

## Exploring the Psycho-Social Factors Influencing Pro-Environmental Behavior among Filipino Youth Environmental Advocates

Jacques Zacharie Thaddeus P. Ponce, Senior High School, Ateneo de Manila University  
[jacques.ponce@obf.ateneo.edu](mailto:jacques.ponce@obf.ateneo.edu)  
(+63) 917 510 2138  
Katipunan Avenue  
Quezon City, Metro Manila, Philippines 1108

Elyssa Marie V. Castro, Student, Senior High School, Ateneo de Manila University  
Zoe V. Panganiban, Student, Senior High School, Ateneo de Manila University  
Manuel Josue O. Rosario, Student, Senior High School, Ateneo de Manila University  
Joaquin Enrique B. Sinjian, Student, Senior High School, Ateneo de Manila University  
Richard Deanne Sagun, Faculty, Senior High School, Ateneo de Manila University

### ABSTRACT

Due to the alarming increase of environmental issues worldwide, the Filipino youth have taken a more active role in environmental sustainability, with environmental youth-led organizations and activism becoming prevalent over the years. This study investigates the psycho-social factors that influence one's pro-environmental behavior (PEB) among a unique sample: Filipino youth environmental advocates. To further explore the seven (7) psycho-social factors, a quantitative approach utilized an online questionnaire containing 80 questions with participants from three (3) Ateneo de Manila Senior High School environmental organizations. Questions were divided according to the researched psycho-social factors, namely, gender, income, geographical location, self-efficacy, trust in sources of environmental information, climate change knowledge, and environmental attitude, while including questions regarding their engagement in their environmental organization. Three statistical tests were employed: Independent t-Test, Pearson's  $r$ , and Spearman's Rho Correlation, with the overall pro-environmental score computed by taking the mean values of the different psycho-social factors. After analyzing the data, the results displayed a significant correlation between PEB and the youth advocates' psycho-social factors and indicators, self-efficacy ( $r=0.526$ ,  $n=62$ ,  $p<0.001$ ), climate change knowledge ( $r=0.398$ ,  $n=62$ ,  $p<0.01$ ), and youth organization engagement ( $r=0.572$ ,  $n=62$ ,  $p<0.001$ ), with a strong, moderate, and strong relationship respectively. There was also a seen significant difference with females ( $\bar{x} = 3.75$ ,  $\sigma = 0.265$ ) displaying increased PEB over males ( $\bar{x} = 3.43$ ,  $\sigma = 0.348$ ),  $t(59) = -4.11$  and  $p<0.001$  shown in the socio-demographic factor of gender. Inversely, there were no significant relationships ( $p>0.05$ ) among the participants' household income, geographical location, trust in sources of environmental information, and environmental attitude toward PEB, respectively. These results suggest that, in promoting a more pro-environmental youth and advocates, policy and structural approaches should focus more strongly on empowerment towards a more sustainable lifestyle while the roles of climate change knowledge and organizational engagement are strengthened. Overall, the study explores the prominent factors influencing PEB, especially in the context of Filipino youth advocates. The study serves as a foundation for future research on environmental youth advocates and their drivers in promoting individual and collective efforts to achieve effective climate change mitigation and environmental sustainability.

*Key words: pro-environmental behavior; psycho-social factors; Filipino youth environmental advocates*

## Introduction

Human behavior has been a significant contributor to various environmental issues.<sup>1</sup> Individuals, even on their own, have a central role in creating a more sustainable society, especially in the battle against climate change. However, different individuals and communities have various psycho-social factors that can influence pro-environmental behavior (PEB), resulting in heterogeneity of sustainable perspectives and practices.<sup>2</sup> Since people come from varied backgrounds, hold distinct beliefs, and have different experiences, diverse perspectives regarding environmental concerns are seen, with some being more environmentally active than others<sup>3</sup>. Although various studies have researched the prominent psycho-social factors impacting people's general environmental considerations, these current models have mainly tackled the relationships between adults and the general population.<sup>4</sup>

There has also been a lack of studies concentrating on specific populations, especially in the context of Filipino youth, which plays a critical role in the country and the world's sustainability goals.<sup>5</sup> Various studies show solid scientific consensus on the Philippines' susceptibility to climate change, significant lack of investments in disaster preparedness, and the relationships between other climate change factors.<sup>6</sup> Amidst these, reports show how the Filipino youth have taken a more active role in environmental sustainability, with youth-led organizations and activism becoming prevalent over the years.<sup>7</sup> This research explores the psycho-social factors influencing PEB among Filipino youth environmental advocates and determines their relationships.

