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The Role of Catholic Life Formation in Fostering Sustainable Environmental Attitudes among Selected Filipino SHS Students

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Abstract: A relevant Religious Education needs to confront the life-threatening global issues humanity faces today. The present study investigates how Catholic Life Formation (CLF) through religious instruction may predict environmental attitudes among students in Cebu City, Philippines. This study analyzes how the following variables may influence Christian environmentalism: students' reception of CLF inputs, Catholic Social Teachings (CST) perceptions, and students' beliefs and environmental responses (STB) from a sample of 491 Grade 12 SH students of a private university in Cebu, Philippines. This descriptive quantitative survey used ordinal logistic regression to test our model. We adopted a two-step procedure to gather data: First, an open-ended interview was used to tease the themes and viewpoints of students. Second, incorporating the qualitative output from the interviews, a survey was conducted using a researcher-made self-report paired with the Christian Environmentalism Scale (CES) to describe student attitudes toward the environment. The findings are discussed with respect to Religious Education and CLF environmental advocacy.

Keywords: religious education; Catholic formation; religion; environmental attitudes; students; environmentalism; social teachings; student beliefs

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1. Introduction

The escalating menace of climate change and air pollution has given rise to numerous challenges in the world and society. These problems include eroding ecosystems, rising sea levels, and extreme weather variations across various regions (Boquet 2017; The Nature Conservancy 2018). These environmental problems, in turn, result in heightened health risks, food scarcity, poverty, and forced displacement (United Nations 2020). Within the city of Cebu in southern Philippines, numerous development projects have given rise to increasing environmental woes. In addition to traffic congestion in the city, recurrent inundations, air pollution, and reported water pollution issues are noticeable in waterways. Despite existing environmental laws, violations against the Clean Water Act and Clean Air Act remain rampant. The high incidence of violations is partly explained by the poor appreciation of the laws or simply the lack of awareness of these laws by various stakeholders in industry. The local government, through the Department of Environment and Natural Resources (DENR)–Environmental Management Bureau (EMB), is focused on educating and implementing relevant laws upon erring companies to obtain their compliance. The training

of Pollution Control Officers (PCOs) for each business enterprise through upskilling is also needed in every region to increase environmental compliance. In addition, private organizations organize environmental advocacies to encourage government support and action. Diverse approaches have been explored to foster environmental consciousness and encourage positive ecological behavior (Sola 2014; Baring and Molino 2021; Bacolcol 2016). Local climate mitigation initiatives remain low, while local governments need to formulate operational guidelines on activities that contribute to climate mitigation. It appears that the current fundamental need with respect to local environmental issues and the climate emergency points to the need for education and the formation of the right attitudes toward the environment.

Among these local initiatives, the religious sector is doing its part to arouse awareness and instill pro-environment attitudes among its adherents. A previous study cites generally unfavorable religious attitudes towards environmental protection (Arbuckle and Konisky 2015). However, the United Nations Environment Programme (UNEP 2019) believes that religion plays a crucial role in environmental protection and that faith-based schools can serve as an instrument for this purpose. Likewise, Morrison et al.'s (2015) study further offers empirical evidence that certain religious factors offer an indirect causal influence on environmental attitudes. There appears to be a mix of varying findings regarding the impact of religion or religious instruction on environmental attitudes and issues. Religious Education (RE), for its part, offers insights into the dynamics of religious influences and directs this towards creative initiatives for ecology. Crowe's (2013) study highlights the transformative influence of spirituality in teaching environmental education. In addition, Catholic Social Teaching (Deane-Drummond 2012) sees ecological damage as a question of social justice. Religious Education can organize themes around ecology or the integrity of creation, common good among others, the human person, and moral commitment towards the world. Religious Education can also explore the tremendous impact that religious movements have on society and the environment (Sandwell Metropolitan Brough Council 2020). A study conducted in Thailand revealed that religion (e.g., Islam, Catholicism, Christianity, Hinduism, Buddhism, and Confucianism) contribute to developing a positive and proactive attitude toward the environment (Ontakhrai et al. 2008). Similarly, recent local studies in the Philippines point to the religious orientation of students' attitudes toward the environment (Baring et al. 2021). Among Catholic schools across the country at the basic education and tertiary levels, general observations cite the link between Religious Education and the environment (CBCP Online 2012). With more than 85% of the population being Roman Catholic, Filipinos firmly believe in the intrinsic value of human beings and the environment. This belief extends toward care for the environment, considering Christianity's teaching of humans being created in the image and likeness of God. With its role in human formation, Religious Education is a potent resource for worldview exploration (Valk and Tosun 2016) which can predispose students towards appreciating their physical environment. Religious Education is committed to contributing towards higher environmental consciousness and awareness of critical environmental issues. The present study covers this interest to build the necessary attitudes for sustainability.

