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# Model of Pro-Environmental Behavior in Jakarta in Indonesia

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**ABSTRACT**

*The aim of this study for proposing pro-environmental behavior model for consumers in Jakarta in Indonesia. This survey research distributed the questionnaires to 450 consumers in Jakarta in Indonesia. In this study, data were analyzed using Structural Equation Modeling (SEM). The result confirmed that pro-environmental behavior model for consumers in Jakarta in Indonesia proposed was good fit for the data. Recycling, eco-products, and green travel predicted pro-environmental behavior. In the conclusion of this research, it is highlighted that the model of pro-environmental behavior hypotesized in this research can be implemented for consumers in Jakarta in Indonesia leading to adoption of having more pro-environmental behavior lifestyles.*

**Keywords:** *Environmental behavior, recycling, eco-products, green travel*

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## INTRODUCTION

There is relationship between exposure to nature with greater pro-environmetalism (Alcock, White, Pahl, Davidson, & Fleming, 2020; Safitri, Umasih, Ibrahim, Sujarwo, Marini, Wahyudi, 2019; Safitri, Nuraini, Rihatno, Kaban, Marini, & Wahyudi, 2020; Safitri, Umasih, Yunaz, Marini, & Wahyudi, 2019; Safitri, Yunaz, Umasih, Marini, & Wahyudi, 2019; Safitri, Marini, & Wahyudi, 2020; Safitri, Budiaman, Rahmayanti, Marini, & Wahyudi, 2020). Adoption of pro-environmental habits is very urgent for having safeguard ecosystems (Kaaronen & Strelkovskii, 2020). Environmental quality is strongly stimulated by human behavior patterns (Shafiei & Maleksaeidi, 2020). Stimulating the development of pro-environmental behavior can reduce environmental problems (Ruepert, Keizer, Steg, Maricchiolo, Carrus, Dumitru, Mira, Stancu, & Moza, 2016; Jeswani & Azapagic, 2020; Fabi, Nicoli, Spigliantini, & Corgnati, 2017; Vilchez, 2017; Adnan, Ahmed, Shakshuki, Yasar, 2019; Lavelle, Rau, & Fahy, 2015). Environmental degradation is caused by anthropogenic activities (Mei, Wai, & Ahamad, 2016; Fransman, & Timmeren, 2017). However, most studies have not provided a more detail explanation about indicator measurement of pro-environmental behavior related to recycling, eco-products, and green travel.

## LITERATURE REVIEW

Pro-environmental behavior involves specific behaviors related to private sphere consisting of recycling, buying eco-friendly and seasonal/local products, and walking/cycling for short travelling and public sphere related to encouraging others to be pro-environmental, environmental organization membership, and environmental volunteering (Alcock, White, Pahl, Davidson, & Fleming, 2020; Safitri, Umasih, Ibrahim, Sujarwo, Marini, Wahyudi, 2019; Safitri, Nuraini, Rihatno, Kaban, Marini, & Wahyudi, 2020; Safitri, Umasih, Yunaz, Marini, & Wahyudi, 2019; Safitri, Yunaz, Umasih, Marini, & Wahyudi, 2019; Safitri, Marini, & Wahyudi, 2020; Safitri, Budiaman, Rahmayanti, Marini, & Wahyudi, 2020). Providing opportunities for having pro-environmental behaviors including cycling infrastructure can result in rapid adoption of sustainable habits involving cycling (Kaaronen & Strelkovskii, 2020). Improvement of environmental attitude can lead to environmental protection and help increase to likelihood of pro-environmental behaviors in community (Shafiei & Maleksaeidi, 2020). General environmental considerations involving biospheric values and environmental self-identity can encourage private pro-environmental behaviors (Ruepert, Keizer, Steg, Maricchiolo, Carrus, Dumitru, Mira, Stancu, & Moza, 2016; Jeswani & Azapagic, 2020; Fabi, Nicoli, Spigliantini, & Corgnati, 2017; Vilchez, 2017; Adnan, Ahmed, Shakshuki, Yasar, 2019; Lavelle, Rau, & Fahy, 2015). Social-psychological factors determine the level of public environmental awareness and behavior (Mei, Wai, & Ahamad, 2016; Fransman, & Timmeren, 2017). However, the previous studies have not provided indicator measurement of pro-environmental behavior related to recycling, eco-products, and green travel.

