

Attitudes of Tourism and Hospitality Students from the National University of Cañete toward Environmental Conservation

Actitudes de estudiantes de turismo y hotelería de la Universidad Nacional de Cañete dirigidas a la conservación del medio ambiente

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Abstract: Tourism and hospitality education in Peru is evolving to incorporate a stronger focus on environmental conservation. In this context, this study aims to assess environmental conservation attitudes of students enrolled in tourism and hospitality programs offered by Peruvian universities. A descriptive, cross-sectional study was carried out among students pursuing a degree in Tourism and Hospitality Management at the National University of Cañete, in Lima, Peru. The research focused on the period from July to December 2018. The final report was completed in 2020. A sample of 45 students was taken from a total population of 281, based on specific selection criteria. The demographic variables considered for this study were: age group, gender, and class shift, alongside the following dimensions: cognitive, affective and reactive. The majority of participants were female (73.3%), within the 20- to 22-year-old group (80.0%), and attended morning classes (64.4%). The highest level of agreement among students was

observed for the statement that local hotels should implement appropriate waste management systems (item 2). Furthermore, 86.7% of respondents strongly agreed that plants and animals have the same right to life as human beings (item 20). Similarly, 60.0% of them indicated they would be willing to mobilize others in support of public space conservation (item 26). Overall, the findings suggest that students possess sound cognitive and affective attitudes towards environmental conservation. However, a lower reactive performance requires strategies to foster a deep emotional connection.

Keywords: Agronomy. Students. Environmental protection. Natural resources. Tourism education

Resumen: La educación en turismo y hotelería en Perú está evolucionando para incluir una fuerte responsabilidad hacia la conservación del medioambiente. En este sentido, se realiza la presente investigación para evaluar las actitudes de estudiantes peruanos de turismo y hotelería dirigidas a la conservación del medioambiente. Se realizó un estudio descriptivo, transversal, en estudiantes de la carrera de Administración de Turismo y Hotelería de la Universidad Nacional de Cañete en Lima, Perú. La investigación analizó el periodo julio-diciembre de 2018, y el informe final fue presentado en 2020. De un universo de 281 estudiantes, se obtuvo una muestra de 45, según los criterios de selección. Las variables demográficas consideradas para este estudio fueron: edad, sexo, turno de clase, al igual que las dimensiones: cognitiva, afectiva y reactiva. Se observó predominio del grupo de 20-22 años (80.0%), sexo femenino (73.3%) y turno de la mañana (64.4%). La mayoría de estudiantes cree que los hoteles de la localidad deberían poseer un sistema adecuado para el manejo de basuras (ítem 2), mientras el 86.7% estuvieron totalmente de acuerdo con que las plantas y los animales tienen tanto derecho a vivir como los seres humanos (ítem 20). El 60.0% estaría dispuesto (a) a movilizar a las personas para la conservación de los espacios públicos (ítem 26). La evaluación de las actitudes hacia la conservación ambiental muestra una base cognitiva y afectiva sólida, pero un menor rendimiento reactivo demanda estrategias para fomentar una conexión emocional profunda.

Palabras clave: Agronomía. Estudiantes. Protección del medio ambiente. Recursos naturales. Educación en turismo.

1. Introduction

One of the greatest challenges that our planet faces today is severe environmental degradation. The world is going through a crisis that stems from a flawed and hostile relationship between human societies and their natural environment. Excessive consumption and the unsustainable use of natural resources have significantly contributed to environmental deterioration (Palacios & Moreno, 2022).

The main reasons for this situation are the lack of environmental awareness and pro-environmental attitudes within communities, a situation that has become stronger in many countries and responds to established behavioral patterns and mindsets. In Peru, serious environmental problems persists, which have led to substantial economic losses and disproportionately affects vulnerable populations who have to deal with an inadequate access to water, sanitation, and hygiene services, urban air pollution, natural disasters, lead contamination, and agricultural land degradation (Frente et al., 2021).

Students at different educational levels often exhibit serious problems concerning their attitudes toward environmental conservation. There is often a disconnect between the environmental theory taught in academic settings and its application in daily life. Many students tend to underestimate the significance of sustainable practices, often prioritizing immediate economic gain over environmental protection (Casa et al., 2023).