2. Framework

What shapes environmental behavior (Kollmuss and Agyeman 2002) and attitudes (Kaiser and Schultz 2009) is admittedly complex. Specifically, research on the interactions between religion and the environment or ecology has turned into an emerging interdisciplinary field of inquiry (Jenkins and Chapple 2011; Aitken and Crane 2009). While there may be a multitude of explanatory models to account for environmental behavior and attitudes, our focus of study is limited to Religious Education's interaction with environmental attitudes. To test how students' perceptions of Christian Life Formation (CLF) inputs, Catholic Social Teachings (CST), and students' behavior and environmental responses (STB) as independent variables may predict Christian environmentalism (CES), in this section, we briefly review the conceptual relations between these variables. While varied findings are offered by previous studies on religion's role in environmental protection, the religious

approach (Bretana and Concepcion 2021) is generally seen as a significant contributor to building attitudes favorable towards environmental care, protection, and climate mitigation. This contention is supported by overwhelming data across regions. Foreign and local studies confirmed significant associations from religion (Arbuckle and Konisky 2015) and Religious Education/instruction (Altmeyer 2021; Valk and Tosun 2016; Crowe 2013) towards environmental/ecological attitudes. Specifically, two local studies (Bacolcol 2016; Bretana and Concepcion 2021) reviewed the integration of environmental education in RE among selected local schools. In the United States (Mangunjaya 2011), an effective model for cultivating a caring attitude towards the environment is integrating the educational curriculum with a culture of love through Catholic teachings on the environment. This model empowers students to embrace sustainability principles and actively spread awareness about environmental care through workshops, films, and hands-on initiatives (Mangunjaya 2011). By engaging students directly, such as by exposing them to pristine or degraded environments, they realize the immeasurable value of a beautiful ecosystem. Immersive experiences like nature trips and experiential learning are proven methods for fostering environmental awareness (Recuenco 2010). Previous studies (Baring and Molino 2021; Effiong 2011) have shown that Religious Education has a favorable effect on students' views about the environment.

Like the scientific community, various religious denominations are committed to the scientific consensus that our current climate and environmental issues are directly due to human participation and intervention. Pope Francis's (2015) encyclical "Laudato Si" sounds off the urgent need to act while emphasizing human stewardship towards the world and integrated care for creation. Prior to Laudato Si, Popes John Paul II (Francis 2015) and Benedict XVI already issued a similar call. These papal exhortations magnify the profound religious commitment to act justly in favor of ecology by promoting responsible stewardship (DeWitt 2007), the right order, and right relations stipulated in the Catholic Social Teachings (CST). With the apparent seamless connection between ecology, the common good, sustainability, and Catholic Social Teachings (CST), Christie et al. (2019) examined CST's contribution to a framework for sustainability. While CST contains a systematized articulation of the moral principles to guide human activity written several years ago, there remains a need to understand and investigate how CST might influence, especially in the educational context, the formation of students' environmental attitudes.

People's interactions with the environment can result in a range of environmental issues, especially when they are uninformed of their obligations (Rahmawati et al. 2020). A study by Zemo and Nigos (2020) revealed that religious teachings can positively influence environmental behavior. Baring et al. (2022) confirmed in a local study that showed correlations between students' religious attitudes and pro-social and pro-environment worldviews. Students who received Religious Education generally demonstrated significant environmental concern and responsibility (Bretana and Concepcion 2021). Indeed, religion plays a significant role in shaping human interactions with the environment (Fiana and Fahrurrazi 2020). Moreover, religious institutions, including churches, can play a crucial role in influencing people's attitudes and behaviors toward the environment.

