



Understanding The Environmental Attitude and Knowledge to Environmentally-Friendly Behavior on Conservation-Based University

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Abstract. Human behavior determines the environmental quality. College students as the young generation are expected to provide accurate solutions to change environmental behaviors. Therefore, this research attempts to explore environmentally friendly behavior along and the influence of environmental attitude and knowledge. This research focuses on the environmentally friendly behavior of a conservation-based university. This research collected the data with an online questionnaire to assess the environmental knowledge and attitude of all respondents. The researchers found that environmental attitude and knowledge influenced environmentally friendly behavior at a conservation-based university. Generally, the environmental knowledge and attitude could improve the environmentally-friendly behavior of the students. The current research limitations deal with the research site, only a conservation-based university as the sample. Thus, future re-search should broaden the research sample.

Keywords: Environmental Attitude, Environmental Knowledge, Environmentally-Friendly Behavior, Conservation

1 Introduction

Exaggeratedly exploring the natural resources may lead to environmental problems (Azadi et al., 2019; Lange & Dewitte, 2019; Li et al., 2019; Maleksaeidi & Keshavarz, 2019). Many environmental problems occur due to human behavior. Therefore, the researchers believe that environmentally friendly behavior could manage environmental problems (Dornhoff et al., 2019; Thondhlana & Hlatshwayo, 2018). Some researchers found high society information levels about the environment led to high awareness to apply environmentally friendly behavior (Liobikiene & Poškus, 2019).

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Environmental awareness emphasizes sustainable development. In this case, a positive environmentally friendly attitude becomes an important issue to encourage sustainable actions (Casaló & Escario, 2018). Understanding the social perspective on environmental preservation is important to encourage society to realize sustainable choices and behaviors (Trudel, 2019). Universities have important roles to promote education and to realize sustainable development by researching, teaching, and training (Wang et al., 2013). An example of the university is Universitas Negeri Semarang, the green campus. This university has a conservation orientation to emphasize sustainability as the primary pillar of the university's function. Any conservation-based universities are crucial to encouraging sustainability of the society. This matter happens because students are not only learning and studying individuals but they must transfer their knowledge to the surrounding society outside of the university. Any university needs a huge amount of resources to run and must prioritize sustainable behavior as the university functions.

Currently, the number of students in the world increases and it goes along with the anxiety of sustainability as a crucial matter (Lozano et al., 2013). High numbers of students increase the consumption of non-sustainable resources such as food, water, paper, and energy (Amutenya et al., 2009; Parece et al., 2013; Whitehair et al., 2013). Students also need settlements or housing to stay in due to the high population density of the students. The impacts are - high resource consumption and environmental impacts (Robertson & Barling, 2013).

The problem management should be sustainable. Thus, the university must develop environmentally-friendly behavior in all aspects such as waste management, recycling process, and energy consumption (Mtutu & Thondhlana, 2016; Stokes et al., 2012; Wisecup et al., 2017). However, the preliminary effort is important to realize environmentally friendly behavior by identifying the influential factors of friendly behavior. Knowledge and problems about the environment are the cognitive factors that influence friendly behavior (Rivera-Torres & Garcés-Ayerbe, 2018). Knowledge is useful for preventing, improving, and controlling behaviors. Therefore, awareness and knowledge could predict the environmentally-friendly behavior (Schwartz, 2012). Some previous studies found that knowledge could not influence lifestyle and behavioral pattern changes (Anis et al., 2018; Khaenthong et al., 2020; Stern, 2011).

Therefore, attitudes influence individual behavior and attitude becomes the affective factor to influence environmentally-friendly behavior (Ajzen et al., 2011). Individuals with an environmental awareness attitude are open-minded to changes, conservatism, altruism, and self-improvement values. Stokes et al. (2012) define environmental awareness as the willingness to provide individual, physical, economic, and time resources for certain actions. Thus, environmental awareness is also defined as an individual belief about the consequences of applied behaviors or actions. Excellent environmental attitude is positively correlated to environmentally friendly behavior (Fernández-Manzanal et al., 2015).