### *Pro-Environmental Behavior (PEB)*

Pro-environmental behavior (PEB) is simply the behavior that consciously seeks to minimize one's harm to the natural and built world while doing actions that can benefit the environment altogether.<sup>8</sup> Over decades of effort, there have been various proposed models, theories, and studies describing this environmental and behavioral direction, more specifically the human engagement in PEBs or lack thereof.<sup>9</sup> According to Kaiser et al., six primary indicators could be used to measure PEB: energy conservation, mobility and transportation, waste avoidance, recycling, consumerism, and sympathetic conservation habits.<sup>10</sup>

### *Theoretical Background*

Although there is still no definitive way of viewing the complex nature of environmental behavior, there have been two most representative and widely-used theoretical frameworks: the theory of Planned Behavior (TPB) and the Value-Belief-Norm (VBN) theory. The theory of planned behavior stresses the attitudinal aspects of PEB.<sup>11</sup> In contrast, the value-belief-norm model for the environment highlights the relevance of moral components when initiating environmental activities.<sup>12</sup> While both theoretical

<sup>1</sup> Stern, "New Environmental Theories."

<sup>2</sup> Gifford and Nilsson, "Social Factors.", Ortega-Egea, García-de-Frutos, and Antolín-López, "Mitigate Climate Change."

<sup>3</sup> Díaz et al., "Psychological Factors."

<sup>4</sup> Balundé, Perlaviciute, and Truskauskaitė-Kunevičienė, "Sustainability in Youth.", Díaz et al., "Psychological Factors.", Gifford and Nilsson, "Social Factors.", Ortega-Egea, García-de-Frutos, and Antolín-López, "Mitigate Climate Change.", Reyes, "Environmental Attitudes."

<sup>5</sup> Balundé, Perlaviciute, and Truskauskaitė-Kunevičienė, "Sustainability in Youth.", Ortega-Egea, García-de-Frutos, and Antolín-López, "Mitigate Climate Change."

<sup>6</sup> Bollettino et al., "Public Perception of Climate Change."

<sup>7</sup> Fonbuena, "Philippines' Youth Call."

<sup>8</sup> Kollmuss and Agyeman, "Mind the Gap.", Stern, "New Environmental Theories.", Steg and Vlek, "Encouraging Pro-Environmental Behaviour."

<sup>9</sup> Gifford and Nilsson, "Social Factors.", Smith and Kingston, "Predict Pro-Environmental Behavior."

<sup>10</sup> Kaiser, Oerke, and Bogner, "Behavior-Based."

<sup>11</sup> Aguilar-Luzón et al., "Comparative Study.", Díaz et al., "Psychological Factors."

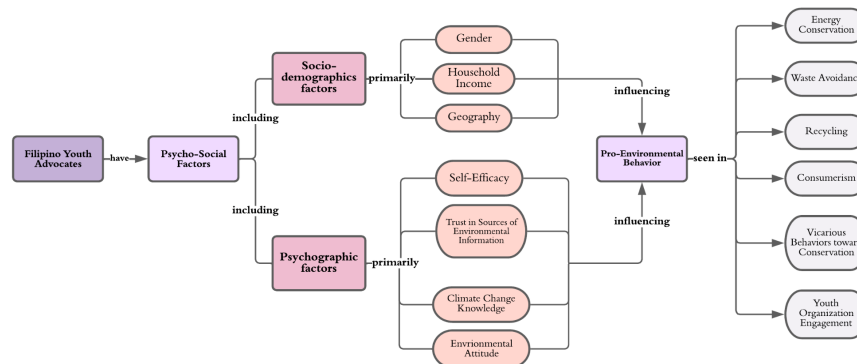
<sup>12</sup> Aguilar-Luzón et al., "Comparative Study."

