

**RELATIONSHIP BETWEEN PERSONALITY AND KNOWLEDGE OF
ENVIRONMENTAL ISSUES
WITH ENVIRONMENTALLY RESPONSIBLE BEHAVIOR
(CORRELATION STUDY OF GREENSCHOOL STUDENTS)**

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ABSTRACT

Environmental problems are an important issue caused by human behavior. Educational institution is a choice of solutions to change student behavior. Personality and knowledge of environmental issues are important factors to know about their role in changing student character and behavior as learning objectives. The aim of this study was to determine the relationship between students personality and knowledge of environmental issues towards environmentally responsible behavior. This study used a survey method with statistical analysis using multiple regression. This study used four classes from grade X and involved 101 students of green school in Jakarta Indonesia. The results of the research show The results showed that the relationship between student personality and knowledge about environmental issues had F value $7.36 > F$ table of 3.97 so that it had a significant relationship. The correlation coefficient value shows 0.361. Partially the relationship between personality and environmentally responsible behavior shows a significance of $0.001 < 0.05$ so that it has a significant relationship, and the relationship between knowledge of environmental issues and responsible behavior towards the environment is $0.358 > 0.05$ so it does not show a significant relationship. Conclusion of the research show that students' personality and knowledge of environmental issues have a significant relationship with weak correlation. Partially personality also has a significant relationship with environmentally responsible behavior, while knowledge of environmental issues does not show a significant relationship with environmentally responsible behavior. School stakeholders need to consider aspects of student personality in school environmental programs to increase students' responsible behavior towards the environment.

Keywords : personality, knowledge of environmental issues, environmentally responsible behavior, greenschool

INTRODUCTION

Environmental problems have an impact on living things and high economic losses and reduce the level of community welfare. Until now, the problem of solid waste in urban areas has become a serious problem and has become a priority on the national agenda. Municipal waste

disposal sites that fail in their management will have an impact on the surrounding community, including odor pollution, soil pollution, methane greenhouse gases and groundwater contamination as a source of clean water Sanchez et al (2019). Water pollution from landfills can occur up to a radius of 500 meters. Residents also feel odor pollution 10 km away as a result of waste management using the open dumping method at final landfills in Indonesia which have exceeded 35 meters in height (Manurung et al. 2016). All the environmental impacts caused by this waste are covered at a very large cost from the government. Various efforts of policies and technology development have been carried out by the government in tackling environmental problems, but until now this urban waste problem is still a priority target to be resolved. Educational institutions are one of the solutions from governments in their contribution to addressing environmental problems.

The greenschool regulation in Indonesia is implemented based on the Minister of Environment Regulation number 5 of 2013. That is about Guidelines for the Implementation of the Adiwiyata Program. The Adiwiyata Green School Program aims to create schools that care and have an environmental culture. The implementation of this school program is based on educative, participatory and sustainable principles. Various efforts in the form of policies and technology development have been carried out by the government in tackling environmental problems, but until now this urban waste problem is still a priority target to be resolved. Educational institutions are one of the solutions from governments in their contribution to addressing environmental problems. The results of Swari and Utomo's research (2017) show that Adiwiyata school students have higher knowledge, attitudes and actions towards the environment than other public schools. Concern for the environment at the international level is shown by the Tbilisi Declaration (1977) is about the importance of environmental education. The Adiwiyata school environmental education program is expected to change the character of students so that they have responsible behavior towards the environment.

Responsible Behavior Towards the Environment

Implementation of environmental education in schools has the ultimate goal of changing responsible behavior towards the environment through school programs and curricula. Environmental responsible behavior towards an expression of the dimension of environmental concern which proposes how individuals solve environmental problems. (Dunlap & VanLiere, 1984). Ideally, environmental education in schools with an environmental perspective is more encouraging for students to change their lifestyle to care for the environment, but the facts are different in several studies that have been conducted. This failure is partly due to students' indifference to the environment, low human resources, and educators' indifference (Rahmawati and Suwanda, 2015, Landriany 2014). Furthermore, environmental problems are caused by a low sense of responsibility towards the environment, than leading to environmentally destructive behavior (Gifford & Nilsson, 2014). Responsible behavior towards the environment instrument used dimensions of eco-management, consumerism, persuasion, and political actions (Hungerford & Volk, 1990). The concern of educators and students in schools can be increased by carrying out various eco-management programs and other dimensions. This activity can be carried out through providing knowledge about environmental issues by paying attention to other factors that can influence student behavior.

