

# Examining The Youths Intention to Plastic Bags; A Recommendation to Creating Sustainability Environment in Jakarta

FLORA ELVISTIA FIRDAUS  
Department of Chemical Engineering  
Jayabaya University  
Jl. Pulomas Selatan Kav 23, Jakarta Timur - 131210  
INDONESIA

*Abstract:* - Human behavior is one of many factors contributes to environmental sustainability. Since plastic bags is the characteristic of modern life style, it grows with the growing population which indeed burden the earth. The plastic bags are free of charge which available in several sizes, and are can be used excessively. Youths are the subject of this research, they are mostly neglect about the environment and low level of commitment. This research is conducted in East Jakarta. The aim of this research is to examine the youth's behavior with plastic bags and measure their intention level with the possibility of replacing plastic bags with another kind of bags. This research is adopted the extending framework of the planned behavior by applying Lisrel-SEM method through 377 respondents. An environmental load of plastic bags needs to be seriously handled. The reward and penalty might be optional to be applied in school and campus.

*Key-Words:* - The Youths, plastic bags, intention-behavior, sustainable, environment, planned behavior

## 1 Introduction

Several environmental problems facing a threat of environmental sustainability; the greenhouse effect, air pollution from cars, air pollution from industry, pollution of waterways, pesticides and chemicals, water shortages, loss of biodiversity, and genetic modification of crops. The effort of maintaining ecosystem integrity and avoid on affecting the elements of life. Following to Gorun research recommendation; the polluters should pay for the damage which caused to the environment [1]

Plastics are other material becoming the major issues [2], which markedly over the last 60 years has worsen the environmental sustainability [3]. Its unique lightweight [4], inexpensive and durable materials make is ready to be molded into a variety of products into a wide range of applications. However, their usage and disposal have generated several environmental problems. Plastics wastes are considered as a second high percentage after food waste.

### 1.1 Environmental Current Event

Plastic bags are major disposable items among others, are categorized into short-lived products where discarded within a year of manufacture [3]. In Indonesia plastics are wasted into the environment as many as 10 billion pieces per year or as many as 85,000 tons of plastic bags, the composition of

plastic wastes among others wastes is predicted 28.5% by the year 2025 and 59.75% in 2035. According to the Indonesian Plastic Industry Association (INPLAS) and the Indonesia Central Statistics Agency (BPS), 3.2 million tons were disposed into the sea [5]. In particular, most of the minimarket/ supermarket in Jakarta provides free plastic bags and are usually offered before the shopping items are calculated, and the shoppers used them excessively.

Many of these problems are rooted in human behavior [6-8], and human behavior patterns [9] which influencing sustainable development in multiple ways. The consumption growth [10], grows with a population [11], will require more goods and more resources [12]. The human consumption is not the reason [9], behavior determines whether plastic bags are understood to be used. Citizens may support the environmental issues and will behave according to the measures [13].

### 1.2 Theory of Behavior

The theory of planned behavior (TPB) is the most cited model in many social sciences [14-15] to interpret human behavior [16]. The environmental sustainability can be promoted through willingness and intention to have the behavior of anti-plastic bags. The systematic perspective on assessing environmental behavior can define the behavior

broadly [17] with the support of high intention is classified as environmentally relevant behavior, where individual unintentional does not realize the impact of his/her behavior [18]. According to the planned behavior, attitude directly does not determine behavior but with intention indirectly may affect a tangible result [19]. The perceived behavior control (PBC) reflects an individual to perform a behavior for a given situation. Subjective norm is as social pressure as if behavior should or should not be performed. TPB has successfully determined motivational toward recycling behavior [20], where intention-behavior is the first in the conceptual framework, “I consciously to do action”. The second is willingness behavior; is a reaction to unplanned behavior. The dual perspectives of behaviors are able to predict intended and unintended behavior [21].

This study is implementing TPB in youths (ages 15-21) and measuring their intention to have the behavior of anti-plastic bags. During this period of ages, they are in real-life settings with real-life implications and has better on influencing the current and may make changes in the present [22]. Having relevant behaviors, the youths may experience through their environments, learn and reconstruct environmental deterioration to be solved and creates environmental sustainability.

Therefore the purpose of this study is measuring youths behavior towards plastic bags and relate the intention of driven behaviors and identified the possibility of external factors on boosting intention.

## 2 General Problem Formulation

This research is adopted Ohtomo model [23] with seven latent variables: descriptive norm, perceived behavioral norm, subjective norm, attitude, behavioral willingness, behavioral intention, toward anti-plastic behavior.

