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Encouraging Environmental Sensitivity and Earth Science Performance: Perceptions from First-Year Teacher Education Students

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ABSTRACT

This study explores the environmental sensitivity of first-year teacher education stu dents, focusing on the relationship between their Earth Science performance, demographic factors, and their cognitive and emotional responses to environmental challenges. Using a descriptive correlational design within a mixed-methods framework, the research incorporates tools such as the Environmental Sensitivity Test (EST), focus group discussions (FGDs), and eco-mapping to comprehensively collect and analyze data. The findings reveal that while students exhibit a general awareness of environmental issues, this awareness does not consistently translate into sustainable practices, particularly in areas such as water conservation and waste management. A weak and statistically insignificant correlation was identified between Earth Science performance and environmental sensitivity, indicating that academic achievement in the subject does not necessarily lead to environmentally responsible behaviors. The results underscore the importance of teacher education programs integrating principles of behavioral psychology, experiential learning, and focused environmental education. Specifically, secondary science teachers should be equipped with practical strategies, such as implementing project-based learning, organizing community-centered environmental initiatives, and fostering interdisciplinary approaches to sustainability. These interventions address the gap in preparing future educators to effectively advocate for and implement sustainable practices. Strengthening teacher preparation programs with these components ensures that science educators are better equipped to cultivate a new generation of environmentally responsible citizens.

Keywords: Environmental Sensitivity; Earth Science; Performance; Perception; First-Year Students; Teacher Education Students

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1. Introduction

Human behavior is influenced by a complex interplay of external stimuli and internal cognitive processes, both of which are essential for addressing environmental challenges. Dolores and Wenhao [1] emphasized that understanding the environmental impact on human behavior continues to be a central focus in social psychological research. Behavioral psychology, in particular, highlights how external factors shape observable actions, including environmental sensitivity. Pluess [2] further elaborated that individuals exhibit varying levels of sensitivity to environmental cues, with some people being more responsive to their surroundings than others Despite the wealth of literature on environmental awareness, there is a significant gap in understanding how environmental sensitivity translates into actionable and sustainable practices among teacher education students. The objectives of this study are twofold: first, to examine the relationship between environmental sensitivity and Earth Science performance among first-year teacher education students; second, to identify specific gaps in teacher education programs that may hinder the development of sustainable practices. By addressing these objectives, the study seeks to inform future strategies for integrating experiential and behavioral psychology principles into teacher preparation programs.

Clara and Nir [3] describe "environmental insight" as a framework that reveals the interconnectedness of Earth's subsystems while highlighting humanity's role in preserving this equilibrium. By fostering this understanding, Earth Science education not only enhances students' environmental awareness but also equips them to inspire these values in others, creating a foundation for broader societal engagement with environmental stewardship.

Earth Science, the study of Earth's interconnected systems, holds a crucial role in shaping humanity's future by addressing the intricate relationships between natural processes and human activities. Nir and Julie [4]stress the importance of this discipline in understanding and preserving the planet's complex systems, which include the lithosphere, atmosphere, hydrosphere, and biosphere. These interconnected systems not only sustain life but also directly influence human health, economies, and societal well-being.

Steffen et al. [5] note a growing academic consensus on the need to preserve Earth's systems to mitigate environmental degradation and ensure long-term sustainability. The literature emphasizes the critical role of environmental values in shaping policies and practices aimed at conservation. Moreover, Ardoin et al. [6] and Toomey et al. [7] highlight the transformative impact of environmental education, particularly when it integrates local knowledge and empowers marginalized communities to participate in conservation efforts. Valuing diverse perspectives, this approach promotes inclusive solutions that address both global and local environmental challenges. Earth Science education serves as a bridge between theoretical understanding and practical application, equipping students with the knowledge and skills to navigate complex environmental issues. Through this education, learners not only gain a comprehensive understanding of Earth's natural systems but also develop the capacity to advocate for sustainable solutions.

This study builds upon existing frameworks by focusing on how first-year teacher education students' environmental sensitivity can be cultivated through targeted interventions within Earth Science courses. The findings aim to provide actionable insights for curriculum development, ensuring future educators are well-prepared to address pressing environmental challenges in their professional roles. Specifically, it focuses on how these students' cognitive and emotional responses to environmental challenges 88 influence their attitudes and behaviors.

