



Environmental Awareness of Tourism and Hospitality (Generation Z) Students



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Received 11 November 2021; Revised 12 May 2022; Accepted 1 June 2022

ABSTRACT: This paper analyzes the environmental awareness of Generation Z students taking up Hospitality and Tourism in the Philippines. Using the New Ecological Paradigms (NEP) scale, this study seeks to determine the environmental values of this generation of students and how their choice of course (Hospitality or Tourism), year level, and gender may play a role in their awareness level. This inquiry addresses the research gap reflected in the lack of study on the environmental awareness of Generation Z, who are currently university students from Southeast Asian countries, especially those majoring in Tourism and Hospitality. The result showed that Generation Z is more inclined to having a pro-environmental or ecocentric worldview and a somewhat anthropocentric worldview. The course/major of the students, gender, and year level significantly affect the students' answers to some NEP statements, most of which are based on anthropometric viewpoints. These results show that the students believe in the change that humans can create, which supports the mentality of this generation, which includes attraction to initiatives that foster social change. This result also showed that this generation believes that humanity can and will be able to promote change.

KEYWORDS: New Environmental Paradigm; New Ecological Paradigm; environmental awareness, sustainability; Generation Z; Hospitality and Tourism students

Introduction

The World Tourism Organization reported that there were 1.5 billion international tourists in 2019, an increase of four percent from the previous year (UNWTO, 2020). As tourism contributes to the balance of trade, provides employment, and increases entrepreneurship, its influence on the economy is indisputable (Arrobas et al., 2020). The exponential growth of tourism, however, has also raised some concerns, such as sustainability issues (Saarinen, 2018, Satta et al., 2019).

There has been a question about how well prepared current students are to handle "challenges and respond to opportunities" (Higgins-Desbiolles, 2020). Younger generations will be impacted by the environmental problems that result from the actions of the present age; thus, there is a need for them to be equipped with accurate ecological knowledge and skills to

develop sustainable solutions (Vicente-Molina et al., 2013). Education plays an important role in forming the future shape of society when it comes to sustainability. Since students will become future leaders and decision-makers, they need to learn skills and competencies to prepare them to face future challenges (Arrobas et al., 2020; Boyle et al., 2015). The current batch of students born in the mid-1990s and raised in the 2000s is called Generation Z. This generation is described as technologically savvy as they grew in the Internet age with smartphones, laptops, and easy access to networks and digital and social media (Coombs, 2013; Singh & Dangmei, 2016).

Studies have explored how sustainability is incorporated into tourism higher education (Cotterel et al., 2020; Wilson & von der Heide, 2013). Education is one of the most important reasons for the high environmental concern and related behavior according to Zinlahy and Huisingh (2009) and Zsoka et al. (2012). Hearing about sustainability and environmentalism in class is one factor that increases students' level of care for the environment and pro-environmental behavior (Pizmony-Levy & Michel, 2018). Cotton and Alcock (2012) have also identified a correlation between higher education experiences and the commitment to environmental sustainability. In addition, they also found that women have a stronger pro-environmental attitude than men, similar to the findings of Yates et al. (2015). Women were also found to play a part in pro-environmental behavior in the private sphere.

Regarding the students' major, students taking applied courses are less likely to engage in pro-environmental behaviors. In contrast, students with soft majors (e.g., business, education, psychology and sociology) are more likely to engage in protests and demonstrations (Pizmony-Levy & Michel, 2018). Those who attended college longer and are academically engaged have reported higher pro-environmental private behavior (Pizmony-Levy & Michel, 2018). Also, older students have more favorable environmental attitudes (Levine & Strube, 2012). Conventional examination can easily assess knowledge of the environment and sustainability. However, values, attitudes and behaviors are not so easy to evaluate.

The area of environmental attitudes and environmental concern had received attention since the 1970s when Dunlap and Van Liere (1978) developed the New Environmental Paradigm, which monitors the presence of an 'Environmental Paradigm' as an alternative to the 'Dominant Social Paradigm' (DSP) concept prevalent in society during that time (Dunlap, 2008). The original 12-item scaling is grounded in three facets: balance of nature, growth constraint, and human prevalence over nature (Dunlap, 2008; Lopez-Bonilla et al., 2016). A major revision of the New Environment Paradigm, renamed the New Ecological Paradigm, was developed in 1990 and later published in 2000. Based on Cotton and Dunlap's (2000) work on the human exceptionalism paradigm, the revised NEP was designed to deal with the shortcomings of the original scale. The added items focus on ecological aspects, which concern the degree to which respondents view modern industrial society as free from ecological restrictions. Other items, including the likelihood of an ecological crisis, were added due to increasing awareness of global environmental problems and climate change concerns. The 15 items were also worded to produce eight pro-NEP and seven anti-NEP items to ensure that the measured aspects are not one sided. The new NEP also removed outdated terminology. Finally, the revised NEP was grounded on relevant socio-psychological theory, specifically the work of Rokeach's (1968). The NEP items measure primitive beliefs concerning the relationship between human beings and the environment.