This tendency is evident among hospitality and tourism students, who show no interest in implementing green initiatives in their future workplaces. Furthermore, mass-tourism pressure helps entrenching environmentally harmful habits. Thus, it is essential to raise critical awareness to promote responsible and sustainable practices, incorporating environmental ethics into their professional training for this purpose (Olivera et al., 2020).

For instance, a study on the long-term environmental awareness and attitudes of Israeli students revealed that, one year after participating in a field trip, they remembered what they had seen and heard. This recollection contributed to more pro-environmental attitudes among them, thus transforming them into agents of change. From this perspective, shaping students' attitudes is essential for the implementation of sustainable actions (Hamdan et al., 2024).

Similarly, a study conducted at the National University of San Cristóbal de Huamanga in Ayacucho, Peru, established that only 13.6% of students of the Professional School of Nursing had highly favorable attitudes toward environmental care. These findings highlight the importance of disseminating such research to inform the design and implementation of educational strategies aimed at promoting environmental care (Cárdenas, 2023).

This is particularly evident in the province of Cañete, which has potential for historical tourism and wonderful natural landscapes but lacks proper infrastructure and services to attract visitors. These deficiencies often contribute to the pollution of beaches, coastal marine environments, and rivers. In addition, the appreciation of archaeological heritage is undermined, and environmental safeguards are inadequate, due to the poor solid waste management that threatens local ecosystems (Yataco et al., 2022).

Initially, environmental issues were not considered a priority within universities, largely because their activities were perceived to have a limited environmental impact. However,

several higher education institutions are now venturing into teaching sustainable practices and training students with an environmental awareness approach. There is a growing commitment to training future professionals providing them the proper cognitive, procedural, and ethical competencies in environmental education. This training must be grounded on ethical and pedagogical principles, to foster perceptions and attitudes that aim at environmental conservation (Olivera et al., 2020).

The current environmental crisis poses challenges to higher education institutions regarding sustainability issues. It is necessary to incorporate institutional environmental policies, in order to reconsider competencies in areas such as: curriculum reform, research, management, and university outreach. In other words, universities must generate knowledge, promote critical thinking, and take action (Estrada et al., 2021).

Hence, the tourism and education sectors shall work together, aiming at producing knowledge and providing skills to students and the wider community, in support of the tourism industry in the province. Abiding by these guidelines, the National University of Cañete has incorporated in its Bachelor's degree program in Tourism and Hotel Management a series of activities and educational modules focused on environmental care, as part of broader training and capacity-building efforts (Arias et al., 2023).

This study emerges from the problem observed in students' behaviors toward the environment, in association with the graduates' professional profiles, as it involves the management of the region's natural resources for tourism purposes. Furthermore, the «greening» of higher education seeks to raise awareness on environmental issues to foster a change in attitudes, which has not been sufficiently addressed in the academic programs. Once the problem is identified, diagnostic efforts shall be undertaken to the design and implementation of effective educational strategies.

It is important to understand the perceptions of Tourism and Hospitality students at the National University of Cañete on environmental issues. To this end, **we need to evaluate the attitudes of Peruvian tourism and hospitality students toward environmental conservation.**

2. Methodology

A descriptive, cross-sectional study was conducted on students of the Tourism and Hospitality Administration program at the National University of Cañete in Lima, Peru. The research focused on the timeframe from July to December 2018, and the final report was completed in 2020. A sample of 45 students was selected from a total population of 281, considering the following selection criteria.

Inclusion criteria

- Students who were in their fifth academic year and signed the consent to participate in the research.

Exclusion criteria

- Students suffering from health problems that prevented them from participating in the research.

Withdrawal criteria

- Students who withdrew from the program, were transferred to another educational institution, or were unable to complete the questionnaire.

The following variables were the subject of study:

Age group (in years): 20-22, 23-25, 26-28 and ≥ 29).

Gender: Male or female.

Class shift: Morning or evening.