2. Literature

Significantly, human behavior is influenced by external stimuli, which shape observable actions and responses. Behavioral psychology provides a framework for understanding how interactions with external factors drive behaviors toward environmental conservation [8]. Environmental sensitivity, a core construct in addressing ecological challenges, reflects these influences and varies across individuals based on their contextual conditions [2]. Teacher education students, in particular, demonstrate behaviors conditioned by their environments, which underscores the importance of understanding the external stimuli that foster sustainable actions. Comeros et al. [9] highlighted that first-generation college students with supportive parents tend to show higher levels of academic and social adjustment. Additionally, these students experience reduced emotional detachment, which positively impacts their overall well-being and performance. Academic performance,

another dynamic phenomenon, is similarly shaped by a variety of contextual and individual factors, further supporting the idea that environmental and educational contexts play a crucial role in behavioral outcomes [10].

A deeper understanding of environmental sensitivity within teacher education requires consideration of the unique cultural and ecological contexts of the Philippines. Research on environmental attitudes and behaviors in the Philippines highlights the complex interplay between cultural values and ecological awareness. Recognizing and addressing cultural contributions to environmental preservation is critical for a sustainable future [11]. For instance, the perceptions of environmental issues, such as pollution and deforestation, significantly impact attitudes toward nature. Environmental education in the Philippines has been incorporated into various course curricula, including life and physical sciences, social studies, geography, civics, and moral education [12].

Notably, educational attainment has emerged as a key predictor of pro-environmental behaviors, indicating that increased knowledge correlates with greater engagement in environmental activism and conservation efforts [13]. Further, studies suggest that eco-centric attitudes, which place value on the intrinsic worth of nature, positively correlate with environmental behaviors, while anthropocentric views that focus on human needs above all else suggest a need for educational interventions that promote eco-centric perspectives to foster sustainable practices among future educators [14]. Integrating environmental education into curricula is crucial for enhancing awareness and encouraging responsible behaviors toward the environment in the Philippines.

Education, specifically Earth Science plays a transformative role in fostering sustainable practices. It provides individuals with opportunities to implement societal concepts in practical life [15]. Earth Science courses integrate theoretical knowledge of natural systems with practical applications, helping students understand human-environment interactions. Research on outdoor learning has demonstrated its ability to contextualize and enhance the learning process by providing real-world connections [16–20]. According to Cuilan et al. [21], verbal communication entails using spoken words to share ideas, emotions, and information. To ensure effective communication, it is essential to understand the audience's perspective and consider their context when crafting messages. These experiences allow teacher education students to adopt sustainable practices and model environmentally responsible behaviors, both professionally and personally.

Gregor [22] emphasized the importance of designing educational experiences that promote active and informed engagement with environmental challenges, enabling individuals to make meaningful and sustainable choices.

Witnessing firsthand the consequences of environmental neglect and climate-related risks, these students developed a deeper understanding of the urgency for proactive engagement and resilience building measures in addressing environmental issues. Consequently, the experience not only underscored the importance of integrating environmental education into teaching but also cultivated a sense of responsibility among future educators to champion sustainability in their personal and professional lives.

Cognitive and emotional responses to environmental challenges are deeply influenced by shared and collective experiences within a community. Emotions, as highlighted by Clayton and Ogunbode [23], serve as a critical lens through which both individuals and societies perceive and respond to environmental crises. These emotional responses, whether rooted in fear, hope, or determination, help shape not only personal reactions but also communal strategies for coping with and addressing such challenges. For instance, the trauma and resilience demonstrated by communities affected by Typhoon Yolanda emphasize the value of collective reflection. This shared process allows individuals to transform emotional pain into adaptive behaviors that support recovery and preparedness for future crises.

Earth Science education serves as a powerful tool for fostering both knowledge and a sense of environmental responsibility among students. By delving into the complexities of Earth's systems, students gain a deeper awareness of the delicate balance between human activities and natural processes. Maja and Ayano [24] highlighted how the rapid population growth continues to be a major underlying force of environmental degradation and a threat to sustainable use of natural resources , requiring swift and informed actions to address these challenges. Similarly, Hassan [25] pointed out that the unsustainable exploitation of natural resources has been a significant driver of ecological crises, further emphasizing the necessity of cultivating sustainable practices and values through educational efforts.