After nearly half a century, the NEP (now known as the New Ecological Paradigm scale) remains highly regarded, and researchers are advised to continue its use until another gold-

standard environmental attitude measure has been widely accepted (Hawford & Milfont (2010, p15). The use of tools such as the New Environmental Paradigm or NEP may allow educators to regularly assess the success of their courses in influencing students' affective attributes and may complement other research instruments (Harraway et al., 2015).

Several studies have been conducted on environmental values using NEP in Asian countries. However, only a few studies have been conducted in Southeast Asia, especially on the awareness of the current generation of students; Generation Z. This study, therefore aims to explore the environmental worldviews of university students majoring in Hospitality and Tourism. What is the environmental/ecological orientation of students taking up Hospitality and Tourism studies? The second objective is to find out if students' awareness levels differ based on their course/major, school level, and gender. In light of the Philippines' educational system's American template and colonial past, will the outcome mirror the result of similar studies from the West, or will the results more so reflect their Asian identities as well? This study will contribute to current knowledge, providing important information to academics, policy-makers, and practitioners.

Literature Review / Theoretical Background and Hypotheses Development

New Environmental Paradigm (NEP) Scale

One of the most popular scales to measure environmental awareness and ecological worldview is the New Environmental Paradigm, also known as New Ecological Paradigm (Dunlop et al. 2000). Dunlap et al. (2000) altered some phrasing of items from the original New Environmental Paradigm (1978) to reduce out-of-date and discriminatory language. They equalized the quantity of pro against anti-NEP statements and utilized the notion of "facets" to refine and strengthen the measure's validity. The second NEP, renamed New Ecological Paradigm, incorporated two new dimensions: "human exceptionalism" and "the possibility of an eco-crisis," addressing climate change phenomena. The new NEP has been extensively used as a substitute because of its better theoretical grounding and higher psychometric properties (Amburgey & Thoman, 2012; Dunlap et al., 2000).

The scale has been tested and validated among different cultures and continents (Chatterjee, 2008; De Groot & Steg, 2008; Dunlap, 2008; Gangaas et al., 2015; Ntalos, 2019). The New Ecological Paradigm is conceptualized to measure people's environmental value orientation, ecological attitude, beliefs, and values (Ardahan, 2013; Dunlop et al., 2000). High NEP scores are associated with having pro-environmental values or an ecocentric worldview, while low NEP scores are correlated to anthropocentrism. Anthropocentrism or anthropocentric worldview is a human point of view that nature is a source of food and water. A person with a high score in this viewpoint, according to Gerhard (2004), might be skeptical of the idea of a future ecological crisis. High NEP scores are associated with ecocentrism, wherein the environment is believed to have an inherent nature irrespective of human needs, and human beings are part of nature (Hunter & Rinner 2004; Kortenkamp & Moore 2001). However, Gangaas et al. (2015) caution that these two concepts should not be seen as a dichotomy but as a gradient.

The NEP scale has been used to study the correlation between the sociodemographic characteristics of the respondents and their ecological orientation. Past research has reported a trend of pro-ecological beliefs on all NEP scales. However, this trend is valid on items

considering the "*fragility of the balance of nature and less so on items considering the limit of growth*" (Dunlap et al., 2000). This pattern was followed by the study of Kiely et al. (2021), where a large majority of the participants supported the notion of a "balance of nature" and a belief in the "possibility of an eco-crisis." However, in the case of "limit to growth" and rejection of exceptionalism," there is mixed support. The authors suggested that the possible reason for this is that students are optimistic about the capacity of science and technology to solve these issues. Other researchers have also reported similar results regarding the belief that humans can exploit natural resources and resolve the issue of environmental problems (Sousa et al., 2016).

Generation Z and environmental awareness

Generation Z is very concerned with environmental issues and looming shortages such as water, indicating a high sense of responsibility for natural resources (Singh & Dangmei, 2016). This generation loves their digital devices, relies on opinion leaders, multi-taskers, are thoughtful and invests in global processes. According to sociologists, safety and the wish for public change are the top priorities of this generation. This population has accepted the trend of rational consumption, is sensitive to cultural and natural issues, supported the defense of vulnerable groups, and accepted new ethics rules (Vorontsova et al., 2021).

The mentality of Generation Z is attracted to initiatives that foster social change (Seemiller & Grace, 2017). The engagement of this generation in global events is much higher than in previous generations. The older generation treats eco-protest with skepticism since the move toward social awareness depends on the amount of emotional and financial resources. In contrast, Generation Z supports provocative acts highlighting ecological problems, such as the speeches of Greta Thunberg. Her words "*her moral responsibility is to do what she can do*" reflect Generation Z's environmental awareness, which many people strive for (Vorontsova et al., 2021).

However, according to research conducted by Parzonko et al. (2021), representatives of Generation Z are less engaged in pro-environmental behaviors than those in older age groups. Their pro-environmental actions mostly include taking public transportation and turning off the light when leaving a room. In addition, the pro-environment movement that gained a high rating has legal regulations and those whose application brings financial benefits such as lower maintenance costs. Thus, it is not surprising that the main motivating factor for pro-environmental behavior in economics.