Previously, we used questionnaires which distributed to 50 respondents, then measure and analyze. From the result, we have provided low validity which is below 0.3. Following the results we have the assumption that the questionnaires may be are not readable, the terminology is not well understood, and the 4-Likert scale may be are not suited to respondents. The questionnaires are then modified to a simple terminology into 15 questions where previously 35, and using 5 -Likert scale.

### 2.1 The Youths’ Briefly Demography

The population in East Jakarta are more densely compared to another region: North Jakarta, Central Jakarta, West Jakarta, and South Jakarta. The minimarket/supermarket are increasingly in number for the past five years, they may be located around school or nearby the residential area.

The youths are represented as the youngster population in Jakarta, by using simple purposive random sampling. During this period of ages, they have better on influencing the current and make changes in the present. The research was conducted in high school and campus in the region in East Jakarta. The high school students are in the first semester in second and third year, while the university students are in first and the third semester. In general, the student's ages are between 15 and 21 years old; where 24.9% were age 15-16, 51.5% were 17-18, 14.6% were 19-20, 8.75% were above 20, and 1 subject is 14 years old. The age 17-18 would be special because 74% are still in 3rd year in high school and 26% are university students. Based on gender, the students 36.9% are female and 63.1% are male.

Briefly, the high school's students are consist of public school students and vocational students. while the university student is from engineering faculty, law faculty, communication faculty.

### 2.2 Research Conceptual Framework

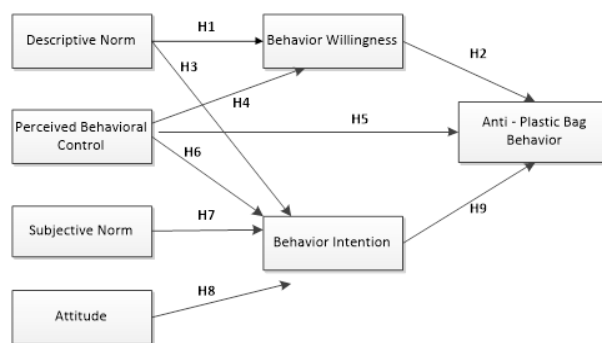


Figure 1. Conceptual Framework

#### Hypotheses

- H<sub>1</sub> Descriptive norm affects behavior willingness
- H<sub>2</sub> Behavior willingness affects the behavior of the anti-plastic bag
- H<sub>3</sub> Descriptive norm affects behavior intention
- H<sub>4</sub> Perceived behavior control affects behavior willingness
- H<sub>5</sub> Perceived behavior control affects the behavior of the anti-plastic bag

- H<sub>6</sub> Perceived behavior control affects behavior intention
- H<sub>7</sub> Subjective norm affects behavior intention
- H<sub>8</sub> Attitude affects behavior intention
- H<sub>9</sub> Behavior intention affects the behavior of the anti-plastic bag

**2.2.1 The questionnaire items**

*Descriptive Norm:* "I often see most of the people accept the free plastics bags when shopping at minimarkets/supermarket" and "I often see most of the people whose not carrying their own shopping bags, will accept the offer of a free plastic bag when shopping at minimarket/ supermarket"

*Perceived behavioral control:* "I will refuse if I've been given free plastics bags when shopping at minimarket/supermarket" and "I would like to bring my own shopping bags to the minimarket/supermarket" and "If I want, I will choose to bring my own shopping bag instead of free plastics bags when shopping at a minimarket/supermarket"

*Subjective norm:* "Family and friends will support my decision of not using plastics bags when shopping at a minimarket/supermarket" and "Family and friends will agree if I do not use plastics bags when shopping at a minimarket/supermarket"

*Attitude:* "I think I should be participated in reducing the use of plastics bags when shopping at a minimarket/supermarket" and, "I think plastics bags are harmful to the environment"

*Behavioral willingness:* "I spontaneously will accept the plastics bags if given by the cashier when shopping at the minimarket/supermarket" and "I unconsciously, accept the plastics bags from the cashier when shopping at the minimarket/supermarket"

