Special Issue - Tourism and Hospitality in the New Normal Maybelle N. Dela Cruz and Virginia Natividad-Franco / Int.J.Tour.Hosp. 1(S1) (2021) S8-S16 https://doi.org/10.51483/IJTH.1.S1.2021.S8-S16



# International Journal of Tourism and Hospitality

Publisher's Home Page: https://www.svedbergopen.com/



ISSN: 2709-9768

Research Paper

**Open Access** 

## Assessing the Level of Environmental Awareness and Attitudes of Students in Bulacan State University- Hagonoy Campus During Pandemic

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## **Abstract**

The study aimed to determine students' level of environmental awareness and attitudes through environmental education. The study utilized a mixed-method type of research. The study's respondents are the 258 students from BS Hospitality Management, and Tourism Management enrolled in the 2<sup>nd</sup> semester of the SY 2020-2021. The survey instrument with 36 questions on environmental awareness and attitudes was adopted from the study of Bozoglu et al. (2016). Likewise, open-ended questions about the problems encountered about the environment in google forms were also sent via messenger. Students' overall level of environmental awareness got a weighted mean of 3.38 with a verbal interpretation of moderately aware. The statement which got the highest mean is Environmental activities help raise awareness of environmental issues. This garnered a mean of 4.42, with a verbal interpretation of aware. It also means that students are mindful that environmental issues are addressed through activities in school, such as cleaning brigade and tree planting. Furthermore, the environmental attitude of students is interpreted as agree with a weighted mean of 3.79. It means that the majority of the students adhere to the outcomes of environmental education. Regarding the problems encountered about the environment during the Pandemic, the most common responses were the heavy floods, slow or almost no internet connection, garbage in areas, noisy surroundings which affect the study, and the lack of discipline. However, some programs and activities to respond to the issues were suggested to enhance students' awareness of environmental education and create a more helpful outlook.

Keywords: Environment, Awareness, Attitudes, Hospitality and Tourism Management

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#### Article Info

Volume 1, Special Issue 1, December 2021

Accepted: 21 November 2021 Published: 05 December 2021 https://doi.org/10.51483/IJTH.1.S1.2021.S8-S16

Received: 09 August 2021

### 1. Introduction

The Covid-19 Pandemic has become a significant public health concern worldwide. Hallema et al. (2020) emphasized that the environmental responses to the economic slowdown triggered by the Pandemic resulted in a negative effect on human beings and organizations on the environment. However, Sarkis et al. (2020) highlighted that the Coronavirus outbreak also has positive environmental consequences: significant reductions in air pollution due to the large-scale slowdown in economic activity.

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The UN environment reckoned that environmental education might contribute to such a relevant issue by improving quality education and environmental awareness. It is a pedagogical field that promotes the balance between humanity and nature through interdisciplinary studies and hands-on practices that should be present at all educational levels to generate sustainable benefits for society.

The environment is defined as all factors affecting an individual or society's physical, biological, socio-psychological, socio-psychol

In the Philippines, as stated in the Republic Act 9512 series of 2008, the Department of Education (DepEd), the Commission on Higher Education (CHED), and the Technical Education and Skills Development Authority (TESDA), in coordination with the Department of Environment and Natural Resources (DENR), the Department of Science and Technology (DOST) and other relevant agencies, in consultation with experts on the environment and the academe, lead the implementation of public education and awareness programs on environmental protection and conservation through collaborative interagency and multi-sectoral effort at all levels.

Environmental problems are being battered with more university education in the long run since universities teach young groups, expected to be the future leaders in many different areas in the society and the decision-makers. Thus their students are expected to deal with sustainability issues in their personal and professional lives (Bozoglu *et al.*, 2016).

Universities have the accountability to prepare their graduates for preserving the environment. Every department is related to the environment, and their graduates' professional activities can somehow affect the environment. Hence, every department should prepare responsible graduates for a more livable environment. The emerging interest of universities in increasing the consciousness of environmental values makes it necessary to explore the students' environmental awareness, Attitude, and behavior (Bozoglu *et al.*, 2016). The growth of environmental issues has produced many studies with students explaining the distinction between and among each other's knowledge, awareness, attitudes, and behaviors toward the environment.