This research attempted to contribute within the scope of environmentally friendly behavior at a conservation-based university. The current research focus is different from the previous studies with the topic of environmentally friendly behavior and sustainability because the researchers use a conservation-based university. This research

attempted to explore how friendly knowledge and attitude influenced the environmentally friendly behavior of students at a green campus or a conservation-based campus.

2 Method

This research involved 218 students of Universitas Negeri Semarang, the conservation-based university, as the samples. The researchers collected the data with an online questionnaire via Google Forms. The applied scale was a Likert scale with 67 questions to measure the environmental attitude, environmental knowledge, and environmentally friendly behavior.

Then, the researchers used multiple regression to examine the hypotheses since the researchers used two independent variables: the environmental attitude and the environmental knowledge; and one dependent variable, the environmentally friendly behavior. The current research regression model is:

$$Y = a + \beta_1X_1 + \beta_2X_2 + \varepsilon \dots\dots\dots (i)$$

Remarks:

- Y = Environmentally friendly behavior
- a = Constant
- $\beta_{1\&2}$ = Regression Coefficient
- X_1 = Environmental Attitude
- X_2 = Environmental Knowledge
- ε = Error

3 Result and Analysis

3.1 Descriptive Statistics

Table 1. The Descriptive Statistic

Variables	N	Min	Max.	Mean	SD
AE	218	6	20	14.35	2.516
EK	218	10	20	16.99	2.442
EB	218	111	191	148.78	14.814

Table 1 shows the descriptive statistic result of the environmental attitude. The results show the minimum and maximum scores of 6 and 20 with a mean of 14.35 and a standard deviation of 2.516. The result indicates the environmental attitude has a distribution of 14.35. The data about this variable consists of 2.516 from 218 data spots. The variable of environmental knowledge has minimum and maximum scores of 10 and 20 with a mean of 16.99 and a standard deviation of 2.442. The result indicates the environmental attitude has a distribution of 16.99. The data about this variable consists

of 2.442 from 218 data spots. On the other hand, environmentally-friendly behavior has minimum and maximum scores of 111 and 191 with a mean of 148.78 and a standard deviation of 14.814. The result shows the distribution of environmentally friendly behavior is 148.78 while the environmental attitude is 14.814 from 218 data spots.

3.2 Validity and Reliability

Table 4 shows the validity and the reliability results. The applied validation technique is the Pearson correlation with the mean between 0.261 and 0.912. The results indicate that all items for each variable are valid. The Cronbach's alpha scores are 0.803, 0.812, and 0.741 indicating all variables are reliable.

Table 2. The Validity and Reliability Scores

Variables	Indicators	Correlation	Alpha
Environmental Attitude	EA1	0.739	0.803
	EA2	0.824	
	EA3	0.819	
	EA4	0.764	
	EA5	0.784	
Environmental Knowledge	EK1	0.860	0.812
	EK2	0.845	
	EK3	0.826	
	EK4	0.805	
	EK5	0.792	
Environmental Behavior	EB1.1	0.496	0.741
	EB1.2	0.448	
	EB1.3	0.598	
	EB1.4	0.324	
	EB1.5	0.495	
	EB1.6	0.479	
	EB1.7	0.261	
	EB1.9	0.409	
	EB1.10	0.445	
	EB1.11	0.578	
	EB1.12	0.458	
	EB1.13	0.394	
	EB2.1	0.499	
	EB2.2	0.700	
	EB2.3	0.773	
	EB2.4	0.682	
	EB3.1	0.650	
	EB3.2	0.792	
	EB4.1	0.273	
	EB4.2	0.665	