Personality

Differences in individual responses to the situation at hand can be used as a predictor of one's behavior. The difference in response depends on the personality. Personality is a characteristic in which a person thinks, feels, and builds relationships with the surrounding environment. Personality is the result of the development of cognitive characteristics, behavioral patterns, and emotional origins from biological and environmental

factors (Corr.et al 2009).Personality traits are abstract and cannot be measured directly, so they must be inferred from complex patterns of overt and hidden behavior(McCrae, RR, & Costa, PT, Jr. 1997). Goldberg's theory (1990) says about personality which is grouped into the big 5, namely openness, neoriticism, extraversion, agreeableness and conscientiousness, namely the Big Five Factors of Personality. According to McCrae, RR, & Costa, PT, Jr. (1997), openness describes someone's abstract and varied thinking and appreciation of differences in experiences. Conscientiousness is characterized by high self-discipline, responsibility towards tasks and a strong desire to excel. Extraversion has the characteristics of being open to the differences and opinions of other people, is friendly and has a wide range of activities and associations. Agreeableness is having respect and empathy for other people. Meanwhile, neuroticism has negative emotional characteristics, anxiety and depression (McCrae & Costa, 1997).These five aspects of personality have contributed to the individual's response to the surrounding circumstances or stimuli whichthen have implications for behavior. According to Kvasova (2015) personality plays an important role in shaping environmentally friendly behavior. So every human activity including his behavior towards the environment will always be related to his personality.

Knowledge of Environmental Issues

Knowledge is information in the mind that affect the capacity to act. This difference in knowledge will have implications for differences in potential behavior, both performancethat can be observed directly, and performance or behavior that cannot be observed. Sveby(1997). According to Tai Yi Yu (2017), a person's knowledge of something will affect hisintention to act. One ofthe knowledge referred to is knowledge about the environment andits issues, which will affect a person's desire to be able to contribute to saving the environment. Knowledge of issues that occur in the environment will make a person moresensitive to his environment so that it has the potential to create a desire to act.

Based on the observation of the literature and the problems that have been described, theseare the following research questions :

1. Is there a relationship between personality and environmentally responsible behavior?
2. Is there a relationship between knowledge about environmental issues and responsiblebehavior towards the environment?
3. Is there a relationship between personality and knowledge of environmental issues withenvironmentally responsible behavior?

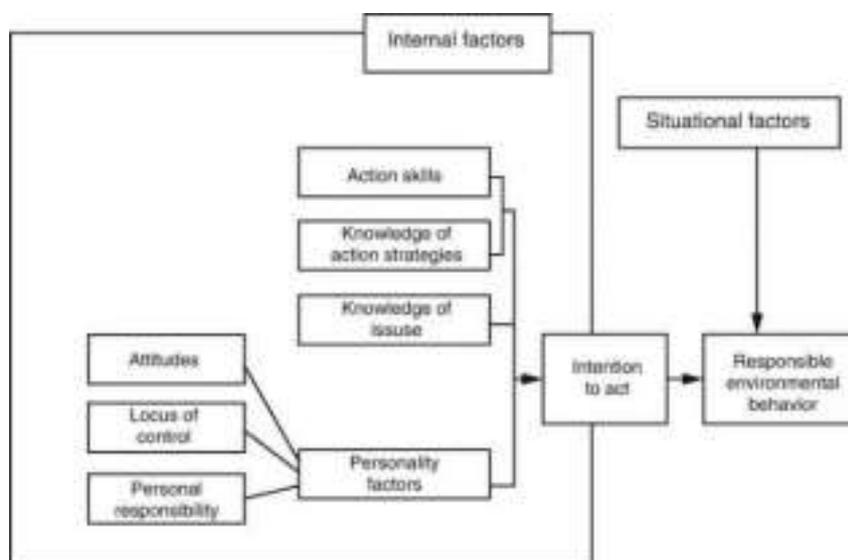


Figure 1. Model of environmentally responsible behavior (Hines et al, 1987)