Cognitive, affective, and reactive dimension: Measured using the following options: strongly disagree, disagree, neither agree nor disagree, agree, or strongly agree).

Scoring scale for each dimension (cognitive, affective, and reactive): Categorized as low, medium or high scores.

The primary data source of the research was the questionnaire. The information collected therefrom was recorded in a Microsoft Excel spreadsheet for subsequent analysis. The secondary data source consisted of teaching records provided by faculty members.

The evaluation process was conducted using a measurement tool that meets fundamental reliability and validity requirements. The tool comprised three dimensions (cognitive, affective and reactive), with 10 items per dimension, making a total of 30 items.

At the rating stage, each item was scored on a five-point scale, depending on the selected category. The questionnaire included 20 positively worded questions and 10 negatively worded ones. To determine both the overall final score and that for each dimension, a rating scale -ranging from 30 to 150 points- was used (see Annex 1).

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS), version 27.0. Results were obtained in numbers and percentages and reported both in texts and tables. To approve the evaluation instrument, a Committee of Experts was

created and Cronbach's Alpha coefficient (0.7154) was calculated to prove the tool's validity and reliability.

The research was approved by the Academic Vice President and the Organizing Commission of the National University of Cañete, as well as by the Director of the School of Tourism and Hospitality. Access to the information was only granted to the researchers, and all variables were coded. The data were used exclusively for research purposes, and all guidelines included in the Declaration of Helsinki were followed (Rodríguez, 2025).

3. Results

Table 1 shows a predominance of students within the 20-22 age group, accounting for 83.3% of total male students and 78.8% of total female students. Overall, the majority of participants were male (33 out of 45), and a higher number of students took classes in the morning shift compared to the night shift (29 vs.16). The mean age of participants was 21.73 years, with a standard deviation of 1.95.

The data suggest that the study group was predominantly comprised by male students in their early to mid-20s, with the majority of them attending morning shift classes. This pattern reveals a greater level of interest or participation in the field of study by the male group, which is relevant for the design and implementation of future educational strategies.

Table 1. Distribution of students according to age, gender and class shift

Age group (years)	Gender				Class Shift			
	Male		Female		Morning		Evening	
	N	%	n	%	n	%	N	%
20-22	10	83.3	26	78.8	26	89.7	10	62.5
23-25	2	16.7	5	15.1	3	10.3	4	25.0
26-28	0	0.0	0	0.0	0	0.0	0	0.0
≥ 29	0	0.0	2	6.1	0	0.0	2	12.5
Total	12	100	33	100	29	100	16	100

Arithmetic mean (μ): 21.73 Standard deviation (σ): 1.95

Table 2 shows the items considered to assess the cognitive dimension. The majority of students strongly agreed with the statement in item 2 (I believe that local hotels should have an appropriate waste management system). 35.6% of students agreed that tourism development is associated to greater environmental impacts (item 1) and 44.4% neither agreed nor disagreed with the statement mentioned in item 8 (It is not true that the movement of tourists causes negative impacts on the environment).

The statement in the aforementioned item 8 obtained the highest percentage (20.0%) of «disagree» responses among students. Likewise, 66.7% of students strongly agreed that the environmental and natural resource conservation is the sole responsibility of experts, rather than a collective responsibility shared by all (item 5).

Text analysis reveals diverse perceptions among tourism students regarding environmental management. Although the majority agree that conservation is the responsibility of experts, there is also a significant concern about the environmental impact of tourism development. A high level of disagreement with item 8 suggests a divergence in perceptions on the negative impacts caused by tourism.