approaches understand the heterogeneous nature of PEBs, they still have particular limitations in relating one's values to specific socio-economic factors.<sup>13</sup> Thus, this research utilizes the benefits of integrating more of the models and concepts reliably associated with environmental behavior while considering the intended sample.<sup>14</sup> Using the TPB and VBN, the present study uses the critical theoretical concepts by recognizing that any external variable can influence the intentions, leading to the impact on one's actual behavior, considering that it also influences their attitudinal component.<sup>15</sup> However, the study also extends these models to the extent of involving other dimensions that are more contextualized to this study and Filipino youth advocates.

### *Psycho-social Variables of Pro-Environmental Behavior*

For this study, three (3) socio-demographic and four (4) psychographic variables were explored for their potential explanatory relationship with PEBs. These psycho-social factors include gender, income, geographical location, self-efficacy, and trust in sources of environmental information.<sup>16</sup> Given all these specified influences, it is still critical to note that PEB is impacted by many other factors—a limitation of this study.<sup>17</sup> Attempting to account for observed and unobserved heterogeneity of PEB entirely is a complex and multifaceted task, even when considering the salient factors in specific outcomes.<sup>18</sup> Age and level of education, prominent socio-demographics, were also excluded in this study, as the research's sample population all come from the Ateneo Senior High School.

### Conceptual Framework



**Figure 1.** Conceptual Framework of the Study

Structured with the approach from Díaz et al., the conceptual framework shown in Figure 1 branches out the psycho-social factors of Filipino youth advocates into socio-demographics and psychographics, specifically gender, household income, geographical location, self-efficacy, trust in sources of environmental information, climate change knowledge, and environmental attitude.<sup>19</sup> These influences, then, impact PEB that will primarily be measured in six contextualized indicators: energy conservation, waste avoidance, recycling, consumerism, mobility and transportation, and sympathetic conservation habits, and youth organization engagement.<sup>20</sup>

<sup>13</sup> Díaz et al., "Psychological Factors.", Smith and Kingston, "Predict Pro-Environmental Behavior."

<sup>14</sup> Díaz et al., "Psychological Factors.", Smith and Kingston, "Predict Pro-Environmental Behavior."

<sup>15</sup> Díaz et al., "Psychological Factors."

<sup>16</sup> Díaz et al., "Psychological Factors.", Gifford and Nilsson, "Social Factors.", Ortega-Egea, García-de-Frutos, and Antolín-López, "Mitigate Climate Change", Paço and Lavrador, "Environmental Knowledge."

<sup>17</sup> Gifford and Nilsson, "Social Factors."

<sup>18</sup> Gifford and Nilsson, "Social Factors."

<sup>19</sup> Díaz et al., "Psychological Factors", Gifford and Nilsson, "Social Factors.", Kan and Fabrigar, "Theory of Planned Behavior."

<sup>20</sup> Kaiser, Oerke, and Bogner, "Behavior-Based Environmental Attitude.", Palupi and Sawitri, "Pro-Environmental Behavior in Adolescent."

## Methods

### *Participants*

The participants in this study are primarily Filipino youth advocates, identified as those between the ages of 15 and 24, and are official members of well-established youth-involved environmental organizations.<sup>21</sup> Due to the limitations and resources of this research, the mentioned organizations were centered in Ateneo de Manila Senior High School (ASHS), Philippines: ASHS Matanglawin, ASHS Kanlaon, and Ateneo Biological Organization - Senior High School. All members of these organizations were invited to take part in the survey.