Behavioral psychology provides a rich framework for

understanding the factors that drive environmental sensitivity and action. It delves into how expectations, motivation, and emotional responses, such as frustration or satisfaction, shape individual and collective behaviors in response to environmental challenges. Díaz et al.[26] emphasize that these psychological mechanisms play a critical role in determining how individuals perceive and react to environmental stimuli, influencing their willingness to adopt sustainable practices. Emotional responses, whether positive or negative, often serve as catalysts for action, shaping attitudes and encouraging a more profound commitment to environmental stewardship.

Behaviorism operates on the principle of stimulus and response, emphasizing how consistent exposure to specific stimuli can shape and reinforce desirable behaviors over time. This theoretical framework is particularly relevant in the context of environmental education, where repeated interactions with environmental concepts and practices serve as the stimuli for fostering sustainable habits. According to Schneider and Sanguinetti[27], the basic concept of positive reinforcement underlies many sustainability policies and interventions. Consistently engaging with environmental education—through activities, discussions, and hands-on practices—encourages individuals to internalize pro-environmental behaviors. Over time, these behaviors transition from being conscious efforts to becoming habitual responses ingrained in their daily routines. This process illustrates the transformative power of behaviorism, as the continuous cycle of exposure and reinforcement leads to a deeper integration of sustainable practices into individuals' lives. Ultimately, this approach ensures that environmentally responsible actions are not merely momentary reactions but enduring habits that contribute to broader sustainability goals.

The integration of external stimuli, cognitive-emotional responses,and educational interventions offers a robust framework for understanding the development of environmental sensitivity. External stimuli, such as firsthand exposure to environmental crises or engaging with sustainability-focused curricula, activate emotional and cognitive processes that shape individuals' attitudes and behaviors toward the environment[28, 29]. When combined with structured educational interventions, these factors create a holistic approach that fosters awareness and action. Behavioral insights, rooted in understanding how individuals respond to environmental challenges, further enhance the effectiveness of educational programs by tailoring strategies to encourage pro-environmental behaviors.

Reflective experiences, such as analyzing case studies or participating in community-based projects, deepen students' connection to environmental issues, empowering them to take meaningful action. Teacher education programs cultivate future advocates for sustainability by equipping students with the knowledge and skills necessary to address environmental challenges. Cruz and Tantengco[30] emphasize the urgency of this effort, noting that the Philippines grapples with pressing environmental issues, such as flooding exacerbated by poor waste management practices. These challenges underscore the critical need for educators who can inspire and guide their students and communities toward adopting sustainable practices and solutions.

Through environmental education, students develop not only a deeper understanding of ecological systems but also practical tools to enact change. This includes fostering long-term cultural shifts toward environmental conservation by promoting values such as resourcefulness, accountability, and collective responsibility. As these educators integrate sustainability into their teaching and community efforts, they contribute to creating a ripple effect of awareness and action, building a society that prioritizes the health and preservation of the planet for future generations.

3. Methodology

3.1. Research Design

This study employed a descriptive-correlational design within a mixed-methods framework to examine the relationships among environmental sensitivity, Earth Science performance, and demographic characteristics of teacher education students. The qualitative aspect incorporated focus group discussions (FGDs) and eco-mapping to capture students' reflections and experiences comprehensively. This approach adheres to the principles of triangulation as emphasized by Donkoh and Mensah[31], ensuring multiple data sources contribute to the findings. Qualitative method is used to understand people's beliefs, experiences, attitudes, behavior, and interactions[32], offering deeper insights into complex, real-world issues[33]. This dual-method approach aimed to understand how external factors, educational initiatives, and

emotional responses influence environmental sensitivity.

3.2. Research Locale

The research was carried out at the Tario-Lim Memorial Campus of the University of Antique in Tibiao, Antique. As illustrated in **Figure 1**, the study area includes diverse ecological and geographical attributes, making it an optimal setting for examining environmental behaviors and academic performance among teacher education students.

Figure 1. Map of the study area.

The area's diverse ecological and geographical attributes made it an optimal setting for examining environmental behaviors and academic performance among teacher education students. This choice of location facilitated an authentic analysis of how local environmental contexts affect students' environmental sensitivity.