Therefore, the researchers aimed to determine the environmental awareness, attitudes, and problems encountered by students in one of the top-performing schools in the province—the Bulacan State University-Hagonoy Campus. BulSU-HC is a nature-friendly school surrounded by trees and plants, which gives a relaxing environment for the students and teachers. In 1994, the Municipality of Hagonoy had donated approximately 8.5 hectares of land located at Iba-Carillo, Hagonoy, Bulacan to address the need of Bulacan State University (BulSU-HC). In June 2011, BulSU-HC became fully operational, offering four courses, such as Bachelor of Elementary Education – Generalist, Bachelor of Science in Hotel and Restaurant Management, Bachelor of Science in Information Technology, and General Engineering. The following year other courses like Bachelor of Science in Tourism Management, Bachelor of Science in Criminology, and the Certificate in Two-Year Industrial Technology major in Food Technology and Computer Technology were also offered.

In sustaining a fine-looking environment, it is just proper to teach the students about the environment; thus, the present endeavor will assess the level of environmental awareness and attitudes of BulSU students. Through environmental education and awareness, the researchers believe that the students' attitudes can demonstrate practices that care for the environment. Hence, students should acquire an appropriate range of attention and perspectives about the atmosphere while they were in school to achieve a critical judgment.

#### Objectives of the Study

- 1. To determine the environmental awareness of students at Bulacan State University.
- 2. To determine the environmental attitudes of students at Bulacan State University.
- 3. To identify the problems encountered regarding the environment during the pandemic.
- 4. To identify possible solutions to the environmental problems and enhance the environmental awareness and attitudes of students.

### 2. Literature Review

**Environmental Education:** Environmental education is a progression on the people's knowledge, awareness about the environment, and associated issues develop the necessary skills and expertise to address the challenges and foster attitudes, motivations, and commitments to make informed decisions responsible action (Sola, 2014). Environmental education is the learning activities in the environmental field organized by all levels of education (Prihantoro, 2015). It is predicted to change the behavior and patterns of public view towards positively associated environmental concerns and foster a love for the environment early on.

Also, it is vital to motivate students' perceptions to upkeep policies and programs that support efficient use of resources and implement actions, reducing environmental damage, resulting in sustainable development (Anbalagan and Shanthi, 2015). It is considered helpful to have a good quality of life to developing ideas and practices for maintaining a sustainable environment (Laiphrakpam *et al.*, 2019). Likewise, environmental education can increase the knowledge and awareness of the students that can lead to behavioral change.

Sola (2014) stated that environmental education can be incorporated into prevailing disciplines, or it can be imparted as a subject in its own right. It can be taught as early as primary school as well as in adult education programs.

As stated in Republic Act 9512, An Act to promote Environmental Awareness through Environmental Education and for other Purposes. Yildiz and Budur (2019) cited that school gardens are the best places to educate and inform learners of responsibility in arranging, organizing, and decorating the fields.

Henceforth, introducing environmental issues to students to integrate environmentally related subjects into traditional course offerings can be another solution (Wagner, 1997). Likewise, outdoor activities such as field trips, having a picnic in green areas, walking in nature, or trekking and hiking activities will help educators and students with opportunities to absorb environmental issues, and these techniques are recognized as effective means of teaching awareness of the environment (Palmberg and Kuru, 2000).

Furthermore, environmental in-service training programs for teachers delivered at centers for interdisciplinary environmental education are considered important priorities (Laiphrakpam *et al.*, 2019).

**Environmental Awareness:** Environmental awareness can be heightened by education at different levels to improve people's knowledge and attitudes. It is expected that this will boost their readiness to take individual and collective action, alleviate environmental problems, and promote environmental conservation (UNESCO 1980; Laiphrakpam *et al.*, 2019). It includes understanding the main relationships between nature and human beings and initiatives for protecting the natural and future environment. Many studies have pointed out that environmental awareness is closely related to human perception of environmental problems, inter-dependence and relations between humans and nature, people's behavior, and Attitude towards the environment (Yingchao *et al.*, 2011).

According to Li (2018), environmental awareness involves absorbing, understanding, storing, and organizing information about the environment. It does not merely involve physical elements of the environment, per se, but also emotions, experiences, perceptions, and attitudes. People's awareness is recognized as a powerful tool in protecting the environment, and information through education decidedly affects behavior (as cited in Gonzaga, 2016).