### *Instruments*

The main instrument utilized for the entire data collection process was a survey questionnaire, gathering quantitative results on exploring the different psycho-social factors influencing the study sample's PEB. The survey was divided into three (3) distinct parts with questions structured from studies by Balundé et al., Díaz et al., Kaiser et al., and Ortega-Egea et al., and the revised New Ecological Paradigm scale.<sup>22</sup> The first part of the survey encapsulated socio-economic factors and directly asked about the participant's gender, income level, and geographic location.<sup>23</sup> The second section utilized a 5-point Likert Scale containing "Strongly Agree" to "Strongly disagree" options on questions gathering data about the participant's self-efficacy, trust in sources of environmental information, climate change knowledge, and environmental attitudes.<sup>24</sup> Finally, the third part of the survey utilized a 5-point Likert scale containing "Always" to "Never" options, measuring how often and engaged the participant is when it comes to recycling, waste avoidance, energy conservation, engagement in environment-based organizations, consumerism, and vicarious behavior toward conservation.<sup>25</sup>

### *Data Analysis*

Statistical tests were utilized to individually correlate the psycho-social to the PEB scores to determine how each factor correlates to the PEB of the study sample. An index was calculated for each respondent's PEB practice rate and defined by the responses. The score will decrease as the selection moves away from the desired outcome: "Strongly Disagree" = 1 to "Strongly Agree" = 5; and "Never" = 1 to "Always" = 5.<sup>26</sup> Numerical ranks also represented Household Income and Geographical Location in their corresponding order.<sup>27</sup> The overall mean values of these psycho-social variables and the participant's pro-environmental score were acquired, respectively. Before conducting the different statistical correlation tests, the data's normality was also tested.

The Independent Samples t-Test was the statistical test used to analyze whether there was a significant difference between the pro-environmental score of the study sample with the differences in their gender ( $p < 0.05$ ). The Pearson's  $r$  Correlation and Spearman's  $\rho$  correlation were used to analyze the correlation and the strength of

<sup>21</sup> UNESCO, "By Youth, with Youth, for Youth."

<sup>22</sup> Anderson, "New Ecological Paradigm.", Balundé, Perlaviciute, and Truskauskaitė-Kunevičienė, "Sustainability in Youth", Díaz et al., "Psychological Factors.", Kaiser, Oerke, and Bogner, "Behavior-Based.", Ortega-Egea, Garcia-de-Frutos, and Antolín-López, "Mitigate Climate Change."

<sup>23</sup> Díaz et al., "Psychological Factors.", News, "Class Brackets in PH."

<sup>24</sup> Balundé, Perlaviciute, and Truskauskaitė-Kunevičienė, "Sustainability in Youth", Díaz et al., "Psychological Factors", Ortega-Egea, Garcia-de-Frutos, and Antolín-López, "Mitigate Climate Change."

<sup>25</sup> Díaz et al., "Psychological Factors.", Kaiser, Oerke, and Bogner, "Behavior-Based.", Ortega-Egea, Garcia-de-Frutos, and Antolín-López, "Mitigate Climate Change."

<sup>26</sup> Díaz et al., "Psychological Factors.", Pimentel, "Likert Scaling."

<sup>27</sup> Bhandari, "Designing and Analyzing Likert Scales."

relationship between the continuous variables of Self-Efficacy, Trust in Sources of Environmental Information, Climate Change Knowledge, and Youth Organization Engagement with PEB, respectively ( $p < 0.05$ ). Finally, Spearman's Correlation was used to analyze Income and Geographical Location, represented by numerical values in order of their ranking ( $p < 0.05$ ).

## Results

**Table 1. Sociodemographic Factors of the Filipino Youth Advocate Sample (n=62)**

Gender	
Female	54.8%
Male	43.5%
Don't Know	1.6%
Income Level (Php)	
< 10,957	3.2%
10,957 - 21,914	6.5%
21,914 - 43,828	11.3%
43,828 - 76,669	14.5%
76,669 - 131,484	19.4%
131,484 - 219,140	22.6%
> 219,140	22.6%
Geographical Location (Frequency of Significant Natural Disasters Experienced in Residence)	
Twice a month	1.6%
Once a month	6.5%
Once every Two months	4.8%
Three to Four times a year	29.0%
Rarely in a year	25.8%
Twice a year	9.7%
Once a year	22.6%

The total population of members of ASHS environmental organizations was around 150, wherein the study had a total sample of 62 survey participants. Table 1 shows the sociodemographic factors of the study sample.

