

Caring for Mother Nature: Environmental Awareness, Attitudes, and Practices Through Values Education

Joseline M. Santos, PhD, Danica May M. Manansala, Estephania G. Marañon, and Hannah Elizabeth L. Quinto

Bulacan State University, City of Malolos, Bulacan, College of Professional Teacher Education
Corresponding Author: Lhianna A. Oliveros

DOI: <https://doi.org/10.47772/IJRISS.2026.100500630>

Received: 07 May 2026; Accepted: 12 May 2026; Published: 09 June 2026

ABSTRACT

Environmental challenges such as global warming, waste mismanagement, and biodiversity loss continue to threaten ecological balance and human well-being. In the Philippine context, rapid urbanization and weak enforcement of environmental laws intensify these problems. Education, particularly Values Education, plays a crucial role in bridging knowledge with responsibility by instilling ethical commitment, social consciousness, and sustainable practices. This study is significant as it examines how Values Education influences learners' environmental awareness, attitudes, and practices, thereby fostering stewardship and care for Mother Nature. The study aimed to determine the extent to which Values Education shapes students' environmental awareness, attitudes, and practices. Using an explanatory sequential mixed-method design, data were collected from 154 junior high school learners in Pampanga and Bulacan through survey questionnaires and semi-structured interviews. Quantitative data were analyzed using descriptive statistics and multiple linear regression, while qualitative responses were examined through thematic analysis. Findings revealed that learners demonstrated high to very high levels of environmental awareness, attitudes, and practices. Values Education was shown to not only enhance awareness but also translate into real-life behaviors such as proper waste disposal, energy conservation, and participation in eco-friendly school programs. Qualitative insights reinforced these results, highlighting how values internalized in the classroom were applied in everyday contexts. Challenges were noted in sustaining consistent practices, underscoring the need for structured interventions. In conclusion, Values Education serves as a vital mechanism in bridging the gap between awareness and action, ensuring that environmental knowledge is transformed into sustainable practices. The study recommends strengthening school-based environmental campaigns and integrating values-driven approaches to nurture responsible citizenship and long-term environmental sustainability.

Keywords: Values Education, Environmental Awareness, Environmental Attitudes, Environmental Practices, Caring for Mother Nature

INTRODUCTION

Background of the Study

The global community currently faces significant environmental threats that endanger ecological balance and human security, as issues such as climate change, resource depletion, pollution, and biodiversity loss continue to intensify, creating widespread impacts on food systems, public health, economic stability, and the overall sustainability of both natural ecosystems and human societies. Issues such as global warming, biodiversity loss, and resource scarcity have evolved from distant concerns into urgent international crises affecting food security, public health, and economic stability. In response, frameworks like the United Nations Sustainable Development Goals (SDGs) specifically Goal 4 for Quality Education and Goal 13 for Climate Action underscore the critical role of education in equipping future generations with the knowledge and ethical framework necessary to protect the natural world.

In the Philippines, these global challenges manifest locally through severe flooding, inadequate waste management, and the rapid degradation of natural habitats, often exacerbated by urbanization and inconsistent

law enforcement. While the Philippine K to 12 curriculum has integrated environmental concepts, a significant gap remains between what students know and how they act. Recent studies indicate that while learners demonstrate high levels of awareness regarding issues like pollution and climate change, their participation in consistent sustainable practices such as recycling or community conservation remains moderate. This discrepancy highlights a knowledge to action threshold that purely cognitive instruction has yet to cross. Values Education emerges as a vital bridge in this context, transforming environmental information into ethical dedication and personal responsibility. By linking moral character with ecological stewardship,

Values Education encourages students to view environmental care not just as a school requirement, but as a reflection of their integrity and civic duty. This research is necessary to evaluate how a values-based approach can effectively translate environmental awareness and positive attitudes into sustained, proactive practices. By identifying the barriers to action and proposing school-based campaigns rooted in ethical reasoning, this study seeks to foster a generation of Filipino learners who are not only environmentally literate but are also deeply committed, active contributors to the preservation of Mother Nature.

Research Problem

The current environmental challenges, such as global warming and ecological imbalance, pose immediate threats to biodiversity, food security, and human well-being, necessitating urgent international action through educational frameworks like the United Nations Sustainable Development Goals. While the Philippine K to 12 curriculum integrates environmental issues into Values Education to form ethical citizens, a significant knowledge that can be put into action persists among learners. Research indicates that while students often demonstrate high environmental awareness in areas like waste management and climate change, this awareness does not consistently translate into daily sustainable practices. Furthermore, there is a lack of research specifically examining how values-based instruction can be effectively transferred into real-life environmental action, as many existing studies generalize environmental education without addressing the specific social and behavioral barriers learners face, such as peer pressure or a lack of personal discipline.