Environmental behavior may be supported by recycling, eco-products, and green travel (Alcock, White, Pahl, Davidson, & Fleming, 2020). However, this research doesn't provide detail indicator measurement of recycling and eco-products as well as green travel. The summary of relationships hypothesized is shown in a model seen in figure 1.

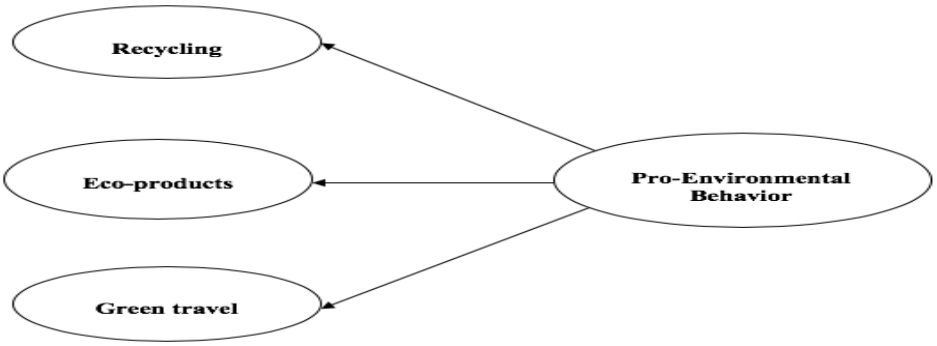

Figure 1. Theoretical Framework of the Study

## METHOD

This survey study was carried out for 450 consumers in Jakarta in Indonesia. Data collected in this research were related to pro-environmental behavior. Content analysis was done to literature of pro-environmental behavior consisting of recycling, eco-products, and green travel (Alcock, White, Pahl, Davidson, & Fleming, 2020).

These dimensions of pro-environmental behavior were derived into the questionnaire provided to 450 consumers in Jakarta in Indonesia. The three aspects of recycling involve converting items into reusable material, using items again, and reducing the cause of waste. The three dimensions estimate eco-products are buying eco-friendly products, using products not harming the environments, and choosing products contributing to green living. The indicators of green travel include respecting local cultures, traveling with environmentally conscious impact, and responsible travel practices paying attention to environmental sustainability.

Data analysis in this research used Structural Equation Modeling (SEM) with IBM SPSS Statistics 24 and SPSS AMOS 24 with 2017 Edition (Edwita, Safitri, Maksum, Yunaz, Marini, & Muda, 2019; Maksum, Safitri, Ibrahim, Marini, & Wahyudi, 2019; Maksum, Safitri, Ibrahim, Marini, Wahyudi, 2020; Ibrahim, Safitri, Nuraini, Rihatno, Edwita, Marini, & Wahyudi, 2020; Marini, Maksum, Satibi, Edwita, Yarmi, & Muda, 2019; Marini, MS, Maksum, Satibi, Yarmi, & Wahyudi, 2019; Marini, Maksum, Edwita, Satibi, & Kaban, 2019; Marini, Safitri, & Muda, 2018; Hartati, Safitri, Nuraini, Rihatno, Marini, Wahyudi, 2020; Hadi, Yufiarti, Sumantri, Marini, & Wahyudi, 2020; Wibowo, Marini, Safitri, & Wahyudi, 2020; Nafiah, Riyadi, Sampurna, Marini, & Wahyudi, 2020).

SEM was done to predict the associations of recycling, eco-products, and green travel with pro-environmental behavior. Data collection was done from 450 consumers in Jakarta in Indonesia inputted in excel using responses with "strongly agree" scored 5, "agree" scored 4, "neutral" scored 3, "disagree" scored 2, "strongly disagree" scored 1 for positive questions, and "strongly agree" scored 1, "agree" scored 2, "neutral" scored 3, "disagree" scored 4, "strongly disagree" scored 5 for negative questions.

## RESULT AND DISCUSSIOM

The goodness of fit statistical analysis of pro-environmental behavior model for consumers in Jakarta in Indonesia pointed out that Normed Fit Index (NFI) value reached 0.883 suggesting that the model suggested in this study is good fit. Comparative Fit Index (CFI) value arrived at 0.916 meaning that the model of pro-environmental behavior proposed is good fit. Incremental Fit Index (IFI) value attained 0.917 showing that the model is good fit. Relative Fit Index (RFI) value achieved 0.825 showing that the model is good fit. Based on SEM measurement result of this research, the environmental behavior model for consumers in Jakarta in Indonesia hypotesized in this study is a fit model.