Religious Education (RE) in the Philippines in the basic and secondary curriculum remains largely confessional or faith-based (Baring 2015; Baring 2011). The RE curriculum is offered only in private schools, while the government implements a curriculum on values in basic education. However, optional catechetical instruction at the public primary and secondary levels is allowed by law to promote religious and value formation (DEPED 2002), though without government subsidy. Likewise, Catholic colleges and universities implement required faith-based Religious Education or Theology classes. Our present informants are Grade 12 students (aged 16–18 years old) enrolled in a university under the Senior High School department. They enrolled in faith-based courses coded as "Christian Life Formation" (CLF), a required university-based Religious Education sub-program offered for all Senior High students at the university. Other Catholic schools use the term "Christian Living" for their courses, instead of CLF, for Catholic religious

instruction in the basic and secondary-level curriculum. The university offers CLF 1 and 2 for Grade 11, while CLF 3 and 4 are for Grade 12 enrollees. CLF courses for Gade 12 focus on students' moral–spiritual formation, with one course (CLF 3) dedicated to Catholic Social Teachings. To test students' reception of CLF courses 3 and 4 vis-à-vis environmental attitudes, this study analyzes how the variables of students' attitudes towards CLF inputs, Catholic Social Teachings (CST), and students' beliefs and responses (STB) towards the environment (IVs) may predict Christian environmentalism (dependent variable), which constitutes theocentric attitudes towards the environment (Baring et al. 2021).

3. Materials and Method

The present study was a descriptive quantitative survey using ordinal logistic regression. We tested the following predictors (IVs) as independent variables for their influence upon students' theocentric environmental attitudes (CES) as the DV: student appreciation of the CLF courses (CLF), Catholic Social Teachings (CST) perceptions, and student behaviors and environmental responses (STB). We developed three measures for this objective: 1. a six-item measure of students' appreciation of CLF courses in school (CLF), on a Likert scale; 2. a CST measure; and 3. a nine-item student behaviors and environmental responses (STB) measure, in addition to the 15-item validated and reliable Christian Environmentalism Scale (CES) to serve as our dependent variable. This study received approval from the university's Ethics Review Office.

To develop the materials for assessment, we initiated semi-structured interviews of Senior High School students currently enrolled in a Christian Life Formation (CLF) course. We selected an interviewee from each of the 19 Grade 12 classes. Each interview lasted for around 45 min. We used the conversations to tease out significant ideas that students express regarding their views towards the CST, moral–spiritual formation in school, and specific behaviors and environmental responses they exhibit while engaged in CLF lectures. The interview questions inquired as to how the interviewees generally viewed their CLF classes and CST course inputs as having motivated and inspired them to act in favor of the environment. Following transcription, we examined the responses using Braun and Clarke's (2006) thematic analysis guide (Supplementary Materials).

The interviews led to some realizations (cf. Table 1) of what the students appreciate in their CLF classes, such as love for the environment, preserving and protecting the environment, cooperation in favor of the environment, global warming, waste segregation, and how their teacher may have instilled in them the need to act in favor of the environment. A significant part of the students' responses uniquely shows their beliefs and concrete responses in favor of the environment. Hence, we grouped these responses under "Beliefs and Environmental Responses (STB)", listed in Table 2 below. From these ideas, the table below sums up the key ideas we have gathered, stated as statements.

Table 1. Student Appreciation of CLF Inputs.

Variable	Items
CLF Input Appreciation	1. My CLF class instilled in me a love for the environment. 2. I need to take action to preserve and protect the environment. 3. Through my CLF class, I realize we must cooperate to protect the world. 4. In my CLF class, I learned that global warming has reached critical levels. 5. In our class, we are taught the value of waste segregation. 6. My teacher taught me to engage in environmental protection.

Table 2. Students' Beliefs and Environmental Responses (STB).