**Environmental Attitude:** Any object outside of self exists in the individual's environment, so all attitudes except those beliefs about self could be correctly called environmental attitudes (Heberlein, 1981). Environmental attitudes have been defined as "the collection of beliefs, affect, and behavioral intentions a person holds regarding environmentally related activities or issues" (Schultz *et al.*, 2004). Although this three-component model remains the traditional view of attitude structure, new theoretical approaches conceptualize attitudes as evaluative tendencies that can be inferred from and influence beliefs, affect, and behavior (Milfont and Duckitt, 2010).

Students have always played an active part in the events leading to the development of environmental awareness. Thus, many studies have been carried out to understand the environmental attitudes and behaviors of the students. Besides, the fact that the students will be the ones who will manage and consume the future resources has been effective in doing studies related to the students (Müderrisoglu and Altanlar, 2011).

As to Boeve-de Pauw and Van Petegem (2010), researchers have demonstrated that younger people hold more environmentally positive attitudes than older people. In some literature, age appears to correlate to environmental attitudes (Arcury, 1990). Young people are believed to be less integrated into society than are adults and will thus more readily criticize industrial and governmental policies.

Feinberg and Willer (2013) cited in their study that a specific to environmental attitudes, past research suggests that perceiving environmental issues in moral terms is related to the valence and strength of individuals' environmental attitudes.

## 3. Methodology

The study utilized the mixed-methods type of research. Mixed-methods research integrates qualitative and quantitative data within a single study (Halcomb and Hickman, 2015). Mixed methods take advantage of the strengths of both qualitative and quantitative procedures while improving on their weaknesses to provide an integrated, comprehensive understanding of the topic under investigation (Scammon *et al.*, 2013).

The study's respondents are the Bachelor of Science in Hospitality and Restaurant Management and Bachelor of Science in Tourism Management students. From the 654 total enrolled students for the 2<sup>nd</sup> semester of the school year 2020-2021, the researcher came up with a sample of 258 as computed using the sample size calculator by Raosoft, Inc.

The study used a validated survey instrument adapted from Bozoglu *et al.* (2016) entitled *Factors Affecting The Students' Environmental Awareness, Attitudes, And Behaviors In Ondokuz Mayis University, Turkey.* The instrument is composed of two parts. The first part measures the level of environmental awareness of students, and the second part is about the status of students' environmental attitudes. The survey questionnaire was disseminated via messenger.

The Likert scale measurement was used for every statement of environmental awareness on a 5-point scale. The verbal interpretation is as follows, 5 – very much aware, 4 – aware, 3 – moderately aware, 2 – slightly aware, and 1 – unaware. For the Attitude, Likert scale interpretations are as follows, 5 – strongly agree, 4 – agree, 3 – neutral, 2 – disagree and 1 – strongly disagree. Descriptive statistics such as frequency, mean and weighted mean were used in the study.

#### 4. Results and Discussion

Table 1 presents the level of environmental awareness of students in Bulacan state University-Hagonoy campus.

Tabl	Table 1: Level of Environmental Awareness of Students in Bulacan State University							
No.	Indicators	1	2	3	4	5	Mean	Interpretation
1	Creating environmentally conscious individuals is compulsory for future generations to live in a healthy and safe environment	0		31	109	113	4.20	A
2	Using insecticides and herbicides for agriculture is not harmful to the	0	5	31	109	113	4.28	Aware
	environment	15	41	89	89	24	3.26	Moderately Aware
3	Environmental activities help raise awareness of environmental issues	1	1	22	98	134	4.42	Aware
4	Environmental protection is a constitutional obligation	1	3	28	114	112	4.29	Aware
5	Field activities related to the environment are a waste of time; class activities are important.	62	67	52	47	30	2.67	Moderately Aware
6	If universities carry out more activities on the environment, it will help better understand environmental issues	2	5	40	102	109	4.21	Aware
		2	3	40	102	109	4.21	Aware
7	Protecting the environment is a duty of the state, not people.	45	58	80	41	33	2.84	Moderately Aware