3.3. Respondents

The study involved a total of first-year teacher education students, who were selected through a combination of stratified random sampling and complete enumeration. For larger specializations, stratified random sampling was employed to ensure that all major areas of study were adequately represented, while complete enumeration was used for smaller groups. This approach was based on Stehman's [34] recommendations to ensure a representative and balanced sample. The students in the sample came from a range of specializations, including General Education, English, Biology, and Mathematics, providing a diverse cross-section of academic backgrounds and perspectives.

In addition to academic specializations, demographic factors such as gender and geographical origin were also considered in the selection process. Students were categorized based on whether they originated from coastal or upland areas, allowing for an examination of potential variations in environmental sensitivity based on geographic background as presented in **Table 1**. This consideration was important for understanding how students' environmental awareness might differ depending on their exposure to different ecological contexts.

Table 1. Distribution of respondents per category.

(Independent Variable) **Category**	**N** **306**	**n** **156**	**%** **100%**
Sex			
Male	73	47	30%
Female	233	109	70%
Total	306	156	100%
Specialization			
General education	202	77	49%
English	67	42	27%
Mathematics	21	21	14%
Biology	16	16	10%
Total	306	156	100%

Table 1. *Cont.*

(Independent Variable) Category	N 306	n 156	% 100%
Home location			
Coastal		82	53%
Upland		74	47%
Total		156	100%
Grade point average			
High (89–95)		5	3%
Average (82–88)		106	68%
Low (75–81)		45	29%
Total		156	100%

3.4. Data Gathering Procedure

Quantitative data for the study were collected through the use of the Environmental Sensitivity Test (EST), a comprehensive 70-item instrument specifically developed by the researcher. This test, which was rigorously validated by experts in the fields of environmental science and education [35], was designed to assess a wide range of environmentally sound and unsound practices. The EST provided a detailed framework for evaluating students' behaviors and attitudes toward environmental issues, offering a reliable means to quantify their level of environmental sensitivity. The administration of the test took place during Earth Science classes, ensuring that participants had the appropriate context for engaging with the environmental topics covered by the instrument. For qualitative data, a more in-depth approach was taken. Focus Group Discussions (FGDs) were conducted to explore students' environmental awareness and behaviors in greater detail. A semi-structured questionnaire, which was adapted from established protocols, guided these discussions. The semi-structured format allowed for flexibility in the conversations while ensuring that key themes and topics were consistently addressed.

3.5. Data Collection Procedure

Responses to the EST were evaluated using a four-point Likert scale to measure levels of environmental sensitivity, following the scoring techniques outlined by Tyagi and Mera [36]. Final Earth Science grades were retrieved from the registrar's office and categorized according to the university's grading system. Eco-mapping facilitated this process by visually representing relationships and interactions, prompting further discussion and insight generation. Both methods emphasized triangulation and reflexivity to ensure robust findings and minimize biases in qualitative research [37]. Qualitative data from FGDs were audio-recorded, transcribed, and analyzed thematically, following the procedures recommended by Bailey [38]. Additionally, eco-maps and reflective writings were analyzed for recurring patterns to complement the quantitative findings. Multiple methods, including inventory monitoring and FGDs, were utilized to gather in-depth data [39].

3.6. Data Analysis Procedure

The analysis of quantitative data employed descriptive statistics (means and standard deviations) and inferential tests, such as t-tests and one-way ANOVA, to explore differences in environmental sensitivity across specializations and demographic variables. Mohamed et al. [40] noted that one-way ANOVA is particularly effective for identifying group differences. Post-hoc tests, specifically the Scheffé method, were conducted to identify specific variations between groups. Pearson's Product-Moment Correlation was used to explore the relationships between environmental sensitivity and Earth Science performance. Qualitative data were analyzed using thematic analysis, as guided by Kiger and Varpio [41], which included steps such as familiarization, initial code generation, theme identification, review, naming, and reporting. Thematic analysis provided a context-specific narrative, with findings triangulated across FGDs, eco-maps, and reflective writings for validity [42].

4. Results & Discussion

4.1. Most and Least Observed Sound and Unsound Environmental Practices

According to the results of the environmental sensitivity test presented in **Table 2**, students exhibited the least sound practices in the areas of water and water-waste management. This indicates that their sensitivity toward these critical environmental issues is alarmingly low, and many of their everyday habits fail to contribute to preserving the planet's water quality. Notably, a significant portion of students appears to lack the necessary knowledge or skills to implement practical, effective measures for conserving water. This gap in awareness and action is contributing to the excessive wastage of billions of gallons of water annually, exacerbating an already pressing global crisis. As water scarcity continues to impact various regions worldwide, this lack of sensitivity becomes a major concern, particularly as water resources are becoming increasingly limited and precious.