Table 2. Distribution of students according to their responses to the items associated to the cognitive dimension

Item	Description	Categories				
		SA	A	NAD	D	SD
Cognitive dimension						
1	I think that tourism development is associated to greater environmental impacts	42.2	35.6	8.9	4.4	8.9
2	I think that local hotels should have an appropriate waste management system	86.7	11.1	0.0	0.0	2.2
3	I believe that tourism can provide potential environmental benefits	82.2	13.4	0.0	2.2	2.2
4	I think that the garbage problem is the sole responsibility of the agency in charge of urban cleaning	2.2	4.4	6.7	15.6	71.1
5	Environmental and natural resource conservation for future generations is the sole responsibility of experts, rather than a collective one	4.4	6.7	4.4	17.8	66.7
6	I think that whenever human beings interfere with nature, the consequences are disastrous	42.2	24.4	17.8	4.4	11.1
7	I believe that those who claim that hotels, restaurants and tourist activities pollute the environment and rivers are only looking for excuses to bother businessmen, for political reasons	24.4	6.7	42.2	11.1	15.6
8	It is not true that the movement of tourists causes negative impacts on the environment	0.0	20.0	44.4	20.0	15.6
9	Water from hotel and restaurant drains can be used to irrigate vegetables and reduce drought damage	35.5	28.9	13.3	15.6	6.7
10	I think that the environment is more affected at certain times of the year considered «high tourist seasons»	22.2	44.4	17.9	4.4	11.1

Legend: Strongly agree (SA), agree (A), neither agree nor disagree (NAD), disagree (D) and strongly disagree (SD).

Table 3 presents the items associated to the affective dimension. A majority of students (86.7%) strongly agreed that plants and animals have as much right to live as human

beings (item 20). Furthermore, 22.2% of students agreed that it is sad to see news about environmental pollution and the extinction of plants and animals (item 15).

28.9% of students neither agreed nor disagreed with the statement that nature is strong enough to counter the impact caused by the most industrialized countries (item 11). The aforementioned statement received the highest percentage of «disagree» responses among students. Likewise, 51.1% of participants declared they disagree with the statement that man has been created to dominate nature (item 13).

Overall, results reveal that a large majority of students support the idea of equal rights for all living beings. However, approximately one-third of students expressed ambivalence regarding the resilience of nature to the impacts of industrialization. Furthermore, just over half of respondents rejected the idea that humans have the authority to dominate over nature, thus reflecting a growing environmental awareness among students.

Table 3. Distribution of students according to their responses to the items associated to the affective dimension

Item	Description	Categories				
		SA	A	NAD	D	SD
Affective dimension						
11	In my opinion nature is strong enough to counter the impacts of the most industrialized countries	22.2	8.9	28.9	20.0	20.0
12	I am concerned about the lack of sufficient green areas in my town and the absence of initiatives for their improvement	46.6	15.6	8.9	15.6	13.3
13	I feel that man has been created to dominate nature	15.5	6.7	17.8	8.9	51.1
14	I feel that humans are seriously overexploiting the environment	71.1	11.1	13.4	0.0	4.4
15	It saddens me to see news about environmental pollution and the extinction of plants and animals	73.2	22.2	2.2	0.0	4.4
16	In my opinion we are close to reach the maximum number of people that the Earth can support	68.9	20.0	6.7	0.0	4.4
17	I would like schools and universities to teach more courses on environmental conservation and care	77.8	11.1	8.9	2.2	0.0
18	I would be happy to use my own car instead of using public transportation	24.4	8.9	24.4	2.3	40.0
19	I perceive that, despite the advancements in science and technology, human beings are still subject to the laws of nature	62.2	17.8	20.0	0.0	0.0
20	I feel that plants and animals have as much right to live as human beings	86.7	8.9	2.2	0.0	2.2

Legend: Strongly agree (SA), agree (A), neither agree nor disagree (NAD), disagree (D) and strongly disagree (SD).

Table 4 presents the results concerning the reactive dimension. It stands out that item 26 obtained the highest percentage (60%) of «strongly agree» responses among students (I would be willing to mobilize people for the conservation of public spaces). For their part, the statements in items 21 and 28 obtained the highest percentage (37.8%) of «agree» responses among students.

40.0% of the students neither agreed nor disagreed with buying food without first checking if it contains added chemicals (preservatives or agro-toxics) (item 22). 20.0% did not agree with leaving the television on even when no one is watching it (item 23), while 48.9% of them strongly disagreed.

Overall, the analysis reveals differences in students' willingness to engage in activities to ensure the conservation of public spaces and responsible consumption. While a high percentage of participants strongly agree with mobilizing for conservation, only about a third of them support the initiatives expressed in items 21 and 28. Furthermore, the level of neutrality regarding chemical additives in food, reveals ambivalence towards responsible consumption.