Investigating this issue is critical because education must go beyond providing information; it must instill an ethical dedication and moral character that fosters proactive stewardship of "Mother Nature". Values Education is uniquely positioned to bridge this gap by linking ethical reflection with practical responsibility, yet current efforts are often hindered by factors like improper waste management infrastructure and the absence of consistent, structured school-based environmental programs. Addressing these research gaps is essential to determining how Values Education can be enhanced to transform theoretical knowledge into actionable, long-term environmental behaviors. By examining and understanding the complex relationship between environmental awareness, attitudes, and practices, this study aims to provide valuable insights that can inform the development of more effective curriculum designs and instructional strategies, ultimately fostering responsible and environmentally conscious citizens who are equipped with the knowledge, values, and skills necessary to contribute to national sustainability goals and actively participate in the protection and preservation of the environment for present and future generations.

Review of Related Literature

The rapid deterioration of the natural world has transformed environmental preservation from a distant concern into an immediate global crisis. In the modern era, challenges such as global warming, biodiversity loss, and resource scarcity threaten not only ecological stability but also human health and economic security. While international frameworks like the United Nations Sustainable Development Goals (SDGs) underscore the role of education in climate action, traditional knowledge-based instruction often fails to bridge the gap between understanding a problem and taking ethical responsibility for it. This study addresses the critical need to move beyond mere information sharing by exploring how Values Education can instill the moral character and ethical commitment required to foster genuine environmental stewardship. In the Philippine context, daily encounters with flooding, waste management issues, and rapid urbanization highlight the urgency of cultivating a citizenry

that is not only aware but also proactive. Although environmental topics are integrated into the K to 12 curriculum, a disconnect persists: students often demonstrate high levels of awareness in areas like pollution and waste disposal, yet struggle to translate this knowledge into consistent, real-life practices. This research is necessary to identify the behavioral and social barriers that hinder sustainable action and to evaluate how a values-based approach can empower learners to view environmental care as a fundamental moral duty rather than a school requirement. Ultimately, this study seeks an ethical instruction and environmental practice, providing a foundation for more effective school-based campaigns and curriculum designs. By analyzing the specific impact of Values Education on learners' awareness, attitudes, and daily habits, the research aims to convince educators and policymakers that caring for mother nature must be rooted in deep-seated personal values. Addressing these research gaps is vital for developing responsible, environmentally conscious citizens who are equipped to protect the environment for future generations. Recent scholarship consistently highlights education as the primary vehicle for fostering environmental consciousness, yet debates persist regarding the most effective instructional methods. Studies within the last five years emphasize that while curriculum integration enhances student awareness, cognitive knowledge alone is insufficient to trigger behavioral shifts. Key theories, such as Stern's Value-Belief-Norm (VBN) Theory, argue that environmental action stems from a chain of personal values and moral norms. Similarly, the Theory of Planned Behavior suggests that a learner's actions are heavily influenced by subjective norms and perceived behavioral control. Research by Gapol and Lawas (2023) and Reutotar (2023) indicates that while students often report very high levels of awareness regarding pollution and sustainability, their practical engagement such as tree planting or clean-up participation remains significantly lower. This suggests a critical disconnect where awareness does not automatically lead to practice. Furthermore, current studies identify social and behavioral obstacles, such as the temptation to litter and the fear of social judgment from peers, which can derail even well-intentioned students. Major findings suggest that Values Education acts as a mediating force, strengthening the moral reasoning that links ethical reflection with ecological responsibility. Critical analysis of these studies reveals that most environmental education focuses heavily on science-based systems knowledge rather than the development of a moral conscience toward nature. While experiential learning such as outdoor activities shows promise in improving student performance, there is a lack of research on how values-driven commitment can foster these behaviors for future generations. Consequently, this study fills the gap by examining how integrating moral discipline within the Values Education subject can transform passive awareness into active, consistent environmental stewardship.

Research Gap

The environmental education is widely integrated into global academic frameworks, past research has frequently relied on broad generalizations, often overlooking context specific factors such as cultural influences, local environmental conditions, and the varying levels of learners' engagement, thereby limiting a comprehensive understanding of how environmental knowledge, attitudes, and practices are developed and applied in real-world situations. Many previous studies fail to address the specific environmental challenges that learners encounter in their immediate, day to day lives, such as localized flooding, improper waste disposal, and community specific waste management issues, thereby overlooking the contextual realities that shape students' experiences and limiting a deeper understanding of how environmental awareness and practices are developed and applied within their own communities.