Meanwhile, a study by Volkova et al. (2019) on the attitude of Ukrainian citizens to environmental problems showed that even though three generations of Ukrainian citizens (X, Y, Z) consider the protection of the environment as important. They believe they can personally play a role in protecting it; environmental practices need special attention. The research emphasized that active work with young people, such as introducing eco-practices and raising public awareness concerning environmental issues, is necessary since Generation Z does not care about the natural resources and the environment.

NEP in educational, environmental awareness measurement

Issues and environmental problems have been ascribed to increasing population, economic development, industrialization, pollution, resource depletion worldwide, and urbanization. The main reasons for these problems can be associated with lifestyle and people's extensive

activities in their natural surroundings (Barr & Gilg, 2006; Kollmuss & Agyeman, 2002). These concerns lead to the need to strike a balance between the natural environment and humans. To minimize environmental problems, education is viewed as a critical component in developing an ecologically literate culture since it can help build responsible environmental behaviors that can help prevent and alleviate environmental challenges in a sustainable manner (Liang et al., 2018). Higher education establishments have been urged to promote increased awareness of environmental sustainability issues (Harraway et al., 2012).

The NEP Scale is one of the most popular scales to measure students' ecological and worldview. It has been developed and validated in Western countries (Grůňová et al., 2019). Harraway et al. (2012) used NEP as an instrument to monitor changes in the students' ecological worldview. This research responds to the need for higher education institutions to determine their impact and the simultaneous life experiences of students on their sustainability attitudes. Their study concluded that NEP is a vital research instrument, and monitoring students' attitudes are essential before discussing issues institutionally. Wells and Petherick (2016) also used the NEP scale to study sustainability attitudes in a multicultural education setting in China. Their preliminary study reported that the participants (Chinese students studying at a Sino-British joint venture university) respond to the Western world view regarding the Limit of Growth and Anti-anthropocentrism but differ regarding the balance of nature.

Compared to other educational research using NEP, Grůňová et al. (2019) used NEP to assess Senegalese schoolchildren's environmental awareness. The NEP scale gave comparable scores to those in the same socio-cultural setting. However, the CFA analysis behaves in a non-standard and is non-functional in their setting. The authors believe culture rather than language is the primary reason for the difference. NEP has also been used in cross-country studies. Rachmatullah et al. (2020) studied preservice science teachers in Indonesia and compared them to Korea's ecological value orientation. The study found that Indonesian preservice science teachers (PST) have higher mean scores than Korean PST, indicating that Indonesians have more self-seeking attitudes regarding the environment. Since Indonesia sustains its economy by using its natural resources, according to Kaltenborn & Bjerke (2002), an anthropocentric or egoistic worldview is associated with agriculture because of the poor circumstance of most farmers. Their values might be more egoistic Rachmatullah et al. (2020).

Harraway et al. (2012) also found that the major of the students affected their NEP scores. Their study found that students with Business Majors had lower NEP scores than others regardless of political orientation and gender. The authors contextualized this result by stating that the choice of the field of study was a behavioral commitment based on the students' values and beliefs. Thus, the first hypothesis of this study is:

H1: *There is a difference in the environmental value awareness between Hospitality and Tourism students.*

Research conducted by Xiao et al. (2019), which examined the use of the New Ecological Paradigm (NEP) scale as a basis for coherence or anchor of Ecological Concern (EC), found that NEP is the most formidable forecaster of EC as well as the level of education. Students attending college longer have higher pro-environmental private behavior (Pizmony-Ley & Michel, 2018). Also, older students had more positive environmental attitudes (Levine & Strube, 2012). Thus, the second hypothesis of this study is:

H2: *There is a difference in the environmental attitude between students in lower years (1st and second year) and those of the higher years (third year and above).*

In another study, Ling et al. (2020) examined the demographic characteristics influencing the environmental worldview using the NEP scale and changes after sustainable education travel. The study revealed that while sustainable outbound mobility courses could increase students' environmental awareness compared to a control group, gender was a significant predictor of NEP. The considerable effect of gender was also found in a study by Benckendorf et al. (2012), specifically for the anthropocentric factor. Different authors have researched the results, with most of the results showing that females have more pro-environmental attitudes than their male counterparts (Casey & Scott, 2006; Zelezny et al., 2000). However, a study by Levine and Strube (2012) found that male college students were more knowledgeable than women. From these studies, the third hypothesis is:

H3: *There is a difference in the environmental attitude between male and female students.*

Methods

Environmental attitudes of Tourism and Hospitality students were measured using the 15-item NEP scale as presented in Table 1 (Dunlop et al., 2000). The scale comprises eight pro-NEP and seven anti-NEP items that provide an all-inclusive coverage of the important characteristics of an ecological worldview. Table 1 shows the statements that were presented to the students. The respondents were asked to rate their level of agreement on a 5-point Likert scale, with five as strongly agree; to 1 as strongly disagree. These items can be added to arrive at an overall NEP scale, with odd-numbered items (pro-NEP) and even-numbered (anti-NEP) combined to develop a subscale. The questionnaires were written in English, with a Filipino translation at the bottom. The responses were later merged, and the summation of the overall NEP score was analyzed. A higher overall score indicates a stronger environmental attitude.

