



Conservation Behavior among Students in a University in Metro Manila: The Moderating Role of Attitudes on the Impact of Environmental Knowledge

Socioeconomic Research Portal for the Philippines



Anne Claire Simpao
Homer Yabut



Introduction



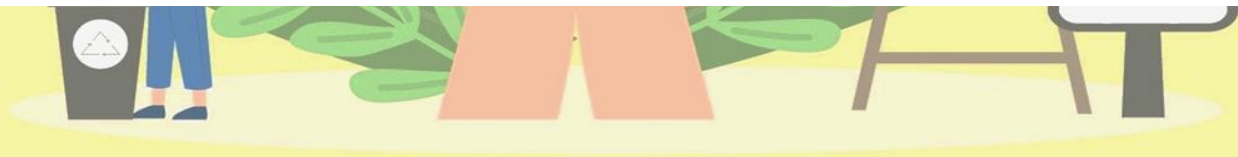
- Industrialization, urbanization, and modernization have caused severe depletion of natural resources and degradation of the environment (Satterthwaite et al., 2010)
- The Philippines, being part of the Global South, is seen to be part of the most problematic countries in the world on having low scores on the Environmental Performance Index, indicating poor pro-environmental behaviors practices of Filipinos (Hsu, et al., 2015).



A stylized illustration of a person with dark hair, wearing a blue long-sleeved shirt and purple pants, sitting cross-legged on a globe. The globe is rendered in shades of blue and green, with white clouds in the background. The overall scene is set against a light yellow background.

What are Pro-environmental behaviors?

- Pro-environmental (PEB) refers to the actions of individuals and communities that aim to benefit and ease the harm to the natural environment
- PEB takes on several domains, such as environmental activism and conservation behavior (Dalton, 2015; Dursun et al., 2018).
- Water and energy conservation behavior and other pro-environmental behaviors include recycling, green conduct, eco-initiative, and green behavior (Dursun et al., 2018)



A stylized illustration of a person with dark hair, wearing a blue shirt and purple pants, sitting cross-legged on a blue and green globe. The background is a bright yellow sky with white clouds.

What leads to Conservation Behaviors?

- We argue that environmental knowledge can lead to conservation behaviors.
- However, knowledge alone is not sufficient to make people display conservation behaviors.
- We propose that positive attitudes about conservation can further enhance the relationship between environmental knowledge and conservation behaviors



A stylized illustration of a person with dark hair, wearing a blue shirt and purple pants, sitting cross-legged on a blue and green globe. The person is holding an open book. The background is a bright yellow sky with white clouds.

What leads to Conservation Behaviors?


- We argue that environmental knowledge can lead to conservation behaviors.

Hypothesis 1: There is a direct and positive relationship between environmental knowledge and engagement in conservation behavior.

- We propose that positive attitudes about conservation can further enhance the relationship between environmental knowledge and conservation behaviors

Hypothesis 2: Positive attitude towards conservation moderates the relationship between environmental knowledge and environmental concern towards conservation behavior.

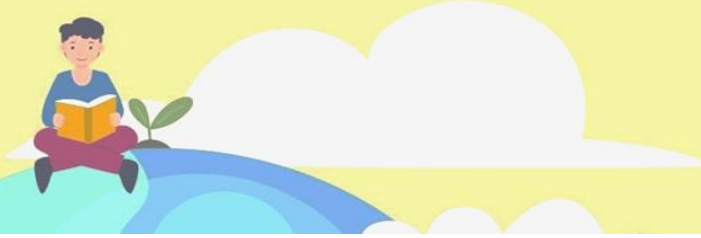
Research Objectives



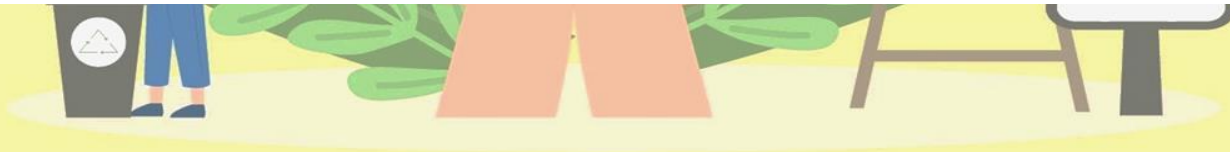
- This research aims to describe conservation behaviors, to understand the factors and extent of engagement in conservation practices among university students.
- Specifically, it aims to describe the important roles of knowledge and attitude in understanding conservation behavior among students.