Based on the result of measurement model test of observed variables seen in table 1 and table 2, it can be shown that recycling, eco-products, and green travel have positive association with pro-environmental behavior of 0.741, 0.986, and 0.667, respectively. These values were significant at the 0.05 levels of t statistics. These findings were consistent with the research stated that pro-environmental behavior was predicted by recycling, eco-products, seasonal/local, green travel encouragement, membership, and volunteering (Alcock, White, Pahl, Davidson, & Fleming, 2020).

**Table 1.** Measurement model test (Regression weights: Group number 1 – Default model)

| | | | Estimate | Standard Error | Critical Ratio | Probability |
|---|---|---|---|---|---|---|
| Recycling | <--- | Pro-Environmental Behavior | 1.000 | | | |
| Eco-products | <--- | Pro-Environmental Behavior | 0.689 | 0.142 | 4.838 | *** |
| Green travel | <--- | Pro-Environmental Behavior | 0.736 | 0.177 | 4.166 | *** |
| EB3 | <--- | Recycling | 1.000 | | | |
| EB2 | <--- | Recycling | 0.597 | 0.049 | 12.241 | *** |
| EB1 | <--- | Recycling | 0.933 | 0.080 | 11.646 | *** |
| EB6 | <--- | Eco-products | 1.000 | | | |
| EB5 | <--- | Eco-products | 1.366 | 0.231 | 5.913 | *** |
| EB4 | <--- | Eco-products | 1.132 | 0.177 | 6.407 | *** |
| EB9 | <--- | Green travel | 1.000 | | | |
| EB8 | <--- | Green travel | 0.769 | 0.231 | 3.327 | *** |
| EB7 | <--- | Green travel | 0.852 | 0.227 | 3.752 | *** |

**Table 2.** Measurement model test (Standardized regression weights: Group number 1 – Default model)

| | | | Estimate |
|---|---|---|---|
| Recycling | <--- | Pro-Environmental Behavior | 0.741 |
| Eco-products | <--- | Pro-Environmental Behavior | 0.986 |
| Green travel | <--- | Pro-Environmental Behavior | 0.667 |
| EB3 | <--- | Recycling | 0.741 |
| EB2 | <--- | Recycling | 0.740 |
| EB1 | <--- | Recycling | 0.669 |
| EB6 | <--- | Eco-products | 0.599 |

| | | | |
|---|---|---|---|
| EB5 | <--- | Eco-products | 0.402 |
| EB4 | <--- | Eco-products | 0.452 |
| EB9 | <--- | Green travel | 0.392 |
| EB8 | <--- | Green travel | 0.305 |
| EB7 | <--- | Green travel | 0.408 |

Notes:

EB1 = converting items into reusable material
EB2 = using items again
EB3 = reducing the cause of waste
EB4 = buying eco-friendly products
EB5 = using products not harming the environments
EB6 = choosing products contributing to green living
EB7 = respecting local cultures
EB8 = traveling with environmentally conscious impact
EB9 = responsible travel practices paying attention to environmental sustainability

In table 1 and table 2, it can be shown that converting items into reusable material, using items again, and reducing the cause of waste have significant positive association with recycling of 0.669, 0.740, and 0.741, respectively. Table 1 and table 2 indicated that buying eco-friendly products, using products not harming the environments, and choosing products contributing to green living have significant positive connection with eco-products of 0.452, 0.402, and 0.599, respectively. In table 1 and table 2, it can be shown that respecting local cultures, traveling with environmentally conscious impact, and responsible travel practices paying attention to environmental sustainability have significantly positive association with green travel of 0.408, 0.305 and 0.392, respectively. These study results were similar to the study found that doing recycle items rather than throwing them away, buying eco-friendly products and brands, choosing to walk or cycle instead of using car when one stimulated recycling, eco-products, and green travel (Alcock, White, Pahl, Davidson, & Fleming, 2020). The structural model is shown in figure 2.

