



RESEARCH PAPER

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Correlates of students' beliefs on environmental protection: Awareness, compliance, and sociodemographic influences

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ABSTRACT

Environmental awareness involves understanding the fragility of the environment and the importance of its protection. As population growth, industrialization, and urbanization continue to intensify, natural resources are increasingly threatened, leading to environmental challenges such as pollution, climate change, global warming, acid rain, and ecosystem degradation. This study examined the correlates of students' beliefs on environmental protection, focusing on awareness, compliance, and selected sociodemographic factors. A descriptive-correlational research design was employed involving 938 students from the different colleges of Cagayan State University–Carig Campus, the largest campus in terms of student population. Data were analyzed using descriptive statistics, one-way analysis of variance (ANOVA), Pearson product-moment correlation, and multiple linear regressions. Results revealed that students exhibited a high level of beliefs regarding environmental issues and concerns, with an overall weighted mean of 3.87. Among the dimensions assessed, environmental concern obtained the highest rating (\bar{x} = 4.26), followed by environmental attitude (\bar{x} = 4.09), green consumption (\bar{x} = 3.95), and economic growth control (\bar{x} = 3.84), while anthropocentric beliefs were rated at a moderate level (\bar{x} = 3.21). Significant differences in environmental beliefs were observed across year level (p = 0.003), nationalism (p < 0.001), religiosity (p < 0.001), expectation in life (p = 0.001), and expectation in the future (p = 0.041), but not across gender (p = 0.235) and college affiliation (p = 0.095). Furthermore, environmental awareness, compliance, nationalism, year level, awareness of environmental management laws, and level of satisfaction significantly predicted students' beliefs regarding environmental protection.

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INTRODUCTION

“Man is what he is today”. He may save or destroy his environment. He may extend effort to salvage it from the “damage zone” by providing solutions to help it return to its blooming, amazing and wonderful old glory or he may contribute more to its depletion and/or extinction. Man is a part of the environment, and it is indispensable for his survival (Panigrahi, 2016), he cannot go without it.

It is observed that degradation of environment mostly occurs due to destruction of natural environs (Larijani and Yeshodhara, 2008). “The rapid depletion of the earth’s natural resources and the fast-degrading environment are the realities which can no longer be denied” (Rogayan and Nebrida, 2019). Now, there is a cry all over for protection and preservation of such natural resources. The increasing population, industrialization and urbanization have fueled the fire by creating tremendous pressure on natural resources. Further, it has ensued in many ecological and environmental crises like contamination, climate change, global warming, acid rain, and biodegradation. Everyone is now concerned about the environment, including academics, intellectuals, scientists, policymakers, and governments worldwide (Tafli and Ateş, 2016).

According to Jusoh *et al.* (2018), environmental awareness is the understanding of our environment's fragility and the necessity of protecting it. It also entails paying attention to our surroundings. Furthermore, environmental consciousness (Gopinath, 2014) is an important factor that cannot be ignored or neglected without possible repercussions. The depletion of natural forests and wildlife, along with the effects of global warming, are reflected in the current situation. Furthermore, as noted by Gopinath (2014), the startling increase in illnesses like cancer that are linked to pollution and uncontrolled pesticide use is a tragedy that could have been avoided for humanity.

The application of knowledge from various disciplines to environmental education investigate and control the environment (Maharaj-sharma, 2015; Arunkumar,

2012). It's is more socially relevant today, that it helps us recognize, comprehend, and create a checklist, and stop any developmental activities that endanger the environment or contaminate the air, water, or soil. Our existence and subsistence. Raising awareness and educating our citizens is crucial particularly the youth, who form the foundation of our nation. In this way they will gain understanding, skills and values that will resolve environmental problems in the best possible way (Younis, 2015).

The study generally determined the correlates of students’ beliefs on environmental protection. Specifically, it sought to answer the following questions:

1. What are the characteristics of the respondents?
2. What are the beliefs of the respondents regarding environmental protection?
3. Is there a relationship between the beliefs on environmental protection of the respondents and their profile characteristics?
4. Is there a difference in beliefs of environmental protection of respondents when grouped by sex?