The survey was conducted from 2018 to 2019 among students of Hospitality and Tourism from one of the Philippines' top universities. The first page of the questionnaire contains a letter explaining the purpose of the research and a statement saying that participation in the survey is voluntary. One or two of the papers submitted were blank in some classes, indicating that some opted not to participate in the study. A total of 237 answered surveys were collected out of 250, for a response rate of 94.8 percent.

Analysis of data

The NEP score measures the environmental awareness of the respondents. A high NEP score corresponds to an ecocentric worldview, whereas a low NEP score corresponds to an anthropocentric worldview. The NEP scores can also be divided into responses supporting each statement's pro-ecological or pro-anthropocentric conception. In contrast, higher scores for odd-numbered statements for ecological items mean a higher pro-ecological perspective. Higher scores in even statements represent a high anthropocentric point of view (Zhushi-Etemi et al., 2020). Assuming that all odd statements (8 statements) received an answer of 5, the sum of all numbers is 40, while if the answers are 4, the sum is 32, and for three, it is 24. Thus, anything above 24 (which represents neutral) means a pro-ecological point of view. However, the highest number for anthropocentrism since only seven statements is 35. Thus, a score of 21 represents neutral. A number above 21 represents an anthropocentric point of view. Part of the

objective of this study is to find out the environmental leanings of the students of Hospitality and Tourism. As such, this study will examine the environmental leanings of the students in the subsequent discussions.

Table 1: NEP Scale from Dunlap et al. (2000)

Item no.	Statements
1	We are approaching the limit of the number of people the earth can support.
2	Humans have the right to modify the natural environment to suit their needs.
3	When humans interfere with nature, it often produces disastrous consequences.
4	Human ingenuity will ensure that we do not make the earth unlivable.
5	Humans are severely abusing the environment.
6	The earth has plenty of natural resources if we just learn how to develop them.
7	Plants and animals have as much right as humans to exist.
8	The balance of nature is strong enough to cope with the impacts of modern industrial nations.
9	Despite their special abilities humans are still subject to the laws of nature.
10	The so-called "ecological crisis" facing humankind has been greatly exaggerated.
11	The earth is like a spaceship with very limited room and resources.
12	Humans are meant to rule over the rest of nature.
13	The balance of nature is very delicate and easily upset.
14	Humans will eventually learn enough about how nature works to be able to control it.
15	If things continue on their present course, we will soon experience a major ecological catastrophe.

Factors affecting environmental awareness.

Two groups are being tested in this study; one group is Hospitality and Tourism students. In the university under study, these two courses belong to separate colleges, so the authors would like to determine if the students' courses affect their environmental awareness. Another group comprises the first and second year students and third up to graduating students. The last group is based on the gender of the students; the researchers would like to find out if gender affects the environmental awareness of students.

An independent sample t-test was used to examine the survey's differences to identify the effect of the program of study (Tourism versus Hospitality), gender differences, and year level with a p-value set at $p < .05$. Cohen's d was then used to compute effect size (Cohen, 1992).

Results

This study aims to explore the environmental worldview of hospitality and tourism students at one of the top universities in the Philippines. The New Environmental Paradigm was used because it is the most widely used scale for measuring participants' environmental worldviews. The demographic characteristics of the respondents can be seen in Table 2. Hospitality and Tourism students were chosen because of the increasing importance of tourism in the national economy and the world economy. Thus, it is essential to find out if the industry's future leaders are ready to face the challenges that may come their way.

Table 2. Demographic of the respondents

	N	Percentage
Course/Major of the Participants		
Hospitality	115	48.5
Tourism	122	51.5
Year level		
1st-2nd	65	27.4
3rd year - up	172	72.6
Gender		
Male	88	37.2
Female	149	62.8
Age of Participants		
17-18	32	13.5
19-20	122	51.5
21-22	62	26.2
23-24	16	6.8
25-26	5	2.1
Total number of participants	237	100

Before proceeding with the actual analysis, data cleaning was conducted. The researchers used SPSS as a tool to analyze the data gathered. An initial reliability test was conducted to measure the current data's internal consistency, and a Cronbach's alpha value of 0.59 was obtained. Although Dunlap (2000) reports that the reliability of the 15-item scale, when tested in Washington DC, was 0.83, the lower value obtained in this study is not unusual. In a multidimensional analysis where NEP was used to study environmental attitudes in 14 countries, the alpha coefficient was between 0.47-0.81 (Schultz & Zeleny, 1999). Meanwhile, Ogunbode's (2013) research conducted in Nigeria obtained a Chronbach's alpha value of 0.61. According to Schultz & Zeleny (1999), personal values such as universalism and tradition influenced the respondents' attitudes.

Regarding the validity of the items, the critical value of 235 degrees of freedom (N-2) is .159. The resulting obtained values from this study showed that all items except items 8,10, and 12 have an obtained value above the critical value (Appendix 1). This result indicated that a majority of the questions were valid. This result may be in the way the three statements are worded. Although all the items are framed positively, an answer of 5 implies a very high pro-anthropocentric worldview. Thus, most students disagreed with these three statements, as shown in Table 3.