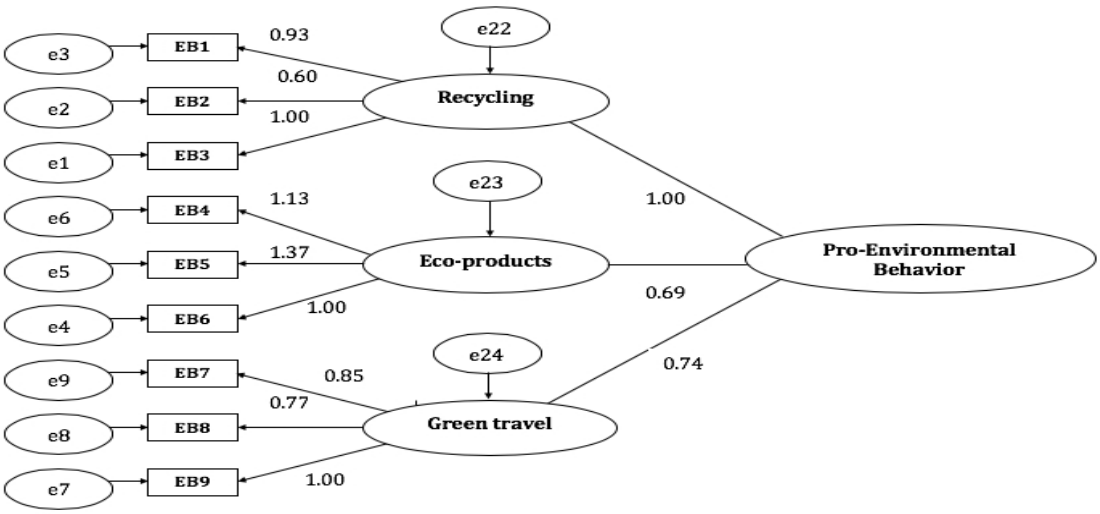


**Figure 2.** The structural model

## CONCLUSION

Pro-environmental behavior model for consumers in Jakarta in Indonesia presented in this research is a fit model. Recycling, eco-products, and green travel are positively associated with pro-environmental behavior. In the conclusion, it is highlighted that the model of pro-environmental behavior hypotesized in this research can be applied for consumers in Jakarta in Iesia in order that they choose to follow more pro-environmental lifestyles.

## ACKNOWLEDGEMENT

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## REFERENCES

1. Alcock, I., White, M. P., Pahl, S., Davidson, R. D., & Fleming, L. E. 2020. Associations between pro-environmental behaviour and neighbourhood nature, nature visit frequency and nature appreciation: Evidence from a nationally representative survey in England. *Environment International*, 1-10, Vol. 136
2. Safitri, D., Umasih, Ibrahim, N., Sujarwo., Marini, A., Wahyudi, A. 2019. Ecotourism model in Jakarta. *Opcion,* 2899-2921, Vol. 35 No. 21
3. Safitri, D., Nuraini, S., Rihatno, T., Kaban, S., Marini, A., & Wahyudi, A. 2020. Improving student learning outcomes through reciprocal learning in environmental education course. *International Journal of Advanced Science and Technology,* 190-193, Vol. 29 No. 8s
4. Safitri, D., Umasih, Yunaz, H., Marini, A., & Wahyudi, A. 2019. Model of environmental education. *International Journal of Control and Automation,* 49-55, Vol. 12 No. 4
5. Safitri, D., Yunaz, H., Umasih, Marini, A., & Wahyudi, A. 2019. Effect of environmental education on ecotourism: evidence from Jakarta. *International Journal of Control and Automation,* 37-48, Vol. 12 No. 4
6. Safitri, D., Marini, A., & Wahyudi, A. 2020. Enhancing student achievement through implementing round club model in social ecology course. *Talent Development & Excellence*, 148-151, Vol. 12 No. 1
7. Safitri, D., Budiaman, Rahmayanti, H., Marini, A., &

Wahyudi, A. 2020. Environmental awareness model for students at Universitas Negeri Jakarta in Indonesia. *International Journal of Advanced Science and Technology,* 1849-1854, Vol. 29 No. 06