Variables	Indicators	Correlation	Alpha
	EB4.3	0.634	
	EB5.1	0.912	
	EB5.2	0.906	
	EB6.1	0.791	
	EB6.2	0.698	
	EB6.3	0.727	
	EB7.1	0.636	
	EB7.2	0.615	
	EB7.3	0.299	
	EB7.4	0.513	
	EB7.5	0.631	
	EB7.6	0.482	
	EB7.7	0.611	
	EB7.8	0.469	
	EB7.9	0.602	
	EB8.1	0.674	
	EB8.2	0.717	
	EB8.3	0.599	
	EB8.4	0.758	
	EB8.5	0.757	
	EB8.6	0.618	
	EB8.7	0.533	
	EB8.8	0.584	
	EB8.9	0.489	
	EB9.1	0.778	
	EB9.2	0.873	
	EB9.3	0.856	
	EB10.1	0.696	
	EB10.2	0.726	
	EB10.3	0.745	
	EB10.4	0.754	

3.3 Normality test

Table 3 shows the applied normality test in Kolmogorov-Smirnov. The table presents a significant value of 0.200 higher than 0.05, indicating the normality of the model. Therefore, the researchers could proceed with the research step.

Table 3. The Normality Test Results

Variables	Significance	Status
Environmental Attitude	0.088	Normal Distribution
Environmental Knowledge	0.200	Normal Distribution
Environmental Behavior	0.200	Normal Distribution

3.4 The Regression Analysis

Table 4. The Result of Regression Analysis

Model	B	t	Sig.
(Constant)	87.016	14.335	0.000
Environmental Attitude	2.358	6.197	0.000
Environmental Knowledge	1.643	4.189	0.000

Table 4 shows the regression test of the model with the following equation:

$$Y = 87.016 + 2.358X_1 + 1.643X_2 + \varepsilon \dots\dots\dots (ii)$$

3.5 The Hypothesis Test

Partially, the score of the t-count of the environmental attitude is 6.197 while the environmental knowledge is 4.189. The scores of the t-count are higher than the t-table, 1.971. Thus, the research result supports the hypothesis 1 (H1): environmental attitude influences the environmental behavior. The same result goes for the second hypothesis (H2). Environmental knowledge influences friendly behavior. Therefore, environmental attitude and knowledge partially influence friendly behavior.

Table 5. The F-test Result

Model	df	F	Sig.
Regression	2	57.152	0.000
Residual	215		
Total	217		

The F-test result shows the F-count is 57.152 higher than the F-table, 8.539087. The result confirms the third hypothesis, H3. The environmental attitude and environmental knowledge simultaneously influence environmentally friendly behavior. The significant value is 0.000 lower than 0.005, indicating the significant influence of environmental attitude and knowledge toward environmentally friendly behavior.

3.6 Discussion

The findings show all variables, environmental attitude, and knowledge, significantly influence environmentally-friendly behavior. Paco et al. (2015) also confirm that environmental knowledge strengthens the attitude to manage environmental problems so an individual can make accurate decisions to environmentally friendly behavior. Plonsky & Teodorescu (2020) also explain that educated individuals have excellent environmental awareness to foster environmental attitudes. This matter is important to initiate the environmentally-friendly behavior (Mainieri et al., 1997).

Environmental attitude positively and significantly influences friendly behavior because every individual has the awareness to choose consumable products with less negative environmental impacts. The theory of reasoned action also asserts the significant influence of environmental knowledge and attitude toward individual behavior. Therefore, environmental knowledge could influence environmentally-friendly behavior. Some previous studies also found that individuals with environmental knowledge could take responsibility for protecting the environment. Thus, this matter influenced environmentally-friendly behavior (Han, 2021; Kennedy et al., 2009; Vicente-Molina et al., 2013). Therefore, environmental knowledge could improve the students' awareness of using and selecting green products.

4 Conclusion

This research explores the influence of environmental attitudes and knowledge toward the environmentally friendly behaviors of the students at a conservation-based university. This research only used an online survey to determine whether the influence was significant between the independent and dependent variables. The results show both partial and simultaneous influence between the environmental attitude and knowledge toward environmentally friendly behavior.

Besides that, an excellent level of environmental knowledge influences environmental attitudes and environmentally friendly behavior positively. This research also found that knowledge and attitude positively and significantly influenced environmentally-friendly behavior. The implications of this research include the evidence of the knowledge-attitude-behavior linearity with the TRA theory. The re-search limitations deal with the implementation of a conservation-based university as the sample. Thus, future research should broaden the re-search sample.

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