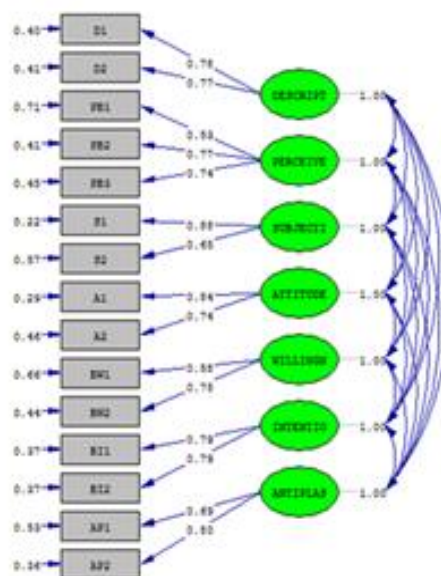
*Behavioral intention:* "I intend not to accept plastics bags when shopping at minimarket/supermarket" and "I intend to bring my own shopping bag when shopping at minimarket/supermarket"

*Anti-plastic bag behavior:* "Do you agree if minimarkets/supermarket don't give you plastics bags for free when you shop?" and "Do you agree to use your own shopping bag to the minimarket/supermarket?"

**2.2.2 Measuring Items**

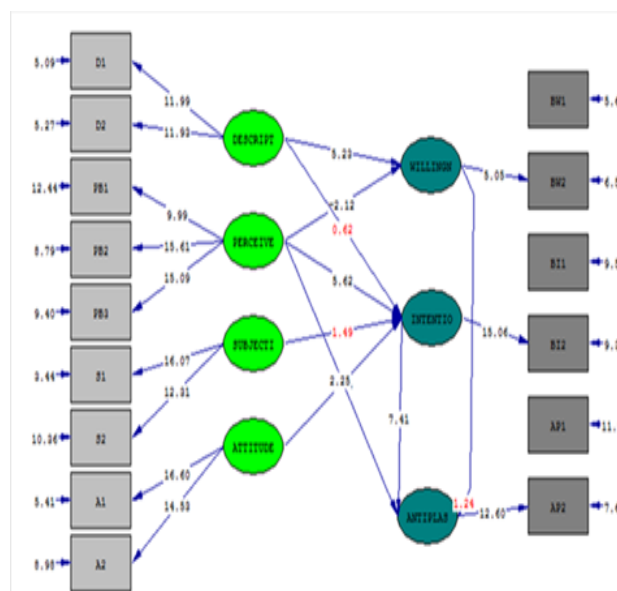
Firstly measuring the reliability items of research questionnaires as can be seen in figure 2. Reliability is the consistency of measurement. A high value indicates the indicators have high consistency in

measuring the latent construct. In SEM the reliability is measured by composite reliability; construct reliability (CR) and variance extracted (VE) where  $(CR) \geq 0.7$  and Variance extracted  $(VE) \geq 0.5$ . According to Hatcher if VE does not meet the requirements, it does not need to be disputed as long as the value of CR is  $\geq 0.6$  [24].

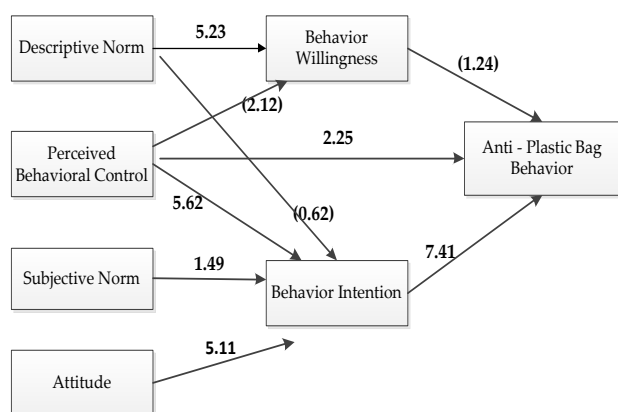


**Figure 2.** The questionnaire validity SLF  $\geq 0.5$  with T Value  $\geq 1.96$

**2.3 Path Analysis**



**Figure 2.** Path Analysis. T-value  $\leq -1.645$  or  $\geq 1.645$ , Chi-square = 217 and RMSEA = 0.071



**Figure 3.** Final Model with Path Coefficients  
With T-value  $\leq -1.645$  or  $\geq 1.645$

### 3 Analysis of Findings

Respondents are in majority can accept to the rejection of the plastic bags, there are some recommendation can be taken: 1) do not provide plastic bags. In case if the shopper requested or resistance with the situation (if angry) they will be given with the provision by paying for a certain price. This can be the initial stage until they adjusted with the situation 2) make the anti-plastic campaign or literacy message through banner or 3) Education in social media/ Television program.