Research Method



- Cross-sectional descriptive correlational research design
- Participants of the study were recruited from a private university in Metro Manila through purposive sampling
- 315 respondents answered the online survey
- This study made use of a 5-paged online self-administered questionnaire.
- From the initial 315 collected responses, only 303 were used for this study after data cleaning.



Data Analysis: Descriptive Statistics

- The mean scores and standard deviation were computed for the level of environmental knowledge, attitude towards conservation behavior, and conservation behavior.

Table 2.
Scoring of Variables

Variable and Measure	Score	Interpretation
Level of Environmental knowledge	1.00 – 2.33	Low
	2.34 – 3.66	Moderate
	3.67 – 5.00	High
Level of Attitude towards conservation behavior	1.00 – 2.33	Low
	2.34 – 3.66	Moderate
	3.67 – 5.00	High
Level of Conservation behavior	1.00 – 2.33	Low
	2.34 – 3.66	Moderate
	3.67 – 5.00	High

Descriptive Results




- Female university students reported to have higher environmental knowledge and attitudes toward conservation behavior than male university students
- Older university students are more knowledgeable of environment-related matters than younger university students.
- University students with a family income of Php 20,000 and below and Php 20,001-Php 40,000 have higher levels of conservation behavior as compared to university students with a family income of Php 40,001-Php 60,000 and Php 60,001 and higher

Table 3.
T-test and ANOVA Test Results

	Variable	Environmental knowledge	Attitude towards conservation behavior	Conservation behavior
Sex	<i>t</i> -Statistic Score	2.280*	3.217**	0.491
	Mean of Female	4.60	4.20	3.85
	Mean of Male	4.45	3.98	3.81
Age	<i>F</i> -Statistic Score	3.526*	0.006	1.466
	Mean of 18-20 y.o.	4.51	4.12	3.85
	Mean of 21-23 y.o.	4.59	4.12	3.79
	Mean of 24-26 y.o.	4.68	4.12	3.52
	Mean of 27 y.o. and older	4.81	4.14	4.29
Family income	<i>F</i> -Statistic Score	1.904	0.119	2.852*
	Mean of Below Php20,000	4.78	4.18	4.24
	Mean of Php 20,001-40,000	4.47	4.10	3.76
	Mean of Php 40,001-60,000	4.50	4.09	3.90
	Mean of Higher than Php 60,000	4.55	4.13	3.80
Student type	<i>t</i> -Statistic Score	-1.463	-1.325	0.548
	Mean of Undergraduate Student	4.53	4.11	3.84
	Mean of Graduate Student	4.71	4.28	3.75
Year level	<i>F</i> -Statistic Score	2.176	0.802	0.276
	Mean of 1st Year	4.50	4.18	3.88
	Mean of 2nd Year	4.52	4.13	3.85
	Mean of 3rd Year	4.66	4.02	3.74
	Mean of 4th Year	4.47	3.99	3.78
	Mean of 5th Year or higher	4.69	4.17	3.85

N=303; **p*<.05, ***p*<.001



Descriptive Results Discussion

This study found that female university students, aged 27 years old and above, with a family income of Php 20,000 and below, undergraduate students, and are in their fifth year or higher have the highest level of engagement in conservation behavior

Possible Reasons:

- Females are more inclined to engage in pro-environmental behaviors (Corral-Verdugo et al., 2006; Gong et al., 2020) and this may be due to women's greater affinity and support in the environment (the University of Colorado at Boulder, 2019; Tindall et al., 2003).
- Most university students who are 27 years old and above provide support for their families and themselves, making them limit the use of basic necessities and other spendings (Weissman, 2014).
- Educational attainment was also found to be a strong driver of environmental engagement. College students usually have positive attitudes towards the environment (Bernardo, 2010).