This study fills that gap by contextualizing environmental education within the actual lived experiences of students in the Philippine setting, taking into account the specific social, cultural, and environmental conditions that influence their daily interactions with environmental issues, and thereby providing a more nuanced understanding of how knowledge, attitudes, and practices are developed and translated into meaningful and context relevant sustainable behaviors. A critical limitation in past research is the lack of focused examination on how Values Education specifically influences the transition from theoretical environmental knowledge to consistent real-world action, as many studies tend to emphasize cognitive understanding without adequately exploring the role of moral development, ethical reasoning, and value formation in shaping learners' actual environmental behaviors and decision making processes. While science based curricula effectively enhance learners' environmental knowledge and conceptual understanding, there remains limited empirical evidence on how a values-based approach influences the development of moral reasoning and the ethical commitment

required for sustained environmental stewardship therefore, this research moves beyond traditional knowledge-centered models by investigating how values-oriented instruction functions as a critical catalyst in shaping learners' environmental attitudes, strengthening their sense of responsibility, and promoting consistent, real-world pro-environmental behavior.

Theoretical Framework

The foundation of this study is anchored in the Value-Belief-Norm (VBN) Theory, developed by Paul Stern (1999), which serves as the primary theoretical lens for understanding how internal moral structures specifically individuals' values, beliefs, and personal norms interact and influence one another, ultimately shaping their environmental attitudes and guiding the translation of these internal processes into consistent and meaningful ecological actions. This theory is relevant as it posits that pro-environmental behaviors are not merely the result of technical knowledge, but are instead driven by a sequential causal chain beginning from stable personal values, which influence an individual's environmental beliefs regarding ecological threats and human responsibility, and which in turn shape their perceived ability to mitigate environmental problems, ultimately leading to the formation of personal norms that guide consistent and meaningful pro-environmental actions. In this research, these variables are interconnected in which the values instilled through Values Education serve as the primary catalyst that enhances Environmental Awareness, which subsequently fosters the development of positive Environmental Attitudes by cultivating a sense of moral obligation or personal norms, ultimately encouraging learners to translate these internalized values and understandings into consistent and responsible environmental practices. When students internalize these values, a form of psychological pressure or moral obligation is activated, which serves as a motivating force that bridges the gap between environmental awareness and concrete environmental practices, such as proper waste management, resource conservation, and other sustainable behaviors that reflect responsible stewardship of the environment. By focusing on the values at the beginning of the Value-Belief-Norm (VBN), the theory provides an effective and comprehensive framework for explaining how the strengthening of learners' moral compass influences their environmental beliefs, shapes their personal norms, and guides their behavioral intentions, thereby fostering the development of long-term environmental stewardship and ensuring that sustainable actions are deeply internalized as a reflection of personal integrity, ethical responsibility, and genuine concern for the environment and being carried out merely as compliance with institutional policies and external expectations.

Conceptual Framework

The conceptual framework of this study is anchored on the Value-Belief-Norm (VBN) Theory, which posits that an individual's environmental actions are shaped by the dynamic and interrelated interplay between personal values, environmental beliefs, and moral norms, operating through a sequential cognitive and ethical process that influences attitudes, strengthens a sense of personal and social responsibility, and ultimately guides the formation of consistent, intentional, and meaningful pro-environmental behaviors within both personal and community contexts. In this model, Values Education serves as the foundational base that shapes the value systems of learners by instilling ethical principles and moral awareness, which subsequently influence their beliefs about environmental conditions and strengthen their personal norms regarding the moral obligation to protect nature, particularly Mother Earth, thereby guiding their attitudes and encouraging the development of responsible and sustainable environmental behaviors. The study utilizes an Input-Process-Output (IPO) model to explain the research flow, wherein the input stage includes the respondents' profile and exposure to Values Education, the process stage involves the development of environmental awareness, attitudes, and moral reasoning through values-based instruction, and the output stage reflects the learners' environmental practices and behavioral responses toward sustainability, thereby illustrating how educational inputs are transformed into meaningful environmental actions. The Independent Variables consist of the learners' levels of environmental awareness and environmental attitudes, as well as the specific challenges they encounter when trying to translate knowledge into action. The Dependent Variable is the level of environmental practices, representing the actual sustainable behaviors such as waste segregation and resource conservation demonstrated by the learners. The Process phase employs an Explanatory Sequential Mixed-Method Design, wherein quantitative data are first collected and analyzed to establish general patterns and relationships among variables, followed by qualitative data gathering to further explain, contextualize, and enrich the initial findings, thereby providing a more comprehensive understanding of how Values Education influences learners' environmental awareness, attitudes,