The question no 2 in Perceived behavior control "I would like to bring my own shopping bags to the minimarket/supermarket" this can be solved by the effective campaign. Following to Gerard et.al finding, about willingness behavior is an acceptance to socially undesirable behavior to individual's intentions. The willingness involves unintended decision making as a reaction to situational factors [25]. In this research, we found the willingness behavior is still low. Due to Gerard finding, the respondent agrees to anti-plastic bag programs but are not yet in spontaneously another word is not completely yet accepted. High intention signifies only knows the dangers. In general youths are aware of the government plastic program, but in reality, they do not follow. The attitude and perceived behavior control are high which is signified to the causal effect of high intention-behavior. The descriptive norms do not effect intention-behavior, because the result is negative, which is not in accordance to Ajzen the planned behavior and Ohmoto's model. According to Bazio all behavior are goal oriented [26], the unintentional decisions, which are reactions to situational factors, served to guide behavior along with intentional decisions. Perceived influence on behavior is quite high, while perceived has no effect on willingness. There are

may be some recommendation can be taken to stakeholder/ local government at East Jakarta region: 1) Share shopping bags 2) Provide publics with proper information, and effective socialization about benefit of anti-plastics bag to environment through an informal meetings, where according to Ga'rling & Schuitema, are not very costly (in terms of money, time, effort) [27]. It may effectively increase the behavior willingness and intention (awareness) and 3) The possibility of degradable plastics or reuse plastics where Gardner & Stern does not necessarily agree and preferred on changing purchasing behavior [28]. The high intention-behavior to anti-plastic bags may be specified as a process that guides behavior in a goal-oriented or intentional manner, while behavioral willingness may specify a process that leads to behavior in a reactive fashion. Due to Gibbons *et al* finding the behavioral intention and behavioral willingness are highly correlated but independent predictors of behavior [29-30].

### 4 Conclusion

Environmental degradation is quietly complex problems that should be solved comprehensively in multi-aspect. This is not just a psychological problem. The synergy of environmental psychologists, technologist, and ecologist, socio culturist, academicians and stakeholders creates an environmental concern. Having high descriptive norms and high willingness to anti-to plastic bags does not signify they will have a behavior to reject plastic bags. They agree and understand the plastics can deteriorate environment but not spontaneously rejected if offered. Needs a proper driving force to become an anti-plastic bags behaviorist. School and campus are an effective place for creating insane whom aware to their environment, by a variety of activity which stimulates such behaviors. The perceived behavior control and attitude of youths' can initiate to the intention-behavior to anti-plastic bags which facilitated and emerge worldwide.

#### References:

- [1] Diana Gorun, Theoretical and Practical Aspects Regarding the Applying of the Principle "Polluter Pays," WSEAS Transactions on Environment and Development, vol 14, 2018, pp. 481-490
- [2] Syed Hasan, Rosta Harun, and Lim Kuang Hock, Application of the theory of planned behavior in measuring the behavior to reduce