METHODS

Research models

This study uses a correlational quantitative descriptive approach. Conducted in April September 2020 at Green High School Indonesian students

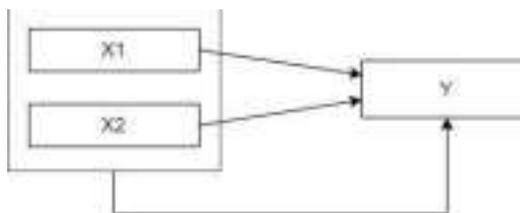


Figure 2. Research constellation

Respondents of the Research

This research involved 101 green school students class XI science in 4 classes. Study programs at Indonesian high schools consist of science, social and language classes. Most of the science classes in this research school chose the science study program, which consisted of 5 classes. All of class XI was involved in the research, one of which was used as a research test class. Sample selection was carried out using multiple random sampling method in the study population.

Research Variables

Variables that used in this research are personality (X_1), of knowledge about environmental issues (X_2), and environmentally responsible behavior (Y),

Data collection process

All research instruments which consisted of two questionnaires from the variables of responsible behavior towards the environment and personality and one instrument about knowledge of environmental issues were tested on class XI which consisted of 30 students to analyze validity and reliability. The test results show the variable of responsible behavior towards the environment consists of 36 statements. This variable consists of five dimensions namely environmental management, consumers action, persuasion, political action, and legal action (Hsu, 1997 and Erdogan et al, 2012). The personality variable consists of 28 statements and measures five aspects namely Openness Neoriticism, Extraversion, Agreeableness and Conscientiousness (Goldberg (1990)). The variable knowledge of environmental issues consists of 8 questions. This variable consists of four dimensions, namely factual, conceptual, procedural and metacognitive.

Data analysis

Research data were analyzed using a quantitative approach with multiple regression analysis. The initial ordinal data is converted using the MSI (Method of Successful International) application to become interval data. Then, before testing the hypothesis, the normality and linearity of the data was analyzed.

RESULTS

Table 1. Structural models

Hypothesized association	Sig	Correlation
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			coefficient
H1	Responsible behavior □ personality to the environment?	0,000	0.351 (partial)
H2	Knowledge of environmental issues □ environmentally responsible behavior?	0.358	0.084 (partial)
H3	Knowledge of environmental issues and Personality □ environmentally responsible behavior?	0.001	0.361

The structural model of the multiple regression test of hypothesis 1 shows a significant relationship between personality and environmentally responsible behavior. Hypothesis 2 shows that there is no significant relationship between knowledge of environmental issues and environmentally responsible behavior. Hypothesis 3 shows a significant relationship between personality and knowledge of environmental issues together with environmentally of environmental responsible behavior. The correlation coefficient shows the strength of the relationship between personality and knowledge issues together on environmentally responsible behavior is 0.361. The results of the partial regression test between personality and environmentally responsible behavior 0.351. And knowledge of environmental issues together with environmentally of environmental responsible behavior is 0.084.

Table 2 . Summary model

Mode 1	R	R Square	Adjusted R Square	std. Error of the Estimate
1	.361a	.131	.113	17,392
a. Predictors: (Constant), Environmental Issues (X2), Personality (X1)				

The summary model shows the determinant coefficient of the relationship personality and knowledge of environmental issues with environmentally responsible behavior of 13.1%.