Table 2. Most and least observed sound and unsound environmental practices.

Category	Mean
A. Waste and Waste-Water Management	
1. I reuse my denim pants several times before washing.	1.9
2. I use a small volume of water every time I take a bath.	2.1
3. I apply dried leaves between rows in our garden to hold the soil moisture.	2.1
4. I fix leaky water pipes immediately.	2.2
5. I check and report leaking water installations to the proper authorities.	2.3
6. I remove water-stealing weeds from the garden.	2.3
7. I take a bath several times every day especially during hot days.	2.3
8. I water plants in our garden early in the morning or evening.	2.4
9. I wash a volume of clothes/laundry.	2.5
B. Solid Waste Management	
1. I buy or shop for fruits and vegetables without plastic wrappings.	2.0
2. I use paper bags and baskets in marketing.	2.2
3. I bury biodegradable wastes and use them as fertilizers.	2.3
4. I repair things when they are broken.	2.4
5. I utilize my old clothes as rags.	2.5
C. Environmental Pollution	
1. I dump garbage into the campus pit without burning it.	2.3
D. Greenhouse Effect, Global Warming, and Ozone Depletion.	
1. I wash and reuse plastic utensils from fast-food stores/chain.	2.1
2. I use paper plates instead of styrofoam.	2.4
3. I plant trees to replace the cut ones.	2.5
E. Environmental Stewardship	
1. I attend symposia or seminars about the environment.	2.0
2. I feel that I am a steward of the environment.	2.2
3. I join organizations protecting and preserving the environment.	2.3
4. I participate in environment-friendly activities in our barangay.	2.5
F. Energy Conservation	
1. I unplug electric equipment when not in use.	
2. I print and copy on both sides of paper.	1.6
3. I take down notes during class rather than photocopy the teacher's notes.	2.4
G. Unsound practices that students do not usually do	
1. I don't care about the environment.	2.5
2. I throw dead animals into bodies of water.	3.9
3. I use the river, creeks, or canals as dumping sites for our garbage.	3.9
4. I find the discussion about the environment corny and boring.	3.8
5. I forget to turn off the television before sleeping.	3.6
6. I keep the faucet open while brushing my teeth.	3.6

Additionally, another concerning area where students demonstrated unsound environmental practices is in the management of solid waste. The test results revealed that many students are not sufficiently aware of the environmental impact of their waste or its proper disposal. This lack of responsibility toward waste management is compounded by widespread habits of improper disposal, such as littering and improper segregation of recyclable materials. According to the Natural Solid Waste Management Commission Secretariat (SWMCS), which operates under the Environment Management Bureau (EMB), each person in the metropolis produces an average of 0.5 kg of waste daily. This statistic highlights the magnitude of the problem: every individual generates approximately half a kilogram of waste every single day, contributing to the ever-growing issue of waste accumulation. The current study deals with the problems faced by the public due to improper waste management and the behaviour in waste disposal [43]. If the current rates continue, society could soon face severe consequences. These consequences could include being overwhelmed by trash or even creating numerous man-made mountains of garbage, with devastating effects on ecosystems, public health, and quality of life.

These findings highlight the need for effective educational interventions that address the gap in awareness and practice. This underscores the critical need for teacher education programs to integrate practical strategies that foster environmental sensitivity and translate knowledge into action. This could include implementing project-based learning, organizing community-centered environmental initiatives, and fostering interdisciplinary approaches to sustainability [44].

4.2. Environmental Sensitivity and Earth Science Performance

The analysis of the relationship between environmental sensitivity and earth science performance, as shown in **Table 3**, reveals a weak and statistically insignificant correlation ($r = 0.047$, $p = 0.696 > 0.05$) between these variables among first-year teacher education students. This indicates that excelling in Earth Science does not inherently correlate with higher levels of environmental sensitivity. In other words, strong academic performance in Earth Science does not necessarily translate into environmentally conscious attitudes or behaviors. These findings challenge the conclusions of Bartosh [45], who posited that academic performance serves as a reliable predictor of environmental sensitivity. In other words, strong academic performance in Earth Science does not necessarily translate into environmentally conscious attitudes or behaviors. Furthermore, they contradict Kumud's [46] research, which suggested that students with notable academic achievements tend to exhibit greater environmental sensitivity compared to those with lower academic performance. This discrepancy underscores the complexity of the relationship between academic success and environmental awareness, suggesting that factors beyond academic achievement may play a more influential role in shaping students' sensitivity to environmental issues.