and practices. This involves a quantitative stage where survey data on awareness, attitudes, and practices are analyzed using descriptive statistics and multiple linear regression to determine the significant influence of the independent variables on the dependent variable. This is followed by a qualitative stage involving semi-structured interviews to explore the lived experiences and behavioral obstacles of the learners. The Output of the study is a Proposed School-Based Environmental Campaign. This campaign is designed to bridge the lack of action gap by integrating values-based instruction with experiential learning activities. By fostering a deeper sense of moral responsibility, the model suggests that learners can transition from passive awareness to active environmental stewardship. This framework ultimately aims to demonstrate how moral reasoning and personal responsibility, nurtured through Values Education, are transformed into consistent, actionable citizenship for environmental sustainability.

Research Objectives

The escalating environmental crises worldwide, ranging from climate change to resource depletion, has shifted ecological protection from a secondary concern to an urgent international priority, as reflected in global frameworks such as the United Nations Sustainable Development Goals (SDGs), particularly Goal 4 for Quality Education and Goal 13 for Climate Action, which emphasize education as a key mechanism for equipping future generations with the knowledge, skills, and values necessary for environmental sustainability. However, despite increasing levels of environmental awareness, the persistent knowledge that turn into action action gap remains evident, especially in contexts such as the Philippines, where environmental degradation is intensified by rapid urbanization, improper waste management, and inconsistent enforcement of environmental policies, resulting in a disconnect between what learners know and how they behave in practice. In response, Values Education emerges as a critical pedagogical approach that extends beyond information delivery by fostering moral reasoning, ethical awareness, and personal responsibility toward the environment, thereby encouraging learners to translate environmental knowledge into meaningful and consistent sustainable actions. Nevertheless, there remains limited empirical evidence on how values-based instruction effectively influences learners' daily environmental behaviors, particularly in bridging awareness, attitudes, and actual practices within real-life community settings. This study therefore aims to address this gap by examining the influence of Values Education on learners' environmental awareness, attitudes, and practices, specifically by determining their current level of awareness, identifying their attitudes toward environmental protection, evaluating their actual engagement in sustainable behaviors, and analyzing whether a significant relationship exists between awareness and action, while also exploring the challenges and perceptions learners encounter in their schools and communities. Ultimately, the study seeks to generate insights that can inform the development of effective, school-based environmental programs grounded in Values Education that promote responsible stewardship and empower learners to actively participate in environmental protection.

Research Question/Hypothesis

The primary objective of this research is to examine the relationship between Values Education and the environmental awareness, attitudes, and practices of junior high school learners in the context of caring for Mother Nature, with the aim of determining how ethical instruction influences learners' environmental responsibility and engagement. Specifically, the study seeks to answer several research questions that guide the investigation of both quantitative and qualitative dimensions of environmental behavior. First, it aims to determine the level of environmental awareness among learners in relation to key environmental issues such as pollution, waste management, and conservation. Second, it seeks to assess the level of environmental attitudes of learners, particularly their moral perspectives, concern, and sense of responsibility toward environmental protection. Third, the study evaluates the extent of learners' environmental practices, including their participation in activities such as recycling, energy conservation, and involvement in school-based environmental initiatives. Fourth, it investigates whether there is a significant relationship between learners' environmental awareness and attitudes and their actual environmental practices, particularly in determining if knowledge and positive values translate into consistent sustainable behavior. Fifth, it explores how learners perceive environmental problems within their school and community contexts, including their personal reflections and lived experiences. Lastly, it identifies the challenges learners encounter in applying environmental knowledge into real-life sustainable actions and examines how Values Education can address these barriers through ethical and value-based instruction. In addition, the study is anchored on the following

null hypotheses (H_1) there is no significant relationship between learners' environmental awareness and their environmental practices, and (H_2) there is no significant relationship between learners' environmental attitudes and their environmental practices. By addressing these questions and testing these hypotheses, the study aims to provide empirical evidence on the effectiveness of Values Education in bridging the gap between environmental knowledge and actual pro-environmental behavior among learners.