Correlation Results

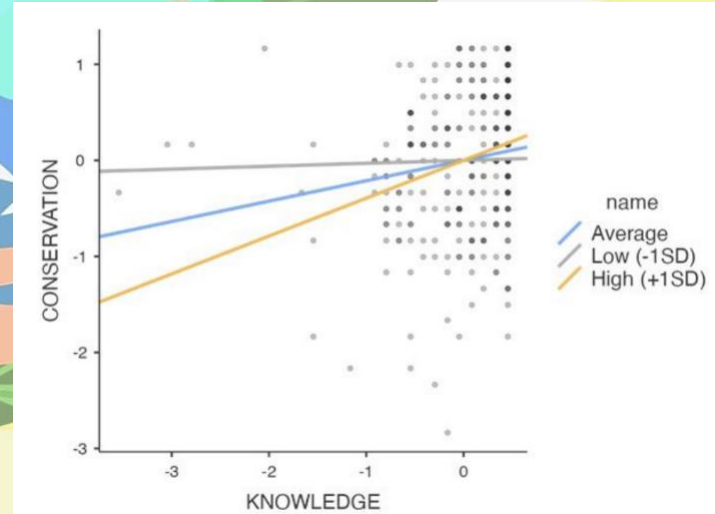


- It shows that university students have high levels of environmental knowledge ($M=4.54$), attitude towards conservation behavior ($M=4.12$), and conservation behavior ($M=3.84$).
- Environmental knowledge and attitude towards conservation behavior were moderately positively correlated
- Environmental knowledge and conservation behavior had a weak and positive correlation.
- Attitude towards conservation behavior and conservation were moderately positively correlated.

Table 4.
Descriptive and correlational results

	<i>M</i>	<i>SD</i>	1	2	3
1. Environmental knowledge	4.54	0.56	--	--	--
2. Attitude towards conservation behavior	4.12	0.59	0.322*	--	--
3. Conservation behavior	3.84	0.75	0.193*	0.372*	--

*p-value is significant at .001



Regression Results



- Table 5 shows that the overall model fit is significant. This means that attitude towards conservation behavior has indeed a moderating effect on environmental knowledge and conservation behavior
- Both environmental knowledge and attitude towards conservation behavior have a significant relationship with conservation behavior
- The moderating effect of attitude towards conservation behavior is only applicable when the level is at the average and high

Table 5.
Overall Model Fit

	<i>r</i>	<i>r</i> ²	<i>MSE</i>	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
Model	.425	.180	.465	21.966	3.000	299.000	.000

Table 6.
Moderation Estimates

	Estimate	SE	95% Confidence interval		<i>z</i>	<i>p</i>
			Lower	Upper		
Environmental knowledge	0.212	0.076	0.062	0.362	2.77	0.006
Attitude towards conservation behavior	0.483	0.065	0.354	0.613	7.33	<.001
Interaction	0.308	0.083	0.144	0.471	3.70	<.001

Table 7.
Conditional effect

	β	<i>p</i>	<i>LLCI</i>	<i>ULCI</i>
Average	0.212	0.007	0.057	0.368
Low (-1SD)	0.030	0.694	-0.121	0.182
High (+1SD)	0.395	0.003	0.182	0.607



Correlation and Regression Results Discussion

This study found that environmental knowledge has a significant effect on conservation behavior.

- These results attest to the relative importance of environmental knowledge in their contributions to environmental action, whether about conservation or other pro-environmental behaviors (Ardoin et al., 2020).
- Environmental knowledge students learn in universities can also be used to promote sustainable consumption practices (Dursun et al., 2018).



Correlation and Regression Results Discussion

Results of the study supported the researchers' hypothesis that attitude towards conservation behavior has a moderation effect on the relationship between environmental knowledge and conservation behavior

- Environmental knowledge alone is not sufficient for students to display CB. There should be a change in environmental attitude for them to display this CB
- A change of attitudes among people is needed to address environmental issues and achieve sustainable development (Waltner et al., 2019).



Correlation and Regression Results Discussion

- As emphasized by Waltner and associates (2019), a change in the attitudes of individuals is vital to address environmental concerns. In a university setting, students are taught with environmental knowledge with the influence on their attitudes through environmental education influences pro-environmental behaviors (Krasny et al. 2015)

Conclusion



- Overall, this study on predictors and moderators of students' conservation behavior in a private university in Metro Manila showed a significant relationship among the variables.
- The results reveal a significant relationship between environmental knowledge, attitude towards conservation behavior, and conservation behavior.
- This is also the case on the moderation effect of attitude towards conservation behavior on the relationship between environmental knowledge and conservation behavior.
- Thus, for the private university in focus, a high level of environmental knowledge suggests a high engagement level in conservation behavior. The average and high levels of attitude towards conservation behavior suggest a moderating effect on environmental knowledge and conservation behavior

Recommendations



- Knowledge is a two-way street. Educational institutions should focus more on environmental topics which are action-oriented and promote sustainable practices.
- At the same time, students must also make an effort to be knowledgeable of environmental matters both inside and outside of their campuses
- Universities need not only to teach about conservation behavior but also perform practices and impose regulations that will help students have a positive look at conservation behavior



Thank you for listening!