The result of the descriptive statistics is presented in Table 3. The table was divided into the result of the responses of the Hospitality and Tourism students. Looking into the average mean score of both groups, the students gave low scores to statements 12, 8, and 10. Hospitality students did not agree with statements 12,8 and 10, while Tourism students did not agree with statements 8,12,10, and 2. Except for statement 2, all the other statements that received low scores for both sets of students are the same.

Table 3. The responses of the participants to the NEP statements

NEP Statement	HOSPITALITY		TOURISM		TOTAL	
	Mean	SD	Mean	SD	Mean	SD
S1	3.93	1.12	3.79	1.08	3.86	1.10
S2	3.22	1.11	2.99	1.18	3.10	1.15
S3	3.92	0.87	3.81	0.97	3.86	0.92
S4	3.60	1.02	3.36	0.84	3.48	0.94
S5	4.51	0.88	4.25	0.99	4.38	0.95
S6	4.44	0.99	4.20	1.18	4.32	1.10
S7	4.46	0.95	4.44	1.05	4.45	1.00
S8	2.57	1.22	2.33	1.01	2.45	1.12
S9	4.45	0.82	4.34	0.95	4.39	0.89
S10	2.17	1.02	2.37	1.21	2.27	1.12
S11	3.88	1.19	3.79	1.17	3.83	1.17
S12	2.59	1.26	2.33	1.27	2.46	1.27
S13	3.83	1.02	3.74	0.90	3.79	0.96
S14	3.58	1.03	3.28	0.94	3.43	0.99
S15	4.46	0.98	4.48	0.94	4.47	0.96

The first objective of this study is to find out the difference in the environmental value awareness between the Hospitality and Tourism students. Thus, the data are ranked by their mean scores. It can be seen from the ranking (Table 4) that, except for statement 6, all the top 5 statements are pro-ecocentrism. All the pro-ecocentric worldviews are above the pro-anthropocentric worldview except for statement 6. When all the pro-ecocentrism statements are added (odd numbers), the Hospitality student's total score is 33.45, while for Tourism, it is 32.64. This result means that the respondents have a pro-environmental or an ecocentric worldview, with Hospitality students having a slightly higher pro-ecocentric worldview than Tourism students. Meanwhile, when all the even numbers are added (pro-anthropocentrism), Hospitality students scored 19.96 while Tourism students had 18.65. The results show that, on average, both Hospitality and Tourism students do not have a pro-anthropocentric viewpoint.

Table 4. NEP Mean Scores Ranked

Hospitality			Tourism			Ave. for Hospitality and Tourism Students		
NEP	Mean	SD	NEP	Mean	SD	NEP	Mean	SD
S5	4.51	0.88	S15	4.48	0.94	S15	4.47	0.96
S7	4.46	0.95	S7	4.44	1.05	S7	4.45	1.00
S15	4.46	0.98	S9	4.34	0.95	S9	4.39	0.89
S9	4.45	0.82	S5	4.25	0.99	S5	4.38	0.95
S6	4.44	0.99	S6	4.20	1.18	S6	4.32	1.10
S1	3.93	1.12	S3	3.81	0.97	S3	3.86	0.92
S3	3.92	0.87	S1	3.79	1.08	S1	3.86	1.10
S11	3.88	1.19	S11	3.79	1.17	S11	3.83	1.17
S13	3.83	1.02	S13	3.74	0.90	S13	3.79	0.96
S4	3.60	1.02	S4	3.36	0.84	S10	2.27	1.12
S14	3.58	1.03	S14	3.28	0.94	S4	3.48	0.94

S2	3.22	1.11	S8	2.33	1.01	S14	3.43	0.99
S12	2.59	1.26	S2	2.99	1.18	S2	3.10	1.15
S8	2.57	1.22	S10	2.37	1.21	S8	2.45	1.12
S10	2.17	1.02	S12	2.33	1.27	S12	2.46	1.27

An independent t-test was conducted to find out if there was a difference in the answers between Hospitality and Tourism students (H1). Year level of the students Group 1 - first and second year; Group 2 - third and higher years (H2) and Gender (H3). The t-test for course/major (H1) showed a significant difference between the students' responses to three specific statements. These statements are NEP statements 4, 5, and 14.

For Hospitality students (HS), in statement 4, the mean=3.60, SD=1.02, while for Tourism (TS), the M=3.36 and SD=0.84, $t(220.89)=1.97$, $p=.05$. Cohen's d, which is used to compute the effect size, have a value of 0.26. This value represents a small effect size. For statement 5, the HS answers have a M=4.51, SD=0.88; for TS, the M=4.25, SD=0.99, $t(235)=2.16$, $p=.03$, and a Cohen's d-value of 0.28. This value means that the effect size is small. For statement 14, the HS answers have a mean of =3.58, SD =1.03; while for TS, M=3.28, SD=0.94, $t(235)=2.38$, $p=.02$, and a Cohen's value of 0.30, this value represents a small effect.

