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Students' Pro-Eco Behavior Related to Healt Based on Environmental Big-Five Personality and Self-efficacy

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Abstract

This research was aimed at finding out whether students' pro-eco behavior could be predicted by their personality and self-efficacy interms of a correlational study. A survey method was used involving 200 senior high school students in Jakarta. The reliability of three instruments were respectively 0.75 (pro-eco behavior), 0.87 (big-5 environmental personality), and 0.66 (self-efficacy). Regression and correlation analysis were used. Results revealed that both personality and self-efficacy have a positive and highly significant correlation with students' pro-eco behavior, even for first-order correlation. Multiple regression model for those variables was also found highly significant. Therefore, it could be concluded that student's pro-eco behavior could be strongly predicted by personality and self-efficacy and in strengthening students' pro-eco behavior, their personality and self-efficacy could be taken into account. Considering the results obtained, it was suggested to teachers, who held an important role in the learning process, to understand students' personalities by paying attention to identifying students' personalities. It is important also to spontaneously carrying out a kind of parents, society, teacher collaboration. In improving students' self-efficacy, teachers were supposed to appreciate students which finally would strengthen students' pro-eco behavior to be more positive and students healthy could be achieved effectively.

Keywords: *Personality, self-efficacy, pro-eco behavior, reliability, and first-order correlation.*

Introduction

Environmental issues have been the most influential topics in any country. It has an effect also on economic development where most countries should prepare a green trade by adopting eco-labeling products. Sustainable development is not the answer since it is still admitted that in some places, environmental destruction, degradation, deforestation, and even global warming are not an illusion. Talking about the environment, we also talk about human health which of course influenced directly by the environment. If we love our-self meant that we should also our healthy and automatically we love our environment as well. These phenomena called pro-ecological behavior.

The ecosystem consists of producers, consumers, and decomposers (Barrow, 2006).[1] Chiras (1991)[2] called a sustainable society characterized by human behavior which might be more concerned with the environment (Putrawan, 2015).[3]

Environmental behavior,which specifically called pro-environmental behavior or pro-ecological behavior (PEB), was a similar term used interchangeably, however, according to Kollmuss & Agyemen (2002),[4]it was a complex concept which still questionable what factors shaped pro-environmental behavior. It has been identified some factors such as demographic factors, external factors (e.g. social, cultural, institutional, or economic) and internal factors (e.g. knowledge, attitudes, locus of control,awareness, emotion, values, responsibility) might be used in visualizing its framework.

That is why, this research is so important in predicting pro-ecological behavior,by questioning whether student's personality and self-efficacy could be beneficial contributions in framing scientifically the concept of pro-ecological behavior.

Literatures Review: The behavior will influence the environment and conversely, the environment affects

behavior (Bennett, 1974, in Putrawan, 2017).[5]Study about behavior is surprising because of many factors that should be considered in finding out why and how human behavior could be changed. Those factors arecalled the interactionistperspective (Greenberg, 2010)[6] which consisted of personal qualities and situational (setting, context, environment) influences.

In the context of research, human behavior should not be directed to thementality frontier, a term borrowed from Chiras (1991).[2] It should be directed to behavior that has perception toward the environment by protecting the ecosystem from destruction for future generations (Blackwell, 2007)[7] This type of behavior belongs to Chiras (1991)[2] was called a sustainable society.

According to Baker (2012),[8] environmental behavior is indicated by energy used efficiently, as well as water and other resources, and reducing waste, pollution, and environmental degradation. Garrod & Wilson (2003)[9] stated that human environmentally sound behavior was characterized by conservation, recycling or use-reuse,utilizing more renewable energy resources, and limiting growth. Related to these indicators, Marcinkownski (1989)[10] described that human behavior should be directed to the utilization of natural resources rationally.

A more detail model contributed by Hines, et.al. (1986)[11] wasmodified by Blaikie (1993, in Oram, 1994, p.32)[12] in which human behavior called Responsible Environmental Behavior (REB).It hypothesized that REB was affected by factors such as attitudes, locus of control, personal responsibility, knowledge, personality, situational factors, and intention to act. In addition to this, Wayne (2006)[13] added that there were three types of responsibility, personal, social and environmental responsibility

Related toREB, the Hines' model, quoted also by Kollmuss & Agyemen (2002)[4] elaborated into a complex model called citizenship behavior (Hungerford, 1990)[14] affected by entry-level variables, ownership variables, and empowerment variables.