DISCUSSION

Personality with Environmentally Responsible Behavior

The results of the study show that there is a significant relationship between personalities consisting of the big five personalities and environmentally responsible behavior with a partial correlation coefficient of 35.1%. The strength of this relationship is relatively weak. Several opinions show that there is a relationship between personality and environmental care behavior. Wagner (2008) stated that personality has several characteristics, namely: 1) Consistency, i.e. repeated and regular actions under the same or different environmental conditions, 2) psychological and physiological, studies of psychological factors in the process of forming a response, 3) impact behaviors and actions, namely how personality underlies a person's behavior in responding to his environment 4)

Multiple expressions, namely a review of the expression of feelings, thoughts and other social interactions. The third characteristic shows the relationship between personality and a person's behavioral response to their environment. Jan Karzhanzi (2010) suggests three basic factors that influence a person's behavior towards the environment, namely 1). Environmental conditions (external conditions), 2). Individual personality and 3) individual personal relationship with nature. The form of behavior towards the environment here, one of which can be in the form of environmentally responsible behavior. Not all personality dimensions support environmentally responsible behavior. Extraversion and agreeableness personalities have a positive relationship with choosing eco-friendly hotels (Tang, 2017). While energy saving behavior and environmental commitment in research Jan Karzhanzi (2010) suggests three basic factors that influence a person's behavior towards the environment, namely 1). Environmental conditions (external conditions), 2). Individual personality and 3) individual personal relationship with nature. The form of behavior towards the environment here, one of which can be in the form of environmentally responsible behavior. Not all personality dimensions support environmentally responsible behavior.

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Knowledge of Environmental Issues with Environmentally Responsible Behavior

The results of multiple regression analysis showed that knowledge about environmental issues and environmentally responsible behavior did not show a significant correlation ($\text{sig} > 0.05$). Based on the partial linear correlation test, the correlation coefficient is very low (8.1%). The Tbilisi Declaration of 1977 identified the need for awareness, knowledge, attitudes, skills and participation in environmental education. So that you can understand the basis of the environment and environmental issues [Unesco, 1980). The environmentally responsible behavior model from Hines et al (1987) suggests thatbefore someone takes a follow-up on an environmental problem, must understand the problem well. So that it can be said that knowledge of environmental problems is a prerequisite for action. But understanding environmental problems cannot stand alone, requiring other aspects to arrive at the behavior stage. Hines's modelshows other influential aspects, including knowledge about the actions to be taken, action skills, personality, etc.

The difference between the importance of the categories of knowledge about environmental issues and knowledge about how to act on problems can be assessed if it is included in the model of environmentally responsible behavior. Another important aspect that can influence a person's willingness and ability to change their knowledge of environmental problems besides their ability to act on environmental problems is their skills in dealing with environmental problems. Situations are often found in the field where the provision of environmental education information only recognizes and understands concepts, principles and facts about environmental issues but is not accompanied by encouragement for students to change responsible behavior towards the environment in everyday life wherever they are. So that knowledge of environmental issues accompanied by knowledge of how to act and skills to overcome the problems faced is very important to prevent and overcome environmental problems. Setianingsih's research (2012) proves the ability of educators to manage learning activities that have a good impact on students' cognitive learning outcomes as well as an increase in environmentally responsible behavior, especially in the dimensions of eco management, economic action, and persuasion. So that all dimensions of responsible behavior towards the environment grow because it requires cultural conditions for student learning to be able to involve deeper thinking skills in order to make decisions that are environmentally responsible. It also requires a mediator variable that links it with environmentally responsible behavior. Several studies investigated the relationship of environmental sensitivity, and found it plays a role in mediating the relationship between environmental knowledge and environmentally responsible behavior also acts as a predictor of environmental behavior. Previous research supports the notion that environmental sensitivity is a predictor of environmental behavior [Chou, 2013, Klockner, 2013)

Personality and Environmental Issues with Environmentally Responsible Behavior

The results of the regression analysis show the correlation coefficient of the relationship personality and knowledge of environmental issues with environmentally responsible behavior in the low category of 36.1. The coefficient of determination of this relationship is 0.131. This shows that there is a contribution from personality variables and knowledge of environmental issues to environmentally responsible behavior of 13.1%, meaning that 86.9% is influenced by other factors both internal and external as found in the environmentally responsible behavior model Hines (1987). Knowledge of environmental problems and personality status in Hines' model are not directly related to environmental behavior, there are other factors which are mediator variables, namely the intention/desire to act. So someone who already has knowledge about environmental issues with a personality that is owned needs to have the potential in the form of a desire to act to prevent or overcome problems before choosing to carry out environmental behavior activities.