**Table 2. Descriptive Exploration of the Continuous Variables: Self-Efficacy, Trust in Sources of Environmental Information, Climate Change Knowledge, Environmental Attitude, Youth Organization Engagement, and Pro-Environment Behavior (n=62)**

	Self-Efficacy	Trust in Sources of Environmental Information	Climate Change Knowledge	Environmental Attitude	Youth Organization Engagement	Pro-Environment Behavior
Mean	4.22	4.02	4.35	4.34	3.67	3.62
Standard Deviation	0.330	0.382	0.381	0.314	0.609	0.345
Minimum	3.50	3.25	3.67	3.42	2.33	2.89
Maximum	5.00	5.00	5.00	5.00	5.00	4.18
Skewness	0.135	0.372	0.0955	-0.512	-0.209	-0.143

Table 2 depicts the descriptives of the different continuous variables collected in this study. The continuous variables of self-efficacy and environmental attitude had normally distributed data; thus, the Pearson's r test was used to determine these factors' correlation with PEB. Inversely, the variables of trust in sources of environmental information and climate change knowledge had a Shapiro-Wilk  $p < 0.05$ ; thus, the Spearman's rho correlation test was utilized to determine their relationships with PEB.

**Table 3. Independent Samples t-Test of the Pro-Environmental Behavior between Males and Females**

	Statistic	df	p
Pro-Environmental Behavior	Student's t	-4.11	59.0
			<.001

Table 3 shows the results of the independent t-test showing a significant difference between the PEB of females ( $\bar{x} = 3.75$ ,  $\sigma = 0.265$ ) than males ( $\bar{x} = 3.43$ ,  $\sigma = 0.348$ ),  $t(59) = -4.11$  and  $p < 0.001$ , with female youth advocates having exhibited more PEB than males. For the purposes of the statistical tests, the "Don't Know" response was left blank.

**Table 4. Spearman's rho Test Results Between Participants' Respective Household Income and Frequency of Natural Disasters in Geographical Location with their Pro-Environmental Behavior**

Correlation with Pro-Environmental Behavior		
Socio-Demographic Factors	Spearman's Rho	p-value
Household Income	0.038	0.770
Geographical Location	0.156	0.227

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 4 shows the result of the corresponding Spearman's rho correlation for Household Income and Geographical Location, where participants' household income showed no significant evidence in suggesting a relationship with PEB ( $p > 0.05$ ). There was also no significant relationship between the experienced frequency of natural disasters in participants' geographical location and their PEB ( $p > 0.05$ ).

**Table 5. Correlation Test Results Between Participants' Respective Self-Efficacy, Trust in Sources of Environmental Information, Climate Change Knowledge, and Environmental Attitude and their Pro-Environmental Behavior**

Correlation with Pro-Environmental Behavior			
Psychographic Factors	Spearman's Rho	Pearson's R	p-value
Self-Efficacy	—	0.526***	<.001
Trust in Sources of Environmental Information	0.084	—	0.516
Climate Change Knowledge	0.398**	—	0.001
Youth Organization Engagement	—	0.572***	<.001
Environmental Attitude	—	0.132	0.305

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 5 depicts the individual correlations of four different psychographic factors to PEB. The results show significant evidence to suggest that there is a strong positive relationship between the participants' self-efficacy and PEB ( $r = 0.572$ ,  $n = 62$ ,  $p < 0.001$ ). Furthermore, the results show a moderate positive relationship between the participants' climate change knowledge and PEB ( $r = 0.398$ ,  $n = 62$ ,  $p < 0.01$ ). Inversely, the data shows that there is no significant evidence suggesting a correlation between the participants' trust in sources of environmental information and environmental attitude with PEB, respectively ( $p > 0.05$ ). Finally, participants' engagement in their youth environmental organizations positively and strongly correlated with their overall PEB ( $r = 0.572$ ,  $n = 62$ ,  $p < 0.001$ ).