MATERIALS AND METHODS

Research design

A mixed-method sequential explanatory research design was employed in this study. This method has two distinct phases, the quantitative and the qualitative part. In this design, the quantitative data is collected and analyzed first. The qualitative data are collected and analyzed to help explain, or elaborate on, the quantitative results obtained in the first phase (Creswell *et al.* 2003 as mentioned by Ivankova *et al.*, 2006, Gonzales, 2023).

The quantitative part comprises the descriptive and inferential analysis of this study. While the descriptive part assessed the level of awareness of students’ belief on environmental protection.

While the associational part of the study investigated the differences and relationship of the levels of beliefs of respondent when grouped according to sex. To uncover the factors explaining the results of the study,

a sequential explanatory design was also implemented. Interviews with the student officers both campus and college officers, as study participants, was conducted to implement the sequential explanatory design.

Respondents in this study are students from the different colleges of Cagayan State University Carig Campus, the biggest campus in the university in terms of population. Samples were randomly chosen from the data collected using Excel. With a 95% confidence interval, the study aimed to reach 938 students from the different colleges. Data were gathered during the pandemic, hence the researchers opted for an online survey for the respondents.

Data gathered were treated with different statistical tools with the help of software like SPSS and Microsoft Excel to come up with different tables of factors, differences, variances and frequencies. Treated data were arranged in tables to represent its importance and to figure out how objectives can be explained in a more comfortable manner and can be understood easier for both technical and non-technical readers.

Instrument

The questionnaire comprised two sections. The first section consists of socio-demographics and 9 questions for their awareness on environmental issues and concerns. The second section is a 23-questions for respondents' beliefs about the issues and concerns related to environmental protection. The 23-questions were categorized into five dimensions which are economic growth control, environmental concerns, green consumption, environmental attitude and anthropocentric beliefs. The answers to the beliefs part of the questionnaire were given a score; 1, 2, 3, 4, and 5 stand for Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree and Strongly Agree, respectively. The statistical analysis and explanation of the answers would be 1-1.79, Very Low; 1.80-2.59, Low Level; 2.6-3.39, Moderate Level; 3.40-4.19, High Level and 4.20-5, Very High Level.

Internal consistency of the instrument was derived to ascertain reliability of the questionnaire. The reliability and validity test for both sections of the survey questionnaire was conducted using 136 respondents and incurred a 0.864 Cronbach's Alpha, which is considered statistically valid. "Even though there is no agreed-upon standard for what an acceptable Cronbach alpha value is, values as low as 0.5 can be considered acceptable" (Inkpen and Baily, 2020). Tavakol and Dennick (2012) say that it would be better if the Cronbach alpha values were between 0.75 and 0.90.

Data analyses

Data gathered were analyzed using descriptive statistics such as mean, standard deviation, frequencies and percentages. Inferential statistics such as one-way ANOVA were utilized to find out the significant difference among the respondents' belief and their profile variables. Pearson product moment correlation was used to ascertain the significant relationship between the respondent's beliefs and their awareness and support to environmental protection. Lastly, linear regression was used to determine the predictors of students' beliefs on environmental issues and concerns.

RESULTS AND DISCUSSION

Characteristics of the respondents

Table 1 shows the profile of the respondents. In terms of gender, among the 938 respondents, 495 (52.8%) are females and 440 (46.9%) are males and 3 (.3%) belongs to LGBT group. A total of 345 (36.8%) are first year level while 294 (31.3%), 227 (24.2%), 56 (6.0%) and 16 (1.7%) are third, second, fourth- and fifth-year students. Most of the respondents came from the college of engineering (252 or 26.9%) since the same college comprised the most students in the campus.

Most of the respondents have moderate levels of nationalism with a frequency of 580 (61.8%) while some have high levels of nationalism at a frequency of 326 (34.8%) and very few have a low level of nationalism at 32 (3.4%).