Variable	Items
Beliefs and Environmental Responses	1. Seeing people live without food and water is a sad reality. 2. In our society, people are poor because they are lazy. 3. Cutting trees is an act of injustice to the environment. 4. I experience air, water, and land pollution around me. 5. Walking or biking is healthier than taking a jeepney. 6. I plant trees or plants to show my love for the environment. 7. If there is an opportunity to help clean our canals, I will do it. 8. I avoid single-use plastics because they are toxic and harmful. 9. I tell others why we should protect the environment.

Following the students' initial appreciation of CLF, the environment, and their teachers, we determined the assessment items to revolve around the students' personal appreciation of CLF as a learning platform to instill love and respect for the environment, ecology, and personal impressions towards their teachers. In Table 2, we operationalized these clustered impressions, incorporating the items for assessment. Students' beliefs and responses tests how they may react specifically to an environmental concern, while students' reactions towards their overall CLF experience were assessed in terms of how their classes and teachers brought them to an encounter or engagement of real environmental issues.

After constructing the final scales, we tested the three measures' reliability to check for the internal consistency of the items. We found that students' appreciation of CLF (CLF) inputs had a Cronbach's Alpha of 0.83, while students' beliefs and environmental responses (STB) had a value of 0.79. CST had a weak internal consistency score (Cronbach = 0.63). Both the CLF and STB measures had acceptable internal consistency quotients. When we checked the internal consistency of the Christian Environmentalism Scale (CES), we obtained a consistently high Cronbach's Alpha of 0.95 in the present data.

The items behind the CES reflect mainly theocentric environmental attitudes, which are the subject of recent papal documents. Theocentric environmental models represent religious views endorsed by religious institutions or traditions. For example, a theocentric view sees the world as something created by a divine being. Like theocentrism, current Christian thought also reflects ecocentric appreciations of the world, highlighting the value of life and the environment. Other familiar forms of environmentalism include geocentrism and anthropocentrism. These environmentalisms reflect varied philosophies or world-views towards the environment and ecology considering the impact of human activities (Davies 2020). These worldviews propose environmental attitudes that vary according to the milieu and the cultural/regional context. Our goal in determining the CES' predictors is to test how it may respond in an instructional climate where students receive religious instruction through CLF. The CES is a unidimensional 15-item theocentric measure for environmental attitudes. It had an internal consistency score of 0.95 during its development and initially tested for convergent validity (Baring et al. 2021). Our selection of the CES as the outcome variable is due to the following reasons: The CES is a theocentric model developed for students in the Philippine setting. We wanted to test how a theocentric model for the environment may correspond to students' environmental worldviews in general. Secondly, the CES is not yet tested for its interaction with probable predictors, especially Catholic education and students' practical environmental initiatives. Through the CES, we want to know how respondents' impressions of CLF inputs, CST, and students' beliefs and environmental responses (STB) may affect a theocentric attitude, thus testing the theocentric orientation of students' appreciation of the environment through the CES measure. In addition, the CES includes sub-themes that appear to bear items similar to the interviewees' perceptions towards the environment (e.g., human moral responsibility, the role of the Divine, and the sanctity of nature). The CLF outcomes articulated in the university generally represent theocentric appreciations of ecology.

4. Results

We gathered 491 (cf. Table 3) completed self-reports from Grade 12 students. The highest block of informants came from the Science, Technology, Engineering, and Mathematics (STEM) program (59%), followed by Business, Accountancy, and Management (BAM) (15%), Humanities, Education, and Social Sciences (HESS) (13%), and the Technical, Vocational, and Livelihood (TVL) track (12%). Having ascertained the internal consistency of the measures (CLF, CST, STB, and CES), we then performed ordinal logistic regression analysis since we had ordinal scales and nominal variables. We included CST in the regression to check how it may react to the OLR test. A few negative items under CST and STB were reverse-scored during encoding in Excel. Then, we ran the analysis for ordinal logistic regression and loaded the following IVs for the parametric test: CLF, CST, and STB. We loaded the CES responses as the dependent variable. The following tables show the results.

Table 3. Summary Statistics.