The results of the research by Pratiwi et al (2019) show that there is direct influence between aspects of personality with the intention to act and between the intention to act on responsible environmental behavior. But personality affects REB indirectly through the intention to act. A person's decision to the problem faced is determined by the personality factors he has. Personality factors that play an important role in decision making include childhood experience, level of knowledge and education, gender, age, and daily activities performed. (Gifford & Nilsson, 2014). Increasing students' environmental responsibility has an impact on observable activities, including being active and joining in environmental and community-based activities, behaving as consumers who are more environmentally friendly, and sensitive to issues of environmental change. (Hines et al., 1987; Hungerford & Volk, 1990).

CONCLUSION

Student personality and knowledge of environmental issues in green school play an important role in changing student behavior to care for the environment with F count 7.356 and F table 3.94 so that it is known to have a significant relationship. Based on the calculation of the t test, it shows that personality has a relationship with environmentally responsible behavior ($\text{sig} < 0.05$), while knowledge of environmental issues does not show a significant relationship ($\text{sig} > 0.05$). Further research should conduct correlation knowledge of environmental issues by acting strategically on environmental problems and skills in dealing with environmental problems towards behavioral intentions and responsible behavior towards the environment

REFERENCES

- Chou, J.; Pan, SL; Wu, HC Factors affecting college students to take action against global warming. *J. Environ. educ. Res.* 2013, 10, 1–34. (In Chinese)
- Corr, Philip J.; Matthews, Gerald (2009). *The Cambridge handbook of personality psychology* (1. publ. ed.). Cambridge: Cambridge University Press. ISBN 978-0- 521-86218-9.
- Dunlap, RE, and KD Van Liere . 1984. Commitment to the dominant social paradigm and concern for environmental quality. *Social Science Quarterly* 65(4): 1013-28
- Erdogan, M., Akbunar, S., Asik, UO, Kaplan, H., & Kayir, CG (2012). The Effects of Demographic Variables on Students' Responsible Environmental Behaviors. *Procedia - Social and Behavioral Sciences*, 46, 3244–3248. <https://doi.org/10.1016/j.sbspro.2012.06.044>
- Gifford, R., & Nilsson, A. (2014). Personal and social factors that influence pro-environmental concerns and behavior: A review. In *International Journal of Psychology* (Vol. 49, Issue 3, pp. 141–157). Wiley-Blackwell Publishing Ltd. <https://doi.org/10.1002/ijop.12034>
- Goldberg, LR (1990). Description of personality: The Big-Five Factor Structure. *Journal of Personality and Social Psychologs.* 59(6), 1216-1229.
- Hines, JM, Hungerford, HR, & Tomera, AN (1987). Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. *Journal of Environmental Education*, 18(2), 1–8. doi:<https://doi.org/10.1080/00958964.1987.9943482>
- Hsu, S.-J. (1997). An Assessment of Environmental Literacy and Analysis of Predictors of Responsible Environmental Behavior Held by Secondary Teachers in Hualien County of Taiwan.
- Hungerford, HR, & Volk, TL (1990). Changing student behavior through environmental education. *The Journal of Environmental Education*, 21(3), 8–21. doi:<https://doi.org/10.1080/00958964.1990.10753743>
- Jacobs, Iswari, RD, & Utomo, SW (2017). Evaluation of the Implementation of the Adiwiyata Program to Form Caring Behavior Environment among Students (Case: SMA Negeri 9 Tangerang Selatan and MA Negeri 1 Serpong). *Science Journal Environment*, 15(1), 35. <https://doi.org/10.14710/jil.15.1.35-41>
- Jan Karzhani. 2010. Environmental and Pro Environmental Behavior. *Journal of School Health* 21, Health Education: International Experiences, pp. 255-256
- JB Hirsh, "Personality and environmental concerns," *J. Environ. Psychol.*, vol.30, no. 2, pp. 245–248, Jun. 2010, doi: 10.1016/j.jenvp.2010.01.004
- Klößner, CA A comprehensive model of the psychology of environmental behavior—A meta analysis. *Glob. environment. Chang.* 2013, 23, 1028–1038. [CrossRef]
- Kvasova, Olga. "The Big Five personality traits as antecedents of eco-friendly tourists behavior", *Personality and Individual Differences*, 2015.