o.	Indicators	1	2	3	4	5	Mean	Interpretation
8	Human mistreat the environment	4	11	91	83	69	3.78	Aware
9	Environmental education activities are useful only for children	54	76	49	47	31	2.71	Moderately Awar
10	A squatter is not an environmental problem	46	65	84	43	19	2.70	Moderately Awar
11	Environmental problems are exaggerated	35	38	87	67	29	3.07	Moderately Awar
12	Rapid population growth is a serious environmental problem	4	5	60	121	67	3.94	Aware
13	Air, water and soil are inexhaustible resources	13	19	105	85	36	3.43	Moderately Awar
14	The necessity of using water filters at homes is an indicator of water pollution	9	33	97	87	32	3.39	Moderately Awar
15	Being sensitive to environmental problems is not an obstacle for the development of a country	14	24	98	97	25	3.37	Moderately Awar
16	Western people invented the idea of environmental protection to prevent the development of developing countries	13	13	124	77	30	3.38	Moderately Awar
17	I increasingly need more information about the effects of our activities on the environment	2	6	62	125	61	3.93	Aware
18	There is no desertification problem in Bulacan State University	10	25	138	66	17	3.21	Moderately Awar
19	Immigration affects negatively environmental problems	32	89	115	15	5	3.50	Moderately Awar
20	Delivering environmental education does not help solving environmental problems	50	81	64	48	15	2.60	Moderately Awar
21	No international institution or organization should intervene in using natural resources.	9	29	135	59	26	3.25	Moderately Awar
22	There have not been enough protest meetings for protecting the environment at Bulacan State University	8	23	122	84	21	3.34	Moderately Awar
23	The increase in natural gas usage at Bulacan State University did not contribute to the air pollution problem	21	40	124	56	17	3.03	Moderately Awar
24	The university is not sensitive enough towards environmental problems	21	33	126	60	18	3.08	Moderately Awar
25	Environmental education is not enough in Bulacan State University	15	63	102	54	23	3.03	Moderately Awar
26	People who spit on or litter the ground should have interfered.	13	46	119	61	19	3.10	Moderately Awar
	Weighted Mean						3.38	Moderately Awar

As shown on the table, the indicator with the highest mean is the statement that states that *Environmental activities help raise awareness of environmental issues*. This garnered a mean of 4.42, with a verbal interpretation of *aware*. It also means that environmental issues are being addressed through environmental activities in school, such as cleaning brigade and tree planting. Moreso, outdoor activities such as field trips, having a picnic in green areas, walking in nature, or trekking and hiking activities will help educators and students with opportunities to absorb environmental issues, and these techniques are recognized as effective means of teaching awareness of the environment (Palmberg and Kuru, 2000).

On the other hand, the statement, *Delivering environmental education does not help to solve environmental problems*, got the lowest mean of 2.60, which was interpreted as moderately aware. Perhaps, simply bringing the idea of environmental education without proper action couldn't really solve the environmental problems. As Laiphrakpam *et al.* (2019) stated, environmental education includes understanding the main relationships between nature and human beings and protecting the natural and future environment. It is considered helpful to have a good quality of life to developing ideas and practices for maintaining a sustainable environment.

However, the overall environmental awareness of BulSU-HC students obtained a weighted mean of 3.38 with the verbal interpretation of moderately aware. This indicates that the students are just in the middle of their knowledge regarding environmental awareness.

Though people's awareness is recognized as a powerful tool in protecting the environment, and information through education decidedly affects behavior (as cited in Gonzaga, 2016).

Likewise, Yingchao *et al.* (2011) stated that many studies have pointed out that environmental awareness is closely related to factors such as; human perception of environmental problems, inter-dependence, and relations between humans and nature' behavior and attitude towards the environment. Perhaps these students differ in their perceptions regarding environmental problems and the like.

Table 2 presents the level of environmental attitudes of students in Bulacan state University-Hagonoy campus.

No.	Indicators	1	2	3	4	5	Mean	Interpretation
27	We should try to protect Earth's plants and animals, even though it is expensive	4	9	106	91	48	3.66	Agree
28	Courses of the environment must be practical.	2	4	38	99	115	4.24	Agree
29	People who pollute the environment should be fined.	1	4	76	110	65	3.91	Agree
30	Newspapers, magazines, and televisions should make more programs about environmental issues.	36	30	62	74	56	3.32	Agree
31	I love to visit recreation areas outside of the city.	1	2	45	100	110	4.22	Agree
32	Courses about the environment should be compulsory.	0	1	65	104	87	4.08	Agree
33	Regardless of their position, any country engaging in nuclear testing should be protested.	4	7	101	106	40	3.66	Agree
34	I think I am very sensitive about environmental issues.	4	11	113	92	38	3.58	Agree
35	I prefer the option of highway construction to the protection of plant species.	2	10	97	106	41	3.68	Agree
36	For my country, I prefer technological development to noise pollution.	16	19	91	86	46	3.50	Neutral
	Weighted Mean						3.79	Agree