This result shows that the effect of the course/major is only for three statements, which are one-fifth or twenty percent of the total number of questions. In these three statements, for statement 4, the median answers of Hospitality students are higher than those of Tourism students; this condition is the same for statement 5 and statement 14. Thus, the results showed only a significant difference in 3 out of the fifteen statements for the first hypothesis. As a result, the first hypothesis is not fully supported. Table 5 shows the results of the t-test for the study.

Table 5. Result of t-test for hospitality and tourism courses

Statement	Course	Median	SD	t	df	p	Cohen's d
Statement 1	H	3.93	1.12	0.96	235	.34	
	T	3.79	1.08				
Statement 2	H	3.22	1.11	1.51	235	.13	
	T	2.99	1.18				
Statement 3	H	3.92	0.87	.917	235	.36	
	T	3.81	0.97				
Statement 4	H	3.60	1.02	1.97	220.89	.05	0.26
	T	3.36	0.84				
Statement 5	H	4.51	0.88	2.16	235	.03	0.28
	T	4.25	0.99				
Statement 6	H	4.44	0.99	1.66	235	.09	
	T	4.20	1.18				
Statement 7	H	4.46	0.95	0.14	235	.89	
	T	4.44	1.05				
Statement 8	H	2.57	1.22	1.70	235	.09	
	T	2.33	1.00				

Statement 9							
	H	4.45	0.82	1.01	235	.32	
	T	4.34	0.95				
Statement 10							
	H	2.17	1.02	-1.38	235	.17	
	T	2.37	1.21				
Statement 11							
	H	3.87	1.19	0.60	235	.55	
	T	3.79	1.17				
Statement 12							
	H	2.59	1.26	1.60	235	.11	
	T	2.33	1.27				
Statement 13							
	H	3.83	1.02	0.73	235	.47	
	T	3.74	0.90				
Statement 14							
	H	3.58	1.03	2.38	235	.02	0.30
	T	3.28	0.94				
Statement 15							
	H	4.46	0.98	-0.12	235	.91	
	T	4.47	0.94				

Regarding the effect of the year level (H2), the students were divided into two groups. The 1st and 2nd year students were placed in Group 1, and the 3rd year and up were placed in Group 2. The t-test showed that except for statements 4 and 6, there is no significant difference in these two levels' answers. For statement 4, the results are G1, M=3.80, SD=0.90 and G2, M=3.35, SD=0.93, $t(235)=3.33$ $p=.00$, and a Cohen's d value of 0.49. This value is still below 0.50, representing a medium effect; thus, the effect of the year level is small. The result of statement 6 are G1, M=4.57, SD=0.86, and for G2, M= 4.23, SD=1.16, $t(154.562)=2.46$, $p=.01$, and a Cohen's d value of 0.33 indicating a small effect. Table 6 shows the result of the t-test for the year level. These results showed that only two statements are significantly different with regards to the year level of the students. Thus, the second hypothesis is also not fully supported.

Table 6. Result of t-test for Year Level of students

Statement	Year Level	Median	SD	t	df	p	Cohen's d
Statement 1							
	1	4.01	1.14	1.31	235	.19	
	2	3.80	1.08				
Statement 2							
	1	2.90	0.93	-1.60	235	.11	
	2	3.17	1.22				
Statement 3							
	1	3.95	0.78	0.91	235	.36	
	2	3.83	0.97				
Statement 4							
	1	3.80	0.90	3.33	235	.00	0.49
	2	3.35	0.93				
Statement 5							
	1	4.46	0.85	0.84	235	.40	
	2	4.35	0.98				
Statement 6							
	1	4.57	.86	2.46	154.56	.01	0.33
	2	4.23	1.16				
Statement 7							

	1	4.55	0.87	0.97	235	.33
	2	4.41	1.05			
Statement 8						
	1	2.32	1.09	-1.05	235	.29
	2	2.49	1.13			
Statement 9						
	1	4.32	0.85	-.737	235	.46
	2	4.41	0.90			
Statement 10						
	1	2.21	1.04	-0.468	235	.64
	2	2.30	1.16			
Statement 11						
	1	3.63	1.40	-1.62	235	.11
	2	3.91	1.18			
Statement 12						
	1	2.25	1.21	-1.57	235	.12
	2	2.54	1.29			
Statement 13						
	1	3.91	0.84	1.81	235	.24
	2	3.74	0.99			
Statement 14						
	1	3.41	0.97	-0.10	235	.92
	2	3.43	1.00			
Statement 15						
	1	4.54	0.85	0.691	235	.49
	2	4.44	0.99			

For gender (H3), the t-test showed that, except for statements 7 and 12, there was no significant difference in the respondents' answers. For statement seven, Male students had an $M=4.27$, $SD=1.06$, while Female students had an $M=4.56$, $SD=0.95$, $t(167.85) = -2.07$, $p=.04$, with a Cohen's d value of 0.33, representing a small effect. For statement 12, Male students, $M=2.69$, $SD=1.30$; Female, $M=2.31$, $SD=1.24$, $t(235)=2.23$, $p=.03$, with a Cohen's d value of 0.30 representing a small effect. This result showed that only two statements were significantly different with regard to gender. Thus, the third hypothesis is not fully supported. Table 7 shows the results of the t-test for the gender of the students.