## Discussion

The results of this study shed light on an unexplored area of research: the factors help develop PEBs in the context of youth advocates in the Philippines. The data and discussion show that, for Filipino youth environmental organization members, gender, self-efficacy, climate change knowledge, and youth organization engagement significantly correlated with increased PEBs. The results open avenues for further research, confirming and explaining why these factors are prominent among this specific population and the reasons why other factors have no significant relationship.

The information contributed is exceedingly beneficial to current environmental organizations. It depicts the main drivers behind the PEB of their members and how this can be applied to improve organizational structures and the general population. These results suggest that, in promoting a more pro-environmental youth and advocates, policy and structural approaches should focus more strongly on empowering members to pursue sustainability while strengthening the roles of climate change knowledge and

organizational engagement. It also becomes more apparent that the frameworks for PEB are not linear. Various other factors influence a person's PEB that can change under different contexts.<sup>28</sup> From the data of the study, there is a better understanding of the environmental profile of Filipino youth advocates: one that is still in constant need of research as current models have mainly tackled the relationships among adults and the general population.<sup>29</sup>

Overall, the data contributes to the further analysis of the wide variety of PEB factors, specifically among Filipino youth advocates. It is also critical to highlight the need to conduct extensive research to find new causes of variance, as some studies show that additional internal dimensions, external pressures, and contextual variables might lead to a greater understanding of PEB.<sup>30</sup> With the more urgent calls for climate change solutions, it will be crucial to examine the behavior and attitudes of the youth to build a more climate-adaptive society in vulnerable countries like the Philippines.

### *Study Limitations*

Although the researched data regarding pro-environmental drivers can be applied to study overall Filipino youth advocates, the current research can only thoroughly describe contexts in the ASHS. As participants were solely based on students in ASHS youth organizations, the limited number of participants may have influenced the data to be different from other studies, primarily due to the similar backgrounds of the respondents. The study also recognizes that there may be limitations regarding the survey and how accurately it gauges the psycho-social factors and PEBs. The questions solely relied on the responses and self-belief of the participants regarding mentioned variables, thus extending the possibility of inaccuracies in data. The close-ended nature of the questionnaire may also make it challenging to assess the validity of the participant's answers. It is also vital to consider that each factor is multifaceted, meaning that essential variances may have been neglected to establish a linear correlation between a factor and an individual's PEB. Some aspects of the factors may not directly correlate with PEB or, instead, be connected with other factors.

### *Recommendations*

Future studies can further improve different aspects of the present research. First, a larger sample size is recommended to increase the number of participants and include a wider selection of youth-led organizations with varying backgrounds. Including a more comprehensive selection of youth-led environmental organizations beyond the ASHS would allow the data to be more comprehensive, accurate, and inclusive of the Filipino youth advocate population. Utilizing a mixed method, instead of being hindered by close-ended questions and quantitative data, and exploring both qualitative and quantitative methods may also increase the accuracy and depth of the data analysis. Moreover, when studying the various psycho-social factors, it is firmly recommended to thoroughly dissect each factor in more detail through more comprehensive tests measuring one's factors and PEBs. Finally, correlations between different variables may also be explored significantly since this study only individually correlated each factor to PEB.

---

<sup>28</sup> Díaz et al., "Psychological Factors."

<sup>29</sup> Balundé, Perlaviciute, and Truskauskaitė-Kunevičienė, "Sustainability in Youth.", Díaz et al., "Psychological Factors.", Ortega-Egea, García-de-Frutos, and Antolín-López, "Mitigate Climate Change.", Reyes, "Environmental Attitudes."

<sup>30</sup> Díaz et al., "Psychological Factors."