Table 1. Profile of the students

Category	Classification/ Level	Frequency (n=938)	Percent (%)
Gender	Male	440	46.9
	Female	495	52.8
	LGBT	3	0.3
Year level	First year	345	36.8
	Second year	227	24.2
	Third year	294	31.3
	Fourth year	56	6.0
	Fifth year	16	1.7
College	CAS	177	18.9
	CHK	62	6.6
	CICS	185	19.7
	CIT	162	17.3
	COEA	252	26.9
	CPAD	67	7.1
	CVM	33	3.5
Level of nationalism	Low	32	3.4
	Moderate	580	61.8
	High	326	34.8
Level of religiosity	Low	39	4.2
	Moderate	560	59.7
	High	339	36.1
Level of expectation in life	Low	82	8.7
	Moderate	431	45.9
	High	425	45.3
Level of expectation in the future	Low	32	3.4
	Moderate	251	26.8
	High	655	69.8

Respondents in terms of their religiosity, have a moderate level at 560 (59.7%), while 339 (36.1%) of the respondents have high level and very few also have low level of religiosity at 39 (4.2%). Moreover, most of the respondents do not have much expectation in life with a frequency of 431 (45.9%). However, there is a slight difference for those who have a very high level of expectation at a frequency of 425 (45.3). There are few respondents who have little expectation in life at a frequency of 82 (8.7%). A large number of respondents with a frequency of 655 (69.8%) have a very high level of expectation in the future, while 251 or 26.8% have similar expectations with today and very few of respondents have bleak/dim expectations in the future. Such high expectation for their future is articulated by one of the study participants in this statement: "Their high expectations for the future, seems like students are pretty optimistic.

Maybe it's because they're getting an education, thinking about their career, and they have this sense that society is going to get better. It's like they're looking ahead and believing that things are going to get brighter down the road."

Furthermore, according to one of the study participants, when asked why students have moderate levels of nationalism, religiosity, and expectation in life but have a high level of expectation in the future: "In my opinion, the reason why students have a high level of expectation in the future is that there's a lot of unknowns and possibilities that may come and affect a person's life. In our current society, the students may have a mediocre life which is directly affected by the government or the current status of the country. This makes them have moderate levels of nationalism.

In the religious part of the table, my observation of the current generation of youth is that we they are not sincere enough for our religion. The only thing that keeps them from being connected to religion is their parents. That is why religiosity is of moderate level. Collectively, students are expecting changes and success despite having challenges in life. I think being part as a Filipino wherein we always smile while having our own problems is one factor that helps contribute the high level of expectation in the future."

Assessment of students' belief on environmental protection

Table 2 is the assessment of the students' beliefs according to dimensions. Results of the study expose the respondents' beliefs on environmental protection. On Economic growth control issues and concern, the category mean is 3.84, which is high. In this dimension, the respondents rated all five (5) statements a high level. This means that the respondents are aware of the threat and consequences of the different activities for economic growth.

With regard to the environmental concern dimension of the environmental issues and concerns of the respondents, the category mean is very high ($\bar{x}=4.26$). This means that the respondents have high regard on these statements. This maybe because they are seeing the effects and the danger of pollution, global warming, deforestation and the like will bring if it will not be controlled and be given solutions.

Meanwhile, on green consumption dimension, the respondents still rated it as high ($\bar{x}=3.95$).

The respondents have good perception on recycling and recycled products as shown in the table at a category means of 4.02 and 4.03 respectively. This means that they truly care for their environment. This is evident in

one of their in-school activities which is the collection of plastic bottles and papers which are used during exams and papers which are used during assessments.

Students are collecting these recycled materials and are bringing them to junk shops in exchange for some amount which they are using for some projects.

Table 2. Assessment of students' beliefs on environmental protection per dimension