Discussions

The study looked into the factors that might affect the NEP scores of the respondents. Based on the findings, Hospitality and Tourism students have a pro-environmental or pro-ecocentric inclination with a somewhat low anthropometric worldview. However, some pro-anthropocentric statements received a high score. As Gaangas (2015) discussed, these dual inclinations, pro-ecocentric and pro-anthropocentric worldviews, are not a dichotomy but a gradient. This viewpoint can be seen in the study results, where students with a pro-ecocentric tendency also scored highly or above-average on several anthropometric statements. Statement 6, *"The earth has plenty of natural resources if we just learn how to develop them,"* received the highest average mean at 4.32. Hospitality students (HS) gave it a Mean score of 4.4, while Tourism students (TS) gave it a Mean score of 4.2. Statement 2, *"Humans have the right to modify the natural environment to suit their needs,"* received an average mean score of 3.48. HS gave a mean score of 3.60, while TS gave a mean score of 3.28. Statement 14, *"Humans will eventually learn enough about how nature works to be able to control it,"* also received a score above three, with an average mean of 3.43. Hospitality students gave it a mean score of

3.58. However, Tourism students gave it a mean score of 2.33. In all three statements, the Hospitality students gave higher scores than their Tourism counterparts.

According to Kaltenborn & Bjerke (2002), the anthropocentric view positively correlates to the agricultural environment. These findings are similar to Rachmatullah et al.'s (2020) study of preservice science teachers (PST) in Indonesia. Their result showed that Indonesian PSTs have a more anthropocentric or egoistic worldview associated with an agricultural-based society. The result of this study is also similar to Grůnová's (2019) study, wherein while the respondents have pro-ecocentric attitudes, they also have an anthropocentric perspective. The reason given for this is "the strong faith in an omnipotent God as a divine source of natural harmony" (p. 219). These thoughts have affected statements 4,7,9 and 10. Religious belief may have also influenced this study's participant responses. The Philippines is the only dominantly Christian country in Southeast Asia. With more than 80 percent of the population being Christian, Filipinos strongly believe in God. This study showed that Generation Z Hospitality and Tourism students, despite having a pro-ecocentric viewpoint and generally having low anthropocentric leanings, they also have some positive anthropocentric views. Both can result from the education, culture, and type of society they belong to. One can be pro-ecocentric and pro-anthropocentric at the same time, they are not mutually exclusive.

Table 7. Result of t-test for Gender of students

Statement	Gender	Median	SD	t	df	p	Cohen's d
Statement 1	M	3.80	1.10	-0.57	235	.57	
	F	3.89	1.10				
Statement 2	M	3.24	1.16	1.42	235	.16	
	F	3.02	1.14				
Statement 3	M	3.90	.83	0.42	235	.68	
	F	3.84	.98				
Statement 4	M	3.50	.93	0.30	235	.76	
	F	3.46	.95				
Statement 5	M	4.35	.88	-0.30	235	.76	
	F	4.39	.99				
Statement 6	M	4.23	1.08	-0.51	235	.61	
	F	4.35	1.11				
Statement 7	M	4.23	1.06	-2.07	167.85	.04	0.33
	F	4.56	.95				
Statement 8	M	2.35	1.11	-1.00	235	.32	
	F	2.50	1.12				
Statement 9	M	4.35	.80	-0.53	235	.59	
	F	4.42	.94				
Statement 10	M	2.26	1.12	-.10	235	.92	
	F	2.28	1.13				
Statement 11	M	4.00	1.01	1.71	235	.09	
	F	3.73	1.25				

Statement 12							
	M	2.69	1.30	2.23	235	.03	0.30
	F	2.31	1.24				
Statement 13	M	3.80	.89	0.20	235	.84	
	F	3.78	1.0				
Statement 14	M	3.42	.96	-.07	235	.95	
	F	3.43	1.01				
Statement 15	M	4.35	.95	-1.43	235	.15	
	F	4.54	.96				

An analysis of a given student's courses/major (Hospitality and Tourism) and its effect on the environmental awareness measured by the NEP scale showed that only three statements have a significant affect. These statements are 4,5, and 14. For statement 4: *"Human ingenuity will ensure that we do not make the earth unlivable,"* the mean score given by HS is 3.6, while TS gave a mean score of 3.36. Statement 5: *"Humans are severely abusing the environment,"* the HS mean score is 4.51, while the TS mean score is 4.25. Statement 14: *"Humans will eventually learn enough about how nature works to control it,"* HS received a mean score of 3.58, while TS received 3.28. The consistently higher score among HS implies that the NEP responses in these three statements are affected by the major/course of the student. This result is similar to the study conducted by Harraway et al. (2012), where they found that the major of the students affected their NEP score. Their study on students' ecological worldview monitoring and development found that students majoring in Business have lower NEP scores than other students, regardless of political orientation and gender. The authors contextualized this result by stating that the choice of the field of study is a behavioral commitment based on the students' values and beliefs. In contrast, this study's results showed that HS - considered business majors - gave higher NEP scores than TS, meaning they are slightly more pro-ecocentric than TS. However, they also have more pro-anthropocentric worldview.