## Conclusion

This study explored seven (7) psychographic and socio-demographic factors and their relationship to pro-environmental behavior in Filipino youth environmental advocates from various ASHS environmental organizations. It also tackles the capacity of young advocates to counteract climate change through individual and successful pro-environmental actions such as environmental and behavioral change. Therefore, this research contributes to the existing knowledge on the population unique to this study, Filipino youth advocates, and their pro-environmental factors and mechanisms. The results display a significant correlation between PEB and the youth advocates' psycho-social factors and indicators, Self-Efficacy ( $p < 0.001$ ), Climate Change Knowledge ( $p < 0.01$ ), and Youth Organization Engagement ( $p < 0.001$ ), with a strong, moderate, and strong relationship respectively. There was also a significant difference of PEB with females ( $\bar{x} = 3.75$ ,  $\sigma = 0.265$ ) displaying increased PEB over males ( $\bar{x} = 3.43$ ,  $\sigma = 0.348$ ),  $t(59) = -4.11$  and  $p < 0.001$  shown in the psychographic factor of Gender. Inversely, there was no significant relationship ( $p > 0.05$ ) in performing increased PEB in the participants' Geographical Location, Trust in Sources of Environmental Information, and Environmental Attitude. Overall, the study serves as a foundation for future research on environmental youth advocates in promoting individual and collective efforts to achieve effective climate change mitigation measures. While correlations found in this study are dynamic and changing, evaluation of the examined factors will aid in the long-term improvement of policy design, communication tactics, and youth organization structures.<sup>31</sup>

## Ethics Statement

This study, which involves the behaviors of human participants, was reviewed and approved by the Ateneo de Manila Senior High School Research Ethics Committee (ASHS-REC) and followed the standards and data privacy guidelines set by the university. Written informed consent to participate in the research was acquired from the participants and legal guardians (for participants under 18).

## Bibliography

- Aguilar-Luzón, María del Carmen, José Miguel Ángel García-Martínez, Antonia Calvo-Salguero, and José María Salinas. "Comparative Study between the Theory of Planned Behavior and the Value-Belief-Norm Model Regarding the Environment, on Spanish Housewives' Recycling Behavior." *Journal of Applied Social Psychology* 42, no. 11 (October 15, 2012): 2797–2833. doi:10.1111/j.1559-1816.2012.00962.x.
- Anderson, Mark. "New Ecological Paradigm (NEP) Scale." *Berkshire Encyclopedia of Sustainability* 6 (2012): 260–62.
- Balundė, Audra, Goda Perlaviciute, and Inga Truskauskaitė-Kunevičienė. "Sustainability in Youth: Environmental Considerations in Adolescence and Their Relationship to Pro-Environmental Behavior." *Frontiers in Psychology* 11 (November 2, 2020). doi:10.3389/fpsyg.2020.582920.
- Bhandari, Pritha. "Designing and Analyzing Likert Scales." *Scribbr*, October 12, 2020. [https://www.scribbr.com/methodology/likert-scale/#:~:text=For%20ordinal%20data%20\(individual%20Likert](https://www.scribbr.com/methodology/likert-scale/#:~:text=For%20ordinal%20data%20(individual%20Likert).
- Bollettino, Vincenzo, Tilly Alcayna-Stevens, Manasi Sharma, Philip Dy, Phuong Pham, and Patrick Vinck. "Public Perception of Climate Change and Disaster Preparedness: Evidence from the Philippines." *Climate Risk Management*, October 2020, 100250. doi:10.1016/j.crm.2020.100250.

<sup>31</sup> Díaz et al., "Psychological Factors."