Table 3. Relationship between earth science performance and environmental sensitivity.

	Mean	r Value	Sig (2-Tailed)
Earth Science Performance to 80.67 Environmental Sensitivity	2.71	–0.047	0.696

Not Significant ($p > 0.05$).

The Earth Science results were weakly correlated with sensitivity to weather and the local environment. This emphasizes the need to incorporate more hands-on and experiential learning within Earth Science curricula to effectively cultivate a deeper understanding and engagement with environmental issues [47]. To bridge this gap, a stronger emphasis on experiential learning and the integration of behavioral psychology principles within teacher education programs is crucial [48]. This can equip future educators with the skills and motivation to translate environmental knowledge into practical action. **Figure 2** illustrate the relationship between Earth Science knowledge and environmental sensitivity among first-year teacher education students, highlighting the gaps between theoretical understanding and practical application.

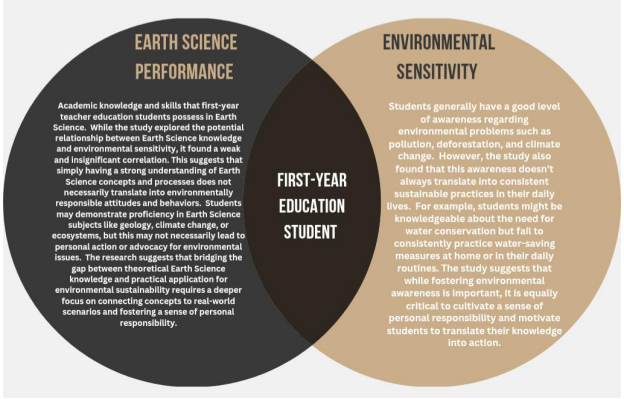

Figure 2. Relationship Between Earth Science and Environmental Sensitivity.

4.3. Gender and Sensitivity

Male students demonstrated slightly higher environmental sensitivity (M = 2.72) than their female counterparts (M = 2.71), but the difference was minimal and statistically insignificant (t = 0.24, p = 0.98). This indicates that both genders exhibit a similar propensity for environmentally sensitive behavior. When categorized by grade point average (GPA), students with a "high" GPA had the highest mean environmental sensitivity score (M = 2.97), followed by those with an "average" GPA (M = 2.72), and finally, students with a "low" GPA (M = 2.66). According to Hanushek [49] and Sothan [50], academic performance is a key indicator of a student's intelligence, which in turn can influence their relationship with the environment. Students with better academic performance tend to exhibit more favorable environmental behaviors.

4.4. Academic Specialization and Sensitivity

Regarding academic specialization, General Education students recorded the highest mean environmental sensitivity score (M = 2.75), followed by Mathematics students (M = 2.70), and both Biology and English students, who shared the same mean score (M = 2.66). These findings suggest that environmental sensitivity is shaped more by the exposure and curriculum focus of a particular field of study than by intrinsic academic interests. As shown in **Table 4**, General Education students exhibited the highest mean environmental sensitivity score (M = 2.75), indicating a stronger awareness and engagement with environmental issues compared to their peers in other fields. Mathematics students followed with a mean score of 2.70, suggesting a moderately high level of environmental sensitivity. Both Biology and English students recorded identical mean scores of 2.66, which, while still indicating average sensitivity, were notably lower than the scores of General Education students. These results imply that the degree of environmental sensitivity is likely influenced more by the nature of the coursework and exposure to environmental topics within each specialization rather than by an individual's inherent academic interests or talents. This underscores the role of curriculum content and educational experiences in shaping students' attitudes and behaviors toward environmental issues, suggesting that students in fields with a more integrated or focused environmental component may develop a higher level of environmental awareness.

Table 4. Environmental sensitivity of first year teacher education students.