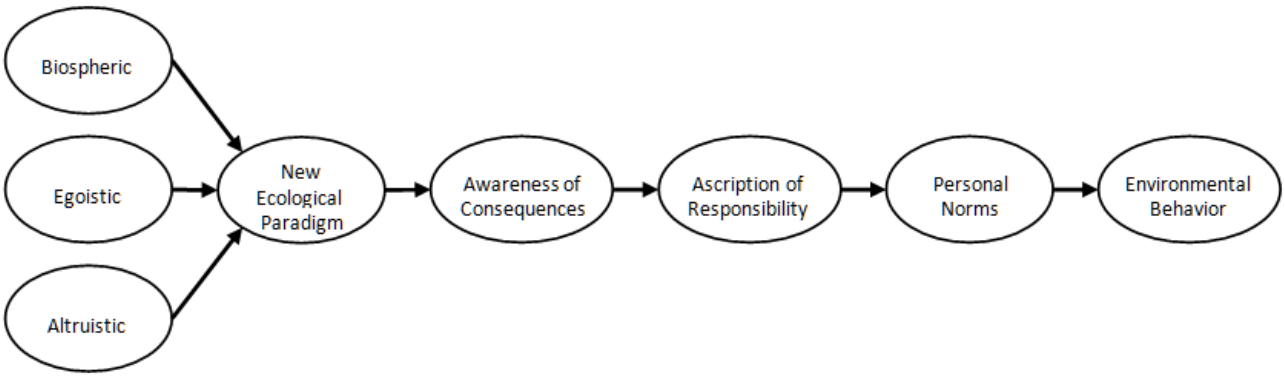

Fig 1. VBN model for environmental behavior (Stern, 1999 & 2000 & Bronfman, et.al., 2015)[15,16,17]

The Values-Belief-Norm (VBN) model was also widely used for the study about the relationship between as many as independent variables with environmental behavior which those relationships kept remaining statistically significant (Bronfman, 2015).[17]

According to Stern (2000),[16] "Pro-environmental behaviors are generally defined as behaviors that reduce the environmental impact caused by human beings." Such behaviors are covering e.g. saving energy and reduced consumption of resources, the efficient use of motor vehicles, and natural conservation (Steg & Vlek, 2009).[18]

Eventhough "an individual's pro-environmental behavior might create only a small impact on easing environmental destructions (Stern, 2000, in Kaida & Kaida, 2017).[19] That is why, this research is very urgent to be carried out, whether student's pro-ecological behavior (PEB) could be predicted by their personality and self-efficacy.

With that perspective in mind, students' personality contributes to the responses shown in the learning situation.Working together in a group needs the ability to communicate, share ideas, and transfer knowledge and skills, and to maintain a strong pro-eco behavior.

The motivation as indicated by self-efficacy must be driven by conscientiousness traits. As stated by Judge and Ilies (2002)[22] that conscientiousness is associated positively with the motivation to achieve.

Self-efficacy is another factorrelated to pro-eco behavior. Self-efficacy is the confidence to execute the assignments given to someone. According to Santrock (2011),[23] self-efficacy is the confidence to say "I can."

This statement has been previously supported by Hines, et.al. (1986/1987)[11] which found out that there were six studies specifically dealt with relationship between individual locus of control that was an individual's "efficacy perception,"with responsible environmental behavior.

Researchconducted by Werff, Steg & Keizer (2013)[24] suggested that "strengthening environmental self-identity may be a cost-effective way to promote pro-environmental actions, because environmental self-identity is closely related to self-efficacy.

Reported by Tabernero & Hernandez (2011)[25] that "the was arelationship between self-efficacy and recycling. In this study, recycling is part of individual's pro-ecological behavioror just citizenship behavior asused by Hungerford & Volk (in Putrawan, 2017).[5]

Fransman & Timmeren (2017)[26] foundthat pro-environmental behavior could be predicted from behavioral control, behavioral norm, and place identity, explaining 40% of the total variance in pro-environmental behavior.

Gifford & Nilsson (2014)[27] stated that to understand pro-environmental concern and behavior is very complex and complicated than previously thought. They have successfully identified around 18 factors that were assumed to be factors that could be used in predicting individuals' pro-ecological behavior such as "the personal factors include childhood experience, knowledge and education, personality and self-construal, sense of control, values, political and world views, goals, felt responsibility, cognitive biases, place attachment, age, gender, and chosen activities.

Research Methodology: This research was aimed at finding out whether there was a relationship between personality and self-efficacy with pro-eco behavior. The survey method used by involving 200 senior high school students in Jakarta.

There were three instruments developed to measure personality with reliability was 0.87, reliability for self-efficacy was 0.66 and for students' pro-eco behavior was 0.75. Data analyzed by simple and multiple regressions, and t-test for correlation after followed by calculating its second-order correlation through ANOVA.

Results and Discussion

Analysis has been conducted by computing simple regression model which found that the model between personality and student's pro-eco behavior was $\hat{Y} = 28.45 + .43X_1 (p < .001)$.

Table 1: ANOVA Table for Regression

Source of Variances	df	SS	MS	F_{cal}	F_{table}	
					.05	.01
Reg (a)	1	49956.08	49956.08		3.84	6.63
Rg (b/a)	1	3693.55	3693.55	44.88**		
Error	198	16295.16	82.29			
Total	200	519584.08				

** p <0.01

Based on the table 1, it could be interpreted that the strength between personality (X_1) with pro-eco behavior (Y) was shown by the correlation coefficient was 0.816 (p <0.001).It meant that the more accurate personality, the stronger pro-eco behavior would be.