Table 4. Distribution of students according to their responses to the items associated to the reactive dimension

Item	Description	Categories				
		SA	A	NAD	D	SD
Reactive dimension						
21	I classify solid waste -such as paper, cardboard, plastics, glass- at home to help environmental conservation	20.0	37.8	20.0	13.3	8.9
22	I would not buy food without first checking if it has added chemicals (preservatives or agro-toxins)	13.3	15.6	40.0	13.3	17.8
23	I leave the TV on even when no one is watching	2.2	8.9	20.0	20.0	48.9
24	When I can't find a trash can nearby, I put the wrappers or tissues in my pocket, until I find one	55.6	22.2	13.3	0.0	8.9
25	While brushing my teeth, I always leave the water running	11.1	8.9	17.8	17.8	44.4
26	I would be willing to mobilize people for the conservation of public spaces	60.0	15.6	15.6	4.4	4.4
27	I would use the paper on both sides to take notes, print or make photocopies	51.2	33.3	8.9	2.2	4.4
28	I would help implementing individual campaigns to promote tourism development that supports environmental conservation and protection	51.1	37.8	8.9	0.0	2.2
29	When I go to the market I use cloth bags and reject plastic bags	26.7	11.1	37.8	11.1	13.3
30	When I am at home I leave several unnecessary lights on	4.4	17.8	35.6	6.6	35.6

Legend: Strongly agree (SA), agree (A), neither agree nor disagree (NAD), disagree (D) and strongly disagree (SD).

Table 5 summarizes the overall level of disposition towards environmental conservation. The cognitive and affective dimensions each recorded the highest percentage of students (66.7%) at the high level. In contrast, the reactive dimension showed a predominance at the medium level (53.3%), while no students classified at the low level in any of the dimensions. The overall attitude score had a mean of 118.6 and a standard error of 7.8.

These results reveal a predominantly positive orientation toward environmental conservation, particularly in the cognitive and affective dimensions. The reactive dimension showed a predominance at the middle level, with a notable absence of students at the lower levels. Thus, the overall average score suggests a positive trend in environmental engagement among those surveyed.

Table 5. Distribution by dimension of the mean and standard deviation of students' attitudes towards environmental conservation

Dimension	Scale	Total		Measures	
		n	%	Average (μ)	Standard deviation (σ)
Cognitive	High	30	66.7	39.7	4.0
	Half	15	33.3		
	Low	0	0.0		
Affective	High	30	66.7	41.0	4.4
	Half	15	33.3		
	Low	0	0.0		
Reactive	High	21	46.7	38.0	4.3
	Half	24	53.3		
	Low	0	0.0		
Total	High	33	73.3	118.6	7.8
	Half	12	26,7		
	Low	0	0,0		

3.1 Discussion

The current study reveals that tourism and hospitality students in Peru show a growing awareness of the importance of environmental conservation. However, their attitudes present contradictions that reflect the influence of cultural, economic and educational factors. In this context, each of the variables under study is analyzed below, for further discussion.

With regard to age, the authors considered that students in the last year of the Tourism and Hospitality program in Peru are generally between 20 and 22 years old. This is consistent with the structure of the national education system, in which secondary education extends until approximately age 17, followed by a five-year university program to complete de degree.

Carrillo (2021) in his master's thesis on environmental education for tourism students from the Alas Peruanas University, found a majority of female students in the 20 to 23 age group. The authors of the present study have found similar results.

The students' preference for the morning class shift, according to the authors of this study, may be in correspondence with the structure of the degree programs. In this regard, educational activities are more feasible during morning hours.

According to the research on vocational training carried out by Cruz (2021) and Cáceres et al. (2023), there is greater access to practical activities in the sector during the day, which may explain why students choose to enroll in the morning classes.

Regarding the cognitive dimension, the majority of students obtained high scores in the general evaluation of this dimension, which aligns with the results reported by Nanalaya et al. (2022) but differs from those obtained by Angulo et al. (2021), who found neutral attitudes in more than half of the students in their study population.