	Variables	Mean	Description of Environmental Sensitivity	SD
A.	Entire group	2.71	Average	0.24
B.	Area of Specialization			
	Mathematics	2.70	Average	0.24
	English	2.66	Average	0.25
	Biology	2.66	Average	0.24
	General education	2.75	Average	0.24
C.	Sex			
	Male	2.72	Average	0.24
	Female	2.71	Average	0.25
D.	Home location			
	Coastal	2.68	Average	0.24
	Upland	2.74	Average	0.25
E.	General point average			
	High	2.86	High	0.33
	Average	2.72	Average	0.24
	Low	2.66	Average	0.25

Note: 3.41–4.00: very high; 2.81–3.40: high; 2.21–2.80: average; 1.61–2.20: low; 1.00–1.60: very low.

4.5. Environmental Sensitivity of First-Year Teacher Education Students Across Home Location

The t-test results presented in **Table 5** indicate no significant difference in the environmental sensitivity of first-year teacher education students based on their home location, $t(0.05,146) = 3.964$, $p = 0.021 < 0.05$. These findings contradict the study by Elkar and Yilmar[51], which reported a significant difference in environmental sensitivity among students depending on their household location. Additionally, the findings oppose the conclusion that home location has a certain level of influence on students' environmental sensitivity toward their surroundings. This implies that students living in upland areas exhibit environmental sensitivity levels comparable to those of students residing in coastal areas. Numerous studies have examined how the geographic location of households influences students' environmental sensitivity. For instance, research by Djuric[52] revealed that students residing in urban areas demonstrated higher levels of environmental sensitivity compared to their rural counterparts. This finding suggests that growing up in urban settings may foster heightened environmental awareness, potentially due to increased exposure to visible environmental challenges and related issues.

These results challenge the assumption that geographic location alone dictates environmental attitudes and behaviors. This research aligns with the findings of Weber et al.[53] and Kemeç et al.[54], suggesting that other factors, including social, cultural, and educational experiences, are likely more influential in shaping students' environmental sensitivity than their home location.

Table 5. T-test result for difference in students' environmental sensitivity across home location.

Category	Mean	T	Df	Sig
Home Location				
Coastal	2.68	–1.67	154	0.703
Upland	2.74			

Note: $p > 0.05$ means "not significant".

This suggests that fostering environmental sensitivity requires a more nuanced approach than simply considering geographic location. Teacher education programs should consider incorporating activities and experiences that expose students to diverse environmental contexts and perspectives.In general, students feel valued, more capable of learning, and more engaged with the learning environment and materials when the teacher is responsive to their needs[55, 56].

5. Conclusions

The findings of this study provide valuable insights into the environmental sensitivity of first-year teacher education students, highlighting the complex interplay between academic performance, demographic factors, and personal experiences in shaping their attitudes and behaviors towards environmental issues. Although students are generally aware of environmental issues, they still need to improve their actual practices, especially with regard to waste and water management. The weak correlation between Earth Science performance and environmental sensitivity underscores the need for educational interventions that go beyond theoretical knowledge and promote practical application of sustainable practices. The careful consideration of behavioral psychology is a matter of consensus for teacher education curricula. This study provides further evidence for incorporating principles of behavioral psychology, experiential learning, and focused environmental education into teacher education programs to equip future educators with the knowledge, skills, and motivation to become effective advocates for environmental conservation and sustainability. The study also reveals that while gender, home location, and academic specialization may influence environmental sensitivity, these factors do not statistically significantly predict behavior.

The research emphasizes the importance of incorporating behavioral psychology, environmental education, and real-world experiences into teacher education programs to equip future educators with the knowledge, skills, and motivation to become effective advocates for environmental conservation and sustainability. Research should focus on exploring the effectiveness of specific educational interventions in promoting sustainable practices and fostering a deeper un-

derstanding of environmental sensitivity among teacher education. Further investigation into the potential of experiential learning, such as outdoor education programs or community-based environmental projects, could provide valuable insights for shaping future teacher education curricula. This research suggests that policies promoting environmental education should not solely focus on academic knowledge but also prioritize the development of environmentally sensitive behaviors through experiential learning and the integration of behavioral psychology principles. Additionally, the findings suggest that policies promoting environmental education should focus on supporting the integration of environmental education across various disciplines, not just within Earth Science courses.

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Institutional Review Board Statement

The institutional review process includes an internal review process and those reviewed by high-index journal.

Data Availability Statement

The research is publicly accessible online and can be sourced with proper attribution to the author, Aldrex A. Barrientos.

Conflicts of Interest

The author declares no conflict of interest.

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