- Díaz, Manuel Francisco, Andrés Charry, Stefania Sellitti, Matteo Ruzzante, Karen Enciso, and Stefan Burkart. "Psychological Factors Influencing Pro-Environmental Behavior in Developing Countries: Evidence from Colombian and Nicaraguan Students." *Frontiers in Psychology* 11 (December 23, 2020). doi:10.3389/fpsyg.2020.580730.
- Fonbuena, Carmela. "Philippines' Youth Call for Systemic Change at Climate Protest." *The Guardian*, September 24, 2021. <https://www.theguardian.com/global-development/2021/sep/24/philippines-youth-call-for-systemic-change-at-climate-protest>.
- Garcia, Moises Norman & Garcia, Maria Rosario Virginia & Famadico, Lily. 2018. College students' environmental psychographics: What drives the Filipino youth to act in mitigating climate change.
- Gifford, Robert, and Andreas Nilsson. "Personal and Social Factors That Influence Pro-Environmental Concern and Behaviour: A Review." *International Journal of Psychology* 49, no. 3 (January 2014): n/a-n/a. doi:10.1002/ijop.12034.
- Kaiser, Florian G., Britta Oerke, and Franz X. Bogner. "Behavior-Based Environmental Attitude: Development of an Instrument for Adolescents." *Journal of Environmental Psychology* 27, no. 3 (September 2007): 242–51. doi:10.1016/j.jenvp.2007.06.004.
- Kan, Matthew P. H., and Leandre R. Fabrigar. "Theory of Planned Behavior." *Encyclopedia of Personality and Individual Differences*, June 7, 2017, 1–8. doi:10.1007/978-3-319-28099-8\_1191-1.
- Kollmuss, Anja, and Julian Agyeman. "Mind the Gap: Why Do People Act Environmentally and What Are the Barriers to Pro-Environmental Behavior?" *Environmental Education Research* 8, no. 3 (August 2002): 239–60. doi:10.1080/13504620220145401.
- News, Katrina Domingo, ABS-CBN. "Who Are Identified Rich, Poor? Gov't Shows Income Class Brackets in PH." *ABS-CBN News*, September 17, 2020. <https://news.abs-cbn.com/news/09/17/20/who-are-identified-rich-poor-govt-shows-income-class-brackets-in-ph#:~:text=Low%2Dincome%20but%20not%20poor>.
- Ortega-Egea, José Manuel, Nieves García-de-Frutos, and Raquel Antolín-López. "Why Do Some People Do 'More' to Mitigate Climate Change than Others? Exploring Heterogeneity in Psycho-Social Associations." Edited by Bayden D. Russell. *PLoS ONE* 9, no. 9 (September 5, 2014): e106645. doi:10.1371/journal.pone.0106645.
- Paço, Arminda, and Tânia Lavrador. "Environmental Knowledge and Attitudes and Behaviours towards Energy Consumption." *Journal of Environmental Management* 197 (July 2017): 384–92. doi:10.1016/j.jenvman.2017.03.100.
- Palupi, Tyas, and Dian R Sawitri. "The Importance of Pro-Environmental Behavior in Adolescent." Edited by Hadiyanto, Sudarno, and Maryono. *E3S Web of Conferences* 31 (2018): 09031. doi:10.1051/e3sconf/20183109031.
- Pimentel, Jonald. "A Note on the Usage of Likert Scaling for Research Data Analysis." *USM R&D* 18, no. 2 (2010): 109–12.
- Reyes, Joseph Anthony L. "Environmental Attitudes and Behaviors in the Philippines." *Journal of Educational and Social Research*, September 1, 2014. doi:10.5901/jesr.2014.v4n6p87.
- Smith, Meredith A., and Sharon Kingston. "Demographic, Attitudinal, and Social Factors That Predict Pro-Environmental Behavior." *Sustainability and Climate Change* 14, no. 1 (February 1, 2021): 47–54. doi:10.1089/scc.2020.0063.
- Steg, Linda, and Charles Vlek. "Encouraging Pro-Environmental Behaviour: An Integrative Review and Research Agenda." *Journal of Environmental Psychology* 29, no. 3 (2009): 309–17. doi:10.1016/j.jenvp.2008.10.004.
- Stern, Paul C. "New Environmental Theories: Toward a Coherent Theory of Environmentally Significant Behavior." *Journal of Social Issues* 56, no. 3 (January 2000): 407–24. doi:10.1111/0022-4537.00175.
- UNESCO. "By Youth, with Youth, for Youth." *UNESCO*, June 14, 2019. <https://en.unesco.org/youth>.