21547. <https://doi.org/10.1007/s11356-017-9910-8>
- Spranz, R. (2017). *Reducing Plastic Bag Use in Indonesia*.
- Stern, P. (2000). New Environmental Theories: Toward a Coherent Theory of Environmentally Significant Behavior. *Journal Of Social Issues*, 56(3), 407-424. doi: 10.1111/0022-4537.00175

- Sun, Y., Wang, S., Li, J., Zhao, D., & Fan, J. (2017). Understanding consumers' intention to use plastic bags: using an extended theory of planned behaviour model. *Natural Hazards*, 89(3), 1327–1342. <https://doi.org/10.1007/s11069-017-3022-0>
- Taylor, S., & Todd, P. (1995). An Integrated Model of Waste Management Behavior. *Environment And Behavior*, 27(5), 603-630. doi: 10.1177/0013916595275001
- Teng, Y., Wu, K., & Liu, H. (2013). Integrating Altruism and the Theory of Planned Behavior to Predict Patronage Intention of a Green Hotel. *Journal Of Hospitality & Tourism Research*, 39(3), 299-315. doi: 10.1177/1096348012471383
- Thøgersen, J. (2007). *Consumer decision making with regard to organic food products*.
- Tobias, R. D. (1997). *An Introduction to Partial Least Squares Regression*. Cary, NC: SAS Institute.
- Trisianty, D. (2019). *Candu Kantong Plastik Kresek*. Retrieved 16 March 2020, from <https://www.itsmartenviro.co.id/id/2019/07/candu-kantong-plastik-kresek/>
- Untaru, E.N., Epuran, G., Ispas, A. (2014). A conceptual framework of consumers' pro-environmental attitudes and behaviours in the tourism context. *Bulletin of the Transilvania University of Brasov* 7, 85-94.
- Wan, C., Shen, G., & Choi, S. (2017). Experiential and instrumental attitudes: Interaction effect of attitude and subjective norm on recycling intention. *Journal Of Environmental Psychology*, 50, 69-79. doi: 10.1016/j.jenvp.2017.02.006
- Wang, C., Zhang, J., Yu, P., & Hu, H. (2018). The theory of planned behavior as a model for understanding tourists' responsible environmental behaviors : The moderating role of environmental. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2018.05.171>
- Wang, P., Liu, Q., & Qi, Y. (2013). *Factors influencing sustainable consumption behaviors : a survey of the rural residents in China*. <https://doi.org/10.1016/j.jclepro.2013.05.007>
- Wang, Z., Guo, D., & Wang, X. (2016). Determinants of residents' e-waste recycling behaviour intentions: Evidence from China. *Journal Of Cleaner Production*, 137, 850-860. doi: 10.1016/j.jclepro.2016.07.155
- Wiid, J. & Diggins, C. (2009). *Marketing Research*. Cape Town, SA: Juta.
- Wong, Ken. (2013). Partial least square structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing Bulletin*. 24. 1-32.
- Wowshack Team. (2018). *“6 Months To Educate” Before Jakarta Ban’s Single-Use Plastic Bags*. November 29, Retrieved on October, 2019 from <https://www.wowshack.com/6-months-to-educate-before-jakarta-bans-single-use-plastic-bags/>
- Zhang, S., Zhang, M., Yu, X., & Ren, H. (2016). Resources , Conservation and Recycling What keeps Chinese from recycling : Accessibility of recycling facilities and the behavior. *“Resources, Conservation & Recycling,”* 109, 176–186. <https://doi.org/10.1016/j.resconrec.2016.02.008>
- Zhou, Y., Thøgersen, J., Ruan, Y. and Huang, G. (2013), “The moderating role of human values in planned behavior – the case of Chinese consumers' intention to buy organic food”, *Journal of Consumer Marketing*, Vol. 30 No. 4, pp. 335-344.