As for the student's year level, all other answers are insignificant except for two statements. These are statements 4 and 6. Statement 4 states, *"Human ingenuity will ensure that we do not make the earth unlivable."* It received a mean score of 3.8 for first and second-year students (G1), while it received a mean score of 3.35 for third-year students and up (G2). For statement 6, *"The earth has plenty of natural resources if we just learn how to develop them,* G1 scored 4.57 while G2 had a mean score of 4.23. The significant difference in the answers may be attributed to the difference in the students' subjects during their first and second years. Most subjects taken during these two years are general knowledge subjects in which environmental sciences may not necessarily be covered. At the same time, third-year students and above must study sustainability and ecological courses as part of their major subjects. Although G1 gave a higher score, both groups scored above four, which means that the students' trust in the ability of humans to solve environmental issues or problems is high. These results are similar to a study by Kiely et al. (2021). They stated that one of the possible reasons could be students' optimism about the ability of science and technology to solve problems. Another study that reported a similar result on the belief that humans can use natural resources and resolve the issue of environmental issues is by Sousa et al. (2016).

The study showed that when comparing the students' answers based on their gender, the students' responses were significantly different for two statements, 7 and 12. In statement 7, *"Plants and animals have as much right as humans to exist."* The mean scores of the Male

students are lower ($M=4.27$) than those of their female ($M=4.56$) peers. While in statement 12, "*Humans are meant to rule over the rest of nature,*" the Male students' level of disagreement ($M=2.69$) is lower than those of their Female ($M=2.32$) cohorts. These findings, where gender significantly affects the respondents' answers, are similar to the study of Ling et al. (2020). They associated this disparity with the considerable difference in gender in society. The study mentioned that females are more likely to consider others' needs in some cultures than males. Females are also more likely to be more sociable and socially responsible than males. Though this idea partially supports the findings of the significant difference in worldviews between men and women, only two of the 15 statements are significantly different in this study. This means that there is a very minimal difference between male and female students in this study.

In summary, all of the hypotheses are not fully supported. Regarding the courses/majors of the students, 12 of the statements show that there is no significant difference in the answers. Furthermore, the respondents' answers to the thirteen statements are not significantly different from the others at the year level. Also, in terms of gender, 13 of the statements are not significantly different. This result shows that although NEP measures the environmental awareness of the respondents, the major/course, year level, and gender only account for some differences in the respondents' answers. Other factors that affect the answers of the respondents may be at play.

Theoretical Implications

The New Ecological Paradigm, also known as the New Environmental Paradigm, was created to measure the pro-ecocentric and pro-anthropocentric leanings of the respondents. This study showed that these two positions are not mutually exclusive. A group can be pro-ecocentric while having pro-anthropocentric tendencies. Theoretically, this study supports Gaangas's (2015) statement that the dual inclination of NEP is not a dichotomy but a gradient. It further contributes to understanding how education, culture, and society can affect the environmental tendencies of a group of people, in this case, Tourism and Hospitality students within the Generation Z of a Southeast Asian country.

Managerial Implications

The study's findings have implications for educators and educational researchers looking to improve environmental awareness curricula. The results of the study also showed that Hospitality students are more confident that although humans are severely harming the environment, humans can also ensure that the earth remains livable through human ingenuity and that humans can learn about nature to allow us to control it. This confidence may have come from the management training of hospitality students. Learning to manage hospitality business enterprises and their people may help future managers with a pro-environmental worldview deal with environmental issues. Thus, additional topics on business management (for tourism students) and environmental awareness (for both hospitality and tourism students) can help this generation maintain and strengthen pro-ecological values.

Conclusion

This study showed that Hospitality and Tourism students have a pro-ecocentric point of view. Although the cumulative anthropometric viewpoint scores low, there are several anthropocentric statements that they agree on. It is clear that Generation Z has pro-ecocentric tendencies with some anthropocentric inclinations. This worldview demonstrates their trust in the change that humans can create. This result does not contradict the mentality of this generation, which includes attraction to the initiatives that foster social change and their support for public change. This study showed that this generation of students believes that humanity can promote change.

The findings of this study are still very limited as it concentrates only on two majors (Hospitality and Tourism) within the context of one country, the Philippines. Because of the lack of qualitative research following the survey, the uniqueness of the students' answers cannot be fully justified. Additional qualitative studies and a survey can help clarify the students' responses. Such studies could also help explain if these answers result from the specific country's environment and culture, governmental programs on environmental awareness, the educational emphasis of primary and secondary schooling, or tertiary education. Also, since this study was conducted before the arrival of the COVID-19 pandemic, the result of this study can serve as a base point for find out how the ongoing pandemic has affected the environmental awareness of the students and what measures can be taken to help our students navigate the current challenges they are faced with. It is the recommendation of the authors to include a qualitative method to determine the reasoning behind the students' answers, specifically regarding their high scores in some of the anthropometric statements. It is also important to determine the environmental awareness of other students from other schools to determine if the sustainability subjects affect the students' environmental worldview and compare these results with those of our Asian neighbors.

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Appendix

Appendix 1: Validity of the items

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