Environmental issues and concerns	Weighted mean	Description
Economic growth control		
We are approaching the maximum number of people that Earth can support.	3.82	High
The balance of nature is very delicate and can easily be disturbed.	3.94	High
Urban growth is increasingly harmful to the environment.	4.03	High
I'm favorable to an international tax for the countries that generate more greenhouse gases.	3.66	High
The durability of a product reduces its environmental impact, even if it is more expensive.	3.74	High
Category mean	3.84	High
Environmental concerns		
The reduction of global warming needs priority attention from all countries.	4.48	Very high
Deforestation of large forests compromises the future of humanity.	3.84	High
The pollution of rivers and lakes affects the quality of human beings' life.	4.53	Very high
Air pollution in my town is something that worries me a lot.	3.91	High
The disposal of urban waste should require continued attention from development managers.	4.36	Very high
The pollution of the oceans deserves priority attention from all countries.	4.45	Very high
Category mean	4.26	Very high
Green Consumption		
A certification indicating that a product was made following environmental standards helps my purchase decision.	3.97	High
When I buy, I prioritize products that are more easily recycled.	4.02	High
Choosing a product, I prioritize the environmental aspects rather than the price/quality.	3.79	High
Between two similar products, I prefer the one produced with recycled raw materials.	4.03	High
I purchase products that do not waste resources in their packaging.	3.96	High
Category mean	3.95	High
Environmental attitude		
I must save electricity in my house to contribute to the improvement of the environment.	4.36	High
I must use public transportation to help the environment.	3.43	High
I have to save water at home to take care of the environment.	4.44	Very high
How ease the disposal or recycling is always a consideration when buying a product.	4.12	High
Category mean	4.09	High
Anthropocentric beliefs		
Human beings have the right to modify the natural environment to fit their needs.	3.56	High
Humanity is tasked to rule the rest of nature.	3.48	High
Humanity does not need to adapt to the natural environment because it can modify it to fit its needs.	2.58	Low
Category mean	3.21	Moderate
Overall weighted mean		High

The respondents' environmental attitude is high ($\bar{x}=4.09$). The high result on their environmental attitude depicts how they value acts in contributing environmental protection and awareness such as the use of public transport, saving water and electricity and the like.

As regards the anthropocentric beliefs of the respondents, Table 2 reveals that they have a moderate level of agreement on this dimension ($\bar{x}=3.21$). This means they are in between anthropocentrism and ecocentrism, which both agree that issues and concerns must have to be addressed so that quality of life and

healthy living will be achieved and preserved. This may also imply that the respondents believed that even if there were no issues, still nature is worth preserving because of its transcendental dimensions.

Likewise, as stated by one of the study participants: “Students have already achieved a very high level of knowledge regarding environmental protection; however, certain issues are now easily be prompted throughout many platforms. It is seen that students have high level of knowledge regarding environmental protection nevertheless; there is still not enough knowledge of students onto practical and actual protection on these issues.

Difference on the beliefs related to the environment concerns and issues of the students and their profile variables

Table 3 displays the test of difference regarding the students' beliefs related to environmental concerns and their profile variables. It is thought that there is no big difference in the beliefs of people who care about the environment when they are grouped by gender. The study indicated that there is no significant difference in the respondents' awareness and beliefs regarding environmental protection when categorized by gender. The p -value of .235 is higher than 0.05, so the null hypothesis is accepted. This means that their beliefs and awareness are the same, no matter what gender they are. Nahar *et al.* (2022) in their study asserted that respondents' level of perception on environment concerns and issues in their study were both knowledgeable and found no significant difference in terms of their environmental perceptions.

In contrast, Gopinath (2014) in his study determined that female students have higher awareness or knowledge regarding the protection of environment. Likewise, Hong *et al.*, (2021), in their study they found out that women are more aware in undertaking environmental protection, like recycling and the like. Furthermore, in their study, there are obvious differences in their environmental knowledge and beliefs.

Irrespective of what college they come from, their beliefs and awareness of environmental protection are the same. This shows that the respondents have a very good background in protecting the environment. Despite their diverse perception on the implementation of the environmental management laws, still they show care and respect to their environment. Result of this study is in contrast to the study of Hassan *et al.* (2010) as they found out that those who are at the “science stream” students have higher awareness compared to those who were at the “arts stream”.

On the other hand, respondents' year level, level of nationalism, level of religiosity, level of expectation in life and level of expectation in the future have incurred a significant difference.

All p -values of said variables or groups are lower than 0.05, thus rejecting the null hypothesis.

This implies that the respondents' year level may affect their belief related to the environmental concerns and issues. It may be because as they grow older, their beliefs on environmental protection change, whether in a positive way or the other.