The determination coefficient was (0.816^2) meant that 66.61% of pro-eco behavior variance could be explained by personality variation. By controlling another variable was to determine the level of relationship between given predictor variables (while another predictor variable was

controlled). The result of the partial correlation between personality and pro-eco behavior (first-order correlation) while self-efficacy was controlled, was0.629 ($p < .001$).

Luthans, et.al. (2011)[21] stated personality was how someone influenced other people and how he viewed and understood himself, including the pattern of traits which could be measured from how he interacts with people and situation around him. Personality can be divided into five dimensions. Extraversion, agreeableness,cons cientiousness, emotional stability, and openness to new experiences (George & Jones (2012).[20]

Regarding neuroticismstudents could be stress-out, tense, and depressed in different situations. It makes students face difficulty to maintain their pro-eco behavior. This unstable can cause the feeling to give up (McShane & Glinow, 2018).[28]

Conscientiousness will reflect the persistence to achieve the goals. Proved by an international journal regarding predicting pro-eco behavior based on personality that each dimension of personality contributes to pro-eco behavior. However, her research result showed the different coefficient correlation between each dimension with pro-eco behavior. This fact proves that it is undeniable that personality contributes positively to pro-eco behavior (Ariani, 2013).[29]

Personality's contribution to pro-eco behavior found was 0.66. Statistically, this value meant that 66.61% of pro-eco behavior variation could be explained by personality variance. Therefore, personality was a factor that was essential in strengthening students' pro-eco behavior. Partial correlation between personality and pro-eco behavior, self-efficacy was controlled 0.629 meant that its determination coefficient was 0.395. The result showed that 39.56% of pro-eco behavior variationcould be explained by personality variances by controlling self-efficacy.

Another finding was the regression model of $\hat{Y} = 39.39 + 0.21X_2$ ($p < .01$) between self-efficacy (SE) with pro-eco behavior (PEB).

Table 2. ANOVA Table for Regression

Source of Variances	Df	SS	MS	F_{cal}	F_{table}	
					0.05	0.01
Reg (a)	1	499947	499947		3.84	6.63
Rg (b/a)	1	905	905	9.41**		
Error	198	19048.67	96.21			
Total	200	519900.7				

**$p < 0.01$

Based on the table above that the regression model pro-eco behavior (Y) with self-efficacy (X_2) was linear. In other words, there was positive relationship between self-efficacy and pro-eco behavior. This regression model meant that if self-efficacy was increased a point of pro-eco behavior will rise .21. The strength of relationship between self-efficacy (X_2) with pro-eco behavior(Y) was shown by correlation (r_{x2y}) = 0.674 ($p < .001$). In other words, the higher the students' self-efficacy, the more positive students' pro-eco behavior would be. Determination coefficient was (0.674^2) meant that 45,40% of variance occurs in pro-eco behavior could be explained by self-efficacy.

Self-efficacy, which is the center of Albert Bandura's social theory, is the individual's confidence to execute a task efficiently (Campbell & Nelson, 2013).[30] Self-efficacy is gained from personal experiences when an assignment can be fulfilled effectively or being able to get back up from failures.

In this research, the partial correlation between self-efficacy and pro-eco behavior was0.111 and the determination coefficient was 0.0123. This meant that only 1.23% of pro-eco behavior variation could be explained by self-efficacy when the personality was controlled. These findings aligned toZimerman, Bandura, and Martinez-Ponz's (1992)[31] findings which self-efficacy will motivate academic achievement by affecting personal goal setting. Statistical test analysis showed that self-efficacy contributes significantly to pro-eco behavior, where the higher self-efficacy, the more positive of students' pro-eco behavior would be.

The multiple relationship strength found between personality and self-efficacy with pro-eco behavior was 0.819 ($p<0.001$), indicated by the correlation coefficient of personality and self-efficacy with pro-eco behavior. The determination coefficient was (0.819^2)which meant 67.03% of students' pro-eco behavior variances could be explained by personality and self-efficacy. It was around 67.03% asthe percentage of personality and self-efficacy contributed to pro-eco behavior, the rest would be determined by other variables.

This conclusion meant that the relationship between both personality and self-efficacy with pro-eco behavior was positive, which meant that the more accurate personality and the higher self-efficacy, the more positive students' pro-eco behavior would be.

Conclusion

Based on the research findings, it could be concluded that, first, there was a positive relationship between personality and student's pro-eco behavior. Second, there was a positive relationship between self-efficacy and students' pro-eco behavior. Finally, there was a relationship between both personality and self-efficacy with students' pro-eco behavior.

Therefore, the more accurate the students' personality and the stronger self-efficacy then the more positive pro-eco behavior would be. In other words, students, in this study students' pro-ecological behavior could be predicted by their environmental personality and self-efficacy, Therefore, if students' pro-ecological behavior would be improved to be more positive in facing global environmental problems, their personality and self-efficacy could not be neglected. It would be suggested that environmental education is very vital required to be implemented urgently and could be integrated into several subject matters by intervened with morale messages.

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