Based on the items evaluated in this dimension, it can be emphasized that knowledge is essential for shaping attitudes towards the environment, as stated by Vargas et al. (2021) In this regard, students showed interest in environmental issues, although these received limited attention within the curricula.

The cognitive dimension, in connection with both social and affective components, helps shaping students' ideas and actions. Thus, it is crucial to conduct workshops addressing these aspects, as recommended by Calderon & Camarena (2022).

Regarding the affective dimension, a predominance of the high-level attitudes was observed, which is consistent with the findings of Esteban and Amador (2018), who also reported a population with a strong attitudes towards environmental conservation. However, these results differ from those of Farfán et al. (2024), who reported a neutral level among participants.

Students' responses to the items evaluated in this dimension suggest that their tangible environmental living conditions have influenced their perceptions on how environmental issues affect their lives. The majority of them referred to be aware and concerned about issues such as recycling, pollution, water care, and reforestation, because they understand that the degradation of these components has a negative impact on the quality of life (Casa et al., 2019).

The results of this study show that both the cognitive and affective dimensions scored at a high level. These findings are consistent with the theoretical foundations supported by Urbina (2021), who states that the affective component is closely linked to the cognitive one.

In contrast, a discrepancy was found between the high score of the cognitive dimension and the neutral score of the reactive dimension. This phenomenon was also observed by Amérigo et al. (2012) who noted that although the students may have a pro-environmental attitude at a cognitive level, their behaviors do not always reflect such knowledge with the same consistency, which can be explained with additional factors affecting their pro-environmental behavior.

Concerning the reactive dimension, the results showed a predominance of the «intermediate» level, which is consistent with the findings of Casa et al. (2023). Vargas et al. (2021) and Farfán et al. (2024) found high levels of pro-environmental attitudes in this dimension.

The neutrality found in the results may indicate that students' behaviors are neither pro-nor against environmental conservation. This neutrality could stem from factors, such as ignorance and indifference towards the environment, as referred by Casa et al. (2019) and Amérigo et al. (2012). Regarding students' responses to the items in the reactive dimension, results suggest that coordinated efforts could improve the environmental conditions, through actions aimed at changing or reducing inappropriate habits. In this regard, students have the potential to act as agents of change within their communities and for the benefit of the global environment.

4. Conclusions

The conclusions derived from the evaluation of students' attitudes towards environmental conservation reveal a landscape in which cognitive understanding and affective responses to this topic are strong. However, a significantly lower performance stood out in the reactive dimension, suggesting that although students are aware of the relevance of environmental care, this does not necessarily translate into concrete actions. This mismatch between knowledge and action underscores the pressing need for pedagogical strategies that foster a deeper emotional connection with environmental protection.

It is essential that educational institutions and educators acknowledge the role of emotions in the learning process, and in the development of sustainable habits. Cultivating a learning environment that provides information, while inspiring and engaging students, is key to achieve meaningful changes in students' behaviors. Therefore, it is fundamental to develop interactive activities and community projects that engage young people, allowing them to directly experience the consequences of their actions on the environment. This way, through the integration of emotional engagement

and theoretical learning, a deeper internalization of environmental values will be facilitated, thus promoting a genuine commitment to environmental conservation.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

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Annex 1

Index: Cognitive dimension	Category
< 25th percentile: 0 - 13	Low
25th percentile to 75th percentile: 13 - 38	Intermediate
> 75th percentile: 39 - 50	High
Index: Affective dimension	Category
< 25th percentile: 0 - 13	Low
25th percentile to 75th percentile: 13 - 38	Intermediate
> 75th percentile: 39 - 50	High
Index: Reactive dimension	Category
< 25th percentile: 0 - 13	Low
25th percentile to 75th percentile: 13 - 38	Intermediate
> 75th percentile: 39 - 50	High
Index: Total scale	Category
< 25th percentile: 0 - 38 < 25th percentile: 0 - 38	Low
25th percentile to 75th percentile: 39 - 113	Intermediate
> 75th percentile: 114 - 150	High

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