- plastic consumption among students at Universiti Putra Malaysia, *Procedia Environmental Sciences*, 30, 2015, pp. 195 – 200
- [3] Jefferson Hopewell, Robert Dvorak, and Edward Kosior, Plastics recycling: challenges and opportunities, *Philos Trans R Soc Lond B Biol Sci.*, doi: 10.1098/rstb.2008.0311, 364(1526), 2009, pp. 2115–2126.
- [4] P.M Subramanian, Plastic recycling and waste management in the US, *Resources Conservation and Recycling* 28(3), DOI: 10.1016/S0921-3449(99)00049-X, 2000, pp. 253-263
- [5] Sherly Puspita, (Indonesia Penyumbang Sampah Plastik Terbesar Kedua di Dunia), **Σφάλμα! Η αναφορά της υπερ-σύνδεσης δεν είναι έγκυρη.**  
<https://megapolitan.kompas.com/read/2018/08/19/21151811/indonesia-penyumbang-sampah-plastik-terbesar-kedua-di-dunia,2018>
- [6] Du Nann Winter, D., & Koger, S. M, The psychology of environmental problems. Mahwah, NJ: Lawrence Erlbaum, 2004
- [7] Gardner, G. T., & Stern, P. C., Environmental problems and human behavior (2<sup>nd</sup>ed.). Boston, MA: Pearson Custom Publishing, 2002
- [8] Vlek, C., & Steg, L., Human behavior and environmental sustainability: problems, driving forces and research topics. *Journal of Social Issues*, 63(1), 2007, 1–19.
- [9] Linda Steg & Charles Vlek, Encouraging pro-environmental behavior: An integrative review and Research Agenda, *Journal of Environmental Psychology* 29, 2009, pp. 309–317
- [10] Midden, C. J., Kaiser, F. G., & Teddy McCalley, L., Technology's four roles in understanding individuals' conservation of natural resources. *Journal of Social Issues*, 63(1), 2007, pp.155-174.
- [11] Vries, de, B.J.M. Sustainability Science. New York: Cambridge University Press, 2013
- [12] Miller, G.T. & Spoolman, S.E. Living in the environment. Hampshire: Cengage Learning, 2012.
- [13] Dill, J., Mohr, C., & Ma, L., How can psychological theory help cities increase walking and bicycling? *Journal of the American Planning Association*, 80(1), 2014, pp.36-51.
- [14] Ajzen I, The theory of Planned behavior, *Organ Behav Hum Decision Process*, 50: 1991, pp.179-221
- [15] Ajzen I, Madden TJ, Prediction of goal-directed behavior; Attitude, intention, and perceived behavior control, *J Exp Soc Psychol*; 22, 1986, pp 453-474
- [16] Nosek BA, Graham J. Lindner NM, Kesebir S, Hawkins CB, Hahn C et al, Cumulative and career stage citation impact of social-personality psychology programs and their member, *Pers Soc Psychol Bull*, 36, 2010, pp 1283-300
- [17] Stern, P. C., Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*, 56(3), 2000, pp.407–424
- [18] Bechtel, Robert B., Churchman, Arza (Eds.), *The New Handbook of Environmental Psychology*. New York : John Wiley, 2002.
- [19] Gigliotti, L. M., Environmental Issues: Cornell students' willingness to take action, 1990. *The Journal of Environmental Education*, 26(1), 1994, pp. 34-42
- [20] Knussen C, Mackenzie J. Wells M, Yule F, An analysis of intention to recycle household waste: the role of past behavior, perceived habit and perceived lack facilities, *J. Environ Psychol*, 24: 2004, pp. 237-46
- [21] Gibbons et.al., Reason and reaction; the utility of a dual focus, risk processing perspective on promotion and prevention of adolescent health risk behavior, *Br J Health Psychol*, 14: 2009, pp.231-48
- [22] Belanger, P. Learning Environments and Environmental Education. In L. Hill and D Clover (Eds.), *Environmental adult education: Ecological learning, theory, and practice for socioenvironmental change* (pp. 77-88). In S. Imel, J. Ross-Gordon (Coeditors-in-Chief), *New directions for adult and continuing education*, 99, Fall 2003. San Francisco, CA: Jossey-Bass, 2013
- [23] Shoji Ohtomo, Susumu Ohnuma, Psychological interventional approach to reducing resource consumption: reducing plastic bag usage at supermarkets, resources, conservation and recycling, *Elsevier* 84, 2014, pp. 57-65
- [24] Hatcher, Larry, *Step-by-Step Approach to Using the SAS System for Factor Analysis and Structural Equation Modeling*. Cary, NC: SAS Institute, 1994
- [25] Gerrard, M., Gibbons, F. X., Reis-Bergan, M., Trudeau, L., Vande Lune, L. S., & Buunk, B.,

Inhibitory effects of drinker and nondrinker prototypes on adolescent alcohol consumption. *Health Psychology*, 21, 2002, pp.606–609.

- [26] Fazio, R. H., Multiple processes by which attitudes guide behavior: The mode model as an integrative framework. In M. P. Zanna (Ed.), *Advances in experimental social psychology* vol. 23, pp. 75–109, California: Academic Press, 1990.
- [27] Gaerling, T., & Schuitema, G., Travel demand management targeting reduced private car use: effectiveness, public acceptability, and political feasibility. *Journal of Social Issues*, 63(1), 2007, pp.139–153
- [28] Gardner, G. T., & Stern, P. C., *Environmental problems and human behavior* (2<sup>nd</sup> ed.), Boston, MA: Pearson Custom Publishing, 2002
- [29] Gibbons, F. X., Gerrard, M., Blanton, H., & Russel, D. W., Reasoned action and social relation: Willingness and intention as an independent predictor of health risk. *Journal of Personality and Social Psychology*, 74, 1998, pp.1164–1180.
- [30] Gibbons, F. X., Gerrard, M., Ouellette, J. A., & Burzette, R., Cognitive antecedents to adolescent health risk: Discriminating between behavioral intention and behavioral willingness. *Psychology and Health*, 13, 1998, 319–339.