Link Function: Logit		
Response Information		
Variable	**Value**	**Count**
CES	3	4
	4	30
	5	457
Total		491

The ordinal logistic regression analysis showed that CLF and STB significantly predicted the CES (β = −0.1682, −0.0770; Z = −2.84, −2.10; p = 0.004, 0.036, respectively). A negative association between the predictors and outcome is indicated. The results (cf. Table 4) imply that for every unit increase in CLF, CES scores decrease by 0.1682 units, while for a unit increase in STB, CES scores diminish by 0.0770 units. More specifically, STB has a slightly greater effect on the CES than does CLF (Z = −2.84, −2.10; p = 0.004, 0.036, respectively). Additionally, a unit increase in CLF results in an 85% decrease in the odds that the CES score will decrease. Likewise, a unit increase in STB results in a 93% chance for the CES score to decrease. On the other hand, CST revealed no significant relationship with or effect on the CES (β = 0.0516, Z = 0.83, p = 0.406). The results of the Pearson and Deviance goodness-of-fit tests (cf. Table 5) indicate that the ordinal logistic regression model adequately fits the data (p = 0.089, p = 1.000, respectively). In Table 6, Somer's D, Goodman–Kruskal Gamma, and Kendall's Tau-a, being the summaries of the table of concordant and discordant pairs, revealed that the measure ranges from 0.06 to 0.44, which implies less than desirable predictive ability.

Table 4. OLR Results for the Effect of CLF, CST, and STB on the CES.

Predictor	**Coef**	**SE Coef**	**Z**	***p***	**Odds Ratio**	**95% Lower**	**CI Upper**
Const (1)	0.381833	1.70294	0.22	0.823			
Const (2)	2.62859	1.64698	1.60	0.110			
CLF	−0.168192	0.0591806	−2.84	0.004	0.85	0.75	0.95
CST	0.0515602	0.0620875	0.83	0.406	1.05	0.93	1.19
STB	−0.0769791	0.0366599	−2.10	0.036	0.93	0.86	0.99

Log-Likelihood = −126.035. Test that all slopes are zero: G = 19.714, DF = 3, p-Value = 0.000.

Table 5. Goodness-of-Fit Tests for the Ordinal Logistic Regression Results for the Effect of CLF, CST, and STB on the CES.

Method	Chi-Square	DF	*p*
Pearson	873.950	819	0.089
Deviance	238.485	819	1.000

Table 6. Measures of Association for the Effect of CLF, CST, and STB on the CES (Between the Response Variable and Predicted Probabilities).

Pairs	Number	Percent	Summary Measures	
Concordant	11,198	71.5	Somer's D	0.44
Discordant	4334	27.7	Goodman–Kruskal Gamma	0.44
Ties	126	0.8	Kendall's Tau-a	0.06
Total	15,658	100.0		

5. Discussion

Our sample constituted religiously affiliated students (Catholics) who openly expressed optimism towards environmental protection, as distinguished from studies (Hope and Jones 2014) that showed significant associations between being non-religious and pro-environment behavior and beliefs in general. The result is not aligned to negative impressions of young people who are said to "have pessimistic views of the future" (Smith 2009, p. 671), thus expressing pessimism for a sustainable future. Our findings confirm the theorized interaction between Catholic religious instruction and students' environmental attitudes (Bacolcol 2016; Bretana and Concepcion 2021; Effiong 2011). Hence, we affirm Christian Life Formation inputs and students' beliefs and environmental responses as predictors of Christian environmentalism in our sample. However, such interactions underscore that students are veering away from a theocentric view of ecology when considering the CLF input and STB perceptions. The result implicitly suggests that religious instruction may have followed an environmental model different from a theocentric model of environmental attitudes, which the CES is designed to assess. In addition to the theocentric model, other environmental models are driven by anthropocentric, developmental, ecocentric, and geocentric views (Hoffman and Sandelands 2005). Anthropocentric views see the human person at the center of the worldview as the dominant figure. Many years ago, Christian conservatism was blamed for its anthropocentric interpretation (White 1967) of the Christian Scriptures, which remains reflected in recent studies with Christians, especially in the U.K. (Hope and Jones 2014). Developmental views see the world in relation to human development. The world serves human growth and social development. Ecocentric views emphasize the equal value and dignity that animals and plants possess, side by side with human inhabitants. Tom Berry's (1988) work and Schultz (2000) study typify an ecocentric appreciation of the world where a perspective favoring animal life forms and the Earth takes primary consideration. Geocentrism views the world at the center of human thought and decisions. It sees humans at the service of nature and its resources. Could the CLF courses in general have emphasized a humanistic view? Such a possibility is feasible considering two outcomes from the result: First, CST perceptions failed to load as a significant predictor of the CES. Second, STB, which reflects the individual environmental views and behavior of students, was loaded as a significant predictor. For this sample, the missing effect of CST on the CES may suggest that the informants do not look at the theocentric views from the standpoint of CST principles but with respect to their personal appreciation of the world and behavior towards it. This maybe explained further by the fact that the current CST module need to give more attention to integrating environmental issues into Catholic social principles, which explains the students' struggle to integrate ecological issues in appreciating the social teachings. While the CLF courses encompass