With regard to the respondents' beliefs and their level of nationalism, since the respondents too have diverse level of nationalism, their belief to environmental protection also differs. This shows that the diversity of their level of nationalism also affects their beliefs on environmental protection. In their study (Hamada *et al.*, 2021), they stated that “nationalism, blind patriotism, and conservatism are associated with skepticism toward environmental problems in one's country, with negative responses toward environmental policies perceived as being due to pressure from out-groups and international competition for scarce resources.” This means that since they have diverse level of nationalism, their beliefs also differ due to the different problems and negative view on the implementation of environmental laws in their communities.

Table 3. Test of difference on the beliefs related to the environment concerns and issues of the students and their profile variables

Variables/Groups	Mean	SD	F-ratio	p-value	Statistical decision
Gender			1.451	.235	Accept Ho
Male	3.83	.43			
Female	3.88	.44			
LGBT	3.99	.48			
Year level			4.080	.003	Reject Ho
First	3.82	0.45			
Second	3.80	0.44			
Third	3.93	0.41			
Fourth	3.81	0.45			
Fifth	3.96	0.43			
College			1.806	.095	Accept Ho
CAS	3.99	0.37			
CHK	3.85	0.49			
CICS	3.82	0.39			
CIT	3.92	0.50			
COE	3.81	0.41			
CPAD	3.80	0.43			
CVM	3.88	0.44			
Level of nationalism			23.360	.000	Reject Ho
Low	3.68	0.67			
Moderate	3.79	0.41			
High	3.98	0.43			
Level of religiosity			11.739	.000	Reject Ho
Low	3.81	0.51			
Moderate	3.80	0.42			
High	3.95	0.43			
Level of expectation in Life			7.096	.001	Reject Ho
Little	3.78	0.49			
Not Much	3.81	0.40			
Much	3.91	0.45			
Level of expectation in the future			3.201	.041	Reject Ho
Bleak/Dim	3.87	0.31			
Similar with today	3.80	0.43			
Bright/Secure	3.88	0.44			

As to the respondents' beliefs and the level of religiosity, study shows that there is significant difference to respondents' beliefs with respect to the level of religiosity at f-ratio of 11.739, and $p < 0.005$. This means that the higher the level of religiousness, the higher the degree of their concern to the environment. This study is also affirmed by Skirbekk *et al.* (2020) stating that "previous research has found that religion influences many aspects of lifestyle that affect the environment". Eom *et al.* (2021), also affirms this result and stated that religion is influential in defining psychological processes associated to environmental behavior.

As to the level of expectation in life and level of expectation in the future, the respondents also showed significant differences in these variables with p-value of 0.000 and 0.041 respectively. This implies

that respondents have different views of life and expectations in the future. This maybe because they have also different orientation and status in life since the respondents came from diverse backgrounds.

CONCLUSION

Based on the results of the study, the respondents have high level of beliefs on environmental issues and concerns. This implies that they have high regards on the issues and concerns to protect the environment as also revealed in their level of awareness on the environmental issues of the community together with their awareness to the environmental management laws.

However, their moderate level of compliance to environmental management laws must be strengthened.

Meanwhile, attitude of the respondents towards environmental issues and concerns differs when grouped according to their profile variables except for gender and college where they belong.

Further, there exist a significant relationship between the respondents' beliefs and their awareness to environmental issues and concerns of the community, management laws, compliance to management laws, support and implementation of the management laws in the community. Lastly, their level of awareness of environmental management law, level of nationalism, level of satisfaction, year level, level of compliance and environmental awareness show that all variables statistically significantly predicted beliefs of students. Hence, by giving more pro-active involvement of students to environmental protection activities will uphold their high concerns towards environment care.

RECOMMENDATIONS

The university should also teach people about the environment outside of school so that they can solve environmental problems and be aware of them. One way to do this is for the academic society to plan a social event with panel discussions, meetings and talks. This will let most people know, especially students and families who live in remote areas. Visual communication tools should give more time and attention to programs about the environment. It should be guaranteed and spread that the government and non-governmental organizations' projects to raise awareness of and protect the environment get a lot of attention.

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