8. Kaaronen, R. O., & Strelkovskii, N. 2020. Cultural evolution of sustainable behaviors: Pro-environmental tipping points in an agent-based model. *One Earth*, 85-97, Vo. 2
9. Shafiei, A., & Maleksaeidi, H. 2020. Pro-environmental behavior of university students: Application of protection motivation theory. *Global Ecology and Conservation,* 1-10, Vol. 22
10. Ruepert, A., Keizer, K., Steg, L., Maricchiolo, F., Carrus, G., Dumitru, A., Mira, R. G., Stancu, A., & Moza, D. 2016. Environmental considerations in the organizational context: A pathway to pro-environmental behavior at work. *Energy Research & Social Science,* 59-70, Vol. 17
11. Jeswani, H. K., & Azapagic, A. 2020. Environmental impacts of healthcare and pharmaceutical products: Influence of product design and consumer behavior. *Journal of Cleaner Production,* 1-12, Vol. 253
12. Fabi, V., Nicoli, M. V. D., Spigliantini, G., & Corgnati, S., P. 2017. Insights on pro-environmental behavior towards post-carbon society. *Energy Procedia,* 462-469, Vol. 134
13. Vilchez, V. F. 2017. The dark side of ISO 14001: The symbolic environmental behavior. *European Research on Management and Business Economics,* 33-39, Vol. 23
14. Adnan, M., Ahmed, S., Shakshuki, E. M., Yasar, A., U., H. 2019. Determinants of pro-environmental activity-travel behavior using GPS-based application and SEM approach. *Procedia Computer Science,* 109-117, Vol. 160
15. Lavelle, M. J., Rau, H., & Fahy, F. 2015. Different shades of green? Unpacking habitual and occasional pro-environmental behavior. *Global Environmental Change,* 368-378, Vol. 35
16. Mei, N. S., Wai, C. W., & Ahamad, R. 2016. Environmental awareness and behaviour index for Malaysia. *Procedia – Social and Behavioral Sciences,* 668-675, Vol. 222
17. Fransman, R., & Timmeren, A., V., 2017. Psychological and social factors underlying pro-environmental behaviour of residents after building retrofits in the City-zen project. *Energy Procedia,* 1051-1056, Vol. 122
18. Edwita, Safitri, D., Maksum, A., Yunaz, H., Marini, A., & Muda, I. 2019. The effect of student cultural enculturation on student art appreciation. *International Journal of Education and Practice,* 469-478, Vol. 7, No. 4
19. Maksum, A., Safitri, D., Ibrahim, N., Marini, A., & Wahyudi, A. 2019. Self-efficacy model for elementary school students: Case in Indonesia. *Opcion,* 2899-2921, Vol. 35 No. 88
20. Maksum, A., Safitri, D., Ibrahim, N., Marini, A., Wahyudi, A. 2020. Impact of self-leadership on student critical thinking. *International Journal of Innovation, Creativity and Change,* 284-304. Vol. 12 No. 3
21. Ibrahim, N., Safitri, D., Nuraini, S., Rihatno, T., Edwita, Marini, A., & Wahyudi, A. 2020. Introducing a model of student critical thinking skills in History Education. *International Journal of Advanced Science and Technology,* 88-96, Vol. 29 No. 8s
22. Marini, A., Maksum, A., Satibi, O., Edwita, Yarmi, G., & Muda, I. 2019. Model of student character based on character building in teaching learning process. *Universal Journal of Educational Research,* 2089-2097, Vol. 7 No. 10
23. Marini, A., MS, Z, Maksum, A., Satibi, O., Yarmi, G., & Wahyudi, A. 2019. Model of character building for elementary school students. *International Journal of Control and Automation,* 01-10, Vol. 12 No. 4
24. Marini, A., Maksum, A., Edwita, E., Satibi, O., & Kaban, S. 2019. School management on the basis of character building in teaching learning process. *Journal of Physics: Conference Series,* 1-6, Vol. 1402 No. 2
25. Marini, A., Safitri, D., & Muda, I. 2018. Managing school based on character building in the context of religious school culture (case in Indonesia). *Journal of Social Studies Education Research,* 274-294, Vol. 9 No. 4
26. Hartati, S., Safitri, D., Nuraini, S., Rihatno, T., Marini, A., Wahyudi, A. 2020. Model of social skills for six years old students grade one at elementary schools. *International Journal of Advanced Science and Technology*, 1129-1135, Vol. 29 No. 6
27. Hadi, W., Yufiarti, Sumantri, M., S., Marini, A., & Wahyudi, A. 2020. Model of musical intelligence for elementary school students. *International Journal of Advanced Science and Technology,* 110-115, Vol. 29 No. 8s
28. Wibowo, U. B., Marini, A., Safitri, D., & Wahyudi, A. 2020. Model of school management based on character building in school culture. *International Journal of Advanced Science and Technology*, 1161-1166, Vol. 29 No. 6
29. Nafiah, M., Riyadi., Sampurna, P. D., Marini, A., & Wahyudi, A. 2020. Habits of mind model for students at elementary school teacher education study program in Universitas Negeri Jakarta. *International Journal of Advanced Science and Technology*, 1458-1463, Vol. 29 No. 6