a comprehensive set of teachings rooted in Catholic values, the attention given to environmental topics to enhance awareness (Rahmawati et al. 2020) within the CST module needs adjustment. This limitation suggests a potential gap needing attention to address ecological concerns within the institution's Catholic education curriculum (Hungerford and Volk 1990). The result is consistent when students draw upon their own personal attitudes and behavior towards the environment (STB) which comparatively bears a greater impact on their environmental attitudes. The more personally committed they are to practical acts of conservation (STB), the less likely they are to see the world in terms of theological appreciation or see the sanctity of nature/the world (Retnaselvam and Singh 2019). Overall, our sample reflects the students' formed mindset on practical solutions to the environment, rather than an incline towards a theocentric appreciation of ecology/the environment. If the goal of environmental education is to increase knowledge and awareness of environmental issues and needs (Westover 2001), CLF has satisfied this intent. In addition, our study supports a previous finding (Begum et al. 2021) citing religious values as an influential factor in the formation of environmental behavior, thus also supporting the Catholic Church's advocacy in promoting environmental awareness in the country.

While the present model's predictive ability—and, thus, the ability of our theorized model to provide general useful predictions—is limited, nonetheless, we provide initial information about the strength, or weakness, of an underlying causal relationship between students' perceptions of Christian Life Formation inputs, students' environmental initiatives, and students' theocentric mindset. Our model's initial explanatory ability shows how a theocentric environmental model may be initially accounted for in the affirmative or negative through Religious Education and individual practical acts in favor of the environment. Using value theory, the theocentric model behind the CES places intrinsic–instrumental valuing (Schaefer 2005) as strategic means to link theological notions of the goodness and sanctity of creation and moral responsibility with the overall Christian vocation to care for the Earth. For Religious Education, the present findings support RE's commitment (Altmeyer 2021) to lead young students to advocate for environmental sustainability through protection. Further, the result provides insights into adjustments that CLF may undertake if it wants to bring students towards a theocentric appreciation of ecology. The CES may be used further to test how students in other contexts may react to a theocentric model of environmentalism.

6. Conclusions

Researchers (Kollmuss and Agyeman 2002) acknowledge that the explanatory models of predictive factors that influence student environmental attitudes are complex, considering numerous theorized predictors that include cultural, economic, humanistic, and psychological factors, among others. In the absence of a related explanatory model of predictors for Christian environmentalism in our country or in the Asian context, we chose to single out religious formation as a predictive factor to explain Christian environmentalism, having considered that religious behavior and a religious mindset are admittedly essential to cultural and social growth in most societies, past and present (Ives and Kidwell 2019). We provided preliminary local evidence affirming the argument that favors the interactions between religious instruction (CLF) and environmental behavior (STB) and environmental attitudes (CES). The failure of CST to significantly load invites attention to the current course content of CST if the institution wants to redirect student views and behavior towards a theocentric appreciation of the world.

Supplementary Materials: The following supporting information can be downloaded at: https://drive.google.com/drive/folders/1a5c_5zVqvCBRPZFw3iDFgwt771DG_ZxG?usp=drive_link.

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