Among the indicators of environmental attitudes, the statement *Courses of the environment must be practical* got the highest mean of 4.24 with a verbal interpretation of *agree*. This means that students want a concrete application of environmental education. Like what Yildiz and Budur (2019) cited, introducing environmental issues to students to integrate environmentally related subjects into traditional course offerings can be another solution (Wagner, 1997). Likewise, outdoor activities can also be a helpful technique to increase students' environmental awareness and address environmental issues. On the other hand, the statement *Newspapers, magazines, and televisions should make more programs about environmental issues*, got the lowest mean of 3.32.

Students nowadays are keener to emerging technologies like smartphones and computers. Emerging technologies are the latest innovations that are developed for practical application (Martin, 2015). It is easy for these young generations to read and browse news about these technologies' current issues. Furthermore, students' environmental attitudes in BulSU-HC garnered a weighted mean of 3.79 with a verbal interpretation of *agree*. This means that these students favorably agreed on the environmental attitudes indicators.

Table 3	Table 3: Problems Encountered by Students About Environment During the Pandemic						
	Problems	Frequency	Percentage				
1	Heavy flood due to rain and high tide	22	0.22				
2	Slow internet connection	18	0.18				
3	Garbage (added face mask, face shield, etc.)	17	0.17				
4	Heavy noise outside (can't focus on studying)	8	0.08				
5	Lack of discipline	7	0.07				
6	Others	28	0.28				
	Total	100	100%				

Upon analyzing the different problems encountered by students about the environment during the pandemic, the top issue was the heavy floods due to rain and high tide. The town of Hagonoy is a catch basin of water from nearby areas. The high tide causes a surge in the majority of the places; added to it is the heavy rain—the second problem about the slow internet connection. The third problem is the ton of garbage. The disposed of face masks, face shields, and the like added to the trash found in the community. The next issue encountered regarding the environment is the heavy noise outside, which enables them not to study well and no focus. The last one among the issues raised is the lack of discipline among people. Most of them are not following health protocols, which makes the pandemic longer to conquer.

Tab	Table 4: Proposed Program and Solutions to the Environmental Issues and Enhance the Awareness and Attitudes Student						
	Activities	Objectives					
1	Environmental Education Symposium	To increase the environmental awareness of students.					
2	Tree Planting	To improve the air quality by filtering harmful dust and pollutants.					
3	Waste Management (Apply the 3R Approach (Reuse, Reduce, and Recycle)	To properly utilized functional waste materials for economic purposes and disposed of unnecessary ones.					
4	Clean and Green Program	To sustain the cleanliness in the environment					
5	Drainage System, Digging of River	To prevent flooding in almost all areas					
	Inclusion of an Elective Subject on Environmental Education in the Curriculum	To inculcate and apply in practice the knowledge in environmental education					

#### 5. Conclusion

This study aimed to determine students' environmental awareness and attitudes in Bulacan State University-Hagonoy Campus. It also aimed to identify the problems encountered by students regarding the environment and proposed programs to enhance the environmental awareness and attitudes and solutions to the environmental issues as experienced by students during the pandemic.

The study is supported by previous studies indicating awareness and their attitudes towards environmental education. The students are found to have a moderate awareness of environmental education. Regarding the environmental attitudes, the students agreed on the given indicators. In terms of the environmental issues raised by students, heavy floods, slow internet, garbage, heavy noise, and lack of discipline are the topmost problems encountered by the students.

After analyzing the given result, the researchers suggested activities that will enhance the students' environmental awareness and create a positive attitude towards environmental education.

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**Cite this article as:** Maybelle N. Dela Cruz and Virginia Natividad-Franco (2021). Assessing the Level of Environmental Awareness and Attitudes of Students in Bulacan State University- Hagonoy Campus During Pandemic . *International Journal of Tourism and Hospitality*. 1(S1), S8-S16. https://doi.org/10.51483/IJTH.1.S1.2021.S8-S16.