- Landriany, E. (2014). Implementation of the adiwiyata policy in an effort to realize environmental education in SMA Malang. *Journal of Education Policy and Development*, 2, 82-88.
- McCrae, RR, & Costa, PT, Jr. (1997). Personality trait structure as a humanuniversal. *American Psychologist*, 52(5), 509–516. <https://doi.org/10.1037/0003-066X.52.5.509>
- Manurung, D., Bintoro, HMH, Hadi, S., & Lubis, I. (2016). Analysis of related area preference with regional sanitary landfill in temporary Bantargebang sanitary landfill using topsis method. *Journal of Environmental Technology*, 17(2), 73-81. doi:10.29122/jtl.v17i2.27
- Pratiwi, RD*, Rusdi, Ratna Komala. 2019. Effects of personality and intention to act on responsible environmental behavior. *Indonesian Journal of Biology Education*. p-ISSN 2442-3750, e-ISSN 2537-6204 // Vol. 5 No. March 1, 2019, p. 169-176
- Rahmawati, I. and M. Suwanda. (2015). Efforts to form students' environmental care behavior through the Adiwiyata school at SMP Negeri 8 Surabaya. *Journal of Moral and Citizenship studies*, 1, 71-78.
- Sanchez-Arias, M., Riojas-Rodriguez, H., Catalan-Vazquez, M., Terrazas-Meraz, MA, Rosas, I. Espinosa-Garcia, AC, Santos-Luna, R., Siebe, C. (2019). Socio- environmental Assessment of a Landfill using a Mixed Study Design: A Case Study from Mexico. *Waste Management*, Vol.85, p.42-59
- Setiyaningsih, D, Sri Poedjiastoeti, Raharjo. Bill Atweh. 2012. Promoting responsible environmental behavior of students in biology department by the implementing environmental education. *Postgraduate Science Education, State University of Surabaya* Vol. 2 No. November 1, 2012
- Sveiby, KE (1997), *The New Organizational Wealth: Managing and Measuring knowledge based Assets*, Berret-Koehler, San Francisco, CA.
- Tang, CMF and D. Lam, “The role of extraversion and agreeableness traits on Gen Y's attitudes and willingness to pay for green hotels,” *Int. J. Contemp. Hosp. Manag.*, vol. 29, no. 1, pp. 607–623, 2017, doi: 10.1108/IJCHM-02-2016-0048.
- Tbilisi .1977. <https://files.nc.gov/deqee/documents/files/tbilisi-declaration.pdf>
- TL Milfont and CG Sibley, “The big five personality traits and environmental engagement: Associations at the individual and societal level,” *J. Environ. Psychol.*, vol. 32, no. 2, pp. 187–195, Jun. 2012, doi: 10.1016/j.jenvp.2011.12.006.
- UNESCO. *Environmental Education in the Light of the Tbilisi Conference*; UNESCO: Paris, France, 1980
- Wagner, Kendra Van. 2008. What is Personality? (<http://www.about.com>)
- Yu, Tai Yi., Yu, Tai Kuei. (2017) “The Moderating Effects of Students' Personality Traits on Pro Environmental Behavioral Intention Response to Climate Change.” *International Journal on Environmental Research and Public Health*. 14. 1-20