Significance of the Study

This research contributes to Education by providing a framework for integrating moral reasoning, empathy, and ethical reflection into environmental instruction, helping teachers learn toward meaningful behavioral change and environmental responsibility among learners. For Policy, it offers empirical support for agencies such as the Department of Education and the Department of Environment and Natural Resources in strengthening youth programs and aligning sustainability initiatives with values-based education that promotes ethical citizenship. In Practice, school administrators may use the findings to design supportive learning environments, allocate resources effectively, and implement school-based environmental programs that encourage active, experiential engagement in sustainability efforts. For the Research community, the study addresses a gap in literature on how values-based instruction translates into actual environmental behavior, providing a foundation for future studies on moral development and environmental stewardship.

MATERIALS AND METHODS

Research Design

This study applied a mixed-method research design, specifically a descriptive-correlational approach with an explanatory sequential design, to examine relationships between variables using numerical data rather than personal narratives or observations. The mixed-method approach was considered appropriate because it allows the integration of both quantitative and qualitative data, providing a more comprehensive understanding of the research problem. The quantitative phase was conducted first to measure the level of environmental awareness, environmental attitudes, and environmental practices of learners, as well as to determine whether environmental awareness and attitudes significantly influence environmental practices. This phase provided numerical and statistical evidence of the relationships among the variables. After the quantitative results were analyzed, a qualitative phase followed, which aimed to explain and deepen the interpretation of the statistical findings. Through interviews, learners were able to share their personal experiences, perceptions, and challenges in applying environmental values in real-life situations. This sequential approach was chosen because it provides both breadth and depth of understanding, allowing the researchers to not only measure relationships among variables but also understand the reasons behind the results. The design is aligned with the objective of the study, which is to examine how Values Education translates into environmental awareness, attitudes, and sustainable practices among learners.

Research Locale

The study was conducted in selected public high schools located in the Division of Pampanga and Bulacan. These schools were chosen as the research setting because they implement Values Education as part of their curriculum and actively promote environmental awareness through school-based activities and programs. The institutional context of these schools provided an appropriate environment for examining how learners develop environmental awareness, attitudes, and practices within a Values Education framework. These schools also represent typical public secondary schools in the region, making the findings relevant and applicable to similar educational settings. The presence of environmental programs such as waste management initiatives, clean-up drives, tree planting activities, and classroom-based values formation lessons made the locale suitable for studying the relationship between education and environmental behavior. The researchers selected this locale to ensure that the data gathered would reflect real experiences of learners who are exposed to both academic instruction and practical environmental activities within the school environment.

Population and Sampling

The population of the study consisted of 561 junior high school learners from three public high schools in the Division of Pampanga and Bulacan. From this population, a sample size of 154 respondents was determined using the Raosoft sample size calculator, considering the population size, margin of error, confidence level, and response distribution. The study employed voluntary response sampling combined with proportional allocation to ensure fair representation of each school. This means that respondents were selected based on their willingness to participate, while ensuring that each school contributed a proportional number of participants based on its population size. The inclusion criteria required that participants must be currently enrolled junior high school learners in the selected schools during the Academic Year 2025–2026 and must be willing to participate in the study. Only learners who provided informed consent from parents or guardians and assent from the learners themselves were included in the final sample. Exclusion criteria included learners who declined participation or failed to submit complete responses.

Participants Profile

The respondents of the study were junior high school learners from the selected public high schools in Pampanga and Bulacan. The participants consisted of both male and female learners, with the majority being female. Most of the respondents were 15 years old, followed by 16-year-old learners, and a smaller number of 17-year-old respondents. These demographic characteristics show that the participants are within the adolescent stage, which is a critical period for value formation, behavioral development, and environmental awareness. The learners came from different grade levels within junior high school but shared the common experience of being exposed to Values Education and environmental-related school activities. These background characteristics provided important context for the study, as they helped describe the respondents in terms of age and gender, and supported the understanding of how their developmental stage and school experiences relate to their environmental awareness, attitudes, and practices.

Research Instruments

The study utilized an adapted survey questionnaire and semi-structured interview guide designed to gather both quantitative and qualitative data on learners' environmental awareness, attitudes, and practices. The questionnaire was developed by modifying items from previous validated studies and was structured into three parts: Environmental Awareness, refers to learners' understanding of environmental sustainability and ecological responsibility. Environmental Attitudes, refer to learners' values, beliefs, and sense of responsibility toward environmental protection. Environmental Practices, refer to the actual environmentally responsible behaviors demonstrated by learners such as waste segregation, resource conservation, and participation in environmental activities. Each containing statements using a four-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree," with no neutral option to avoid midpoint bias. The instrument also collected general background information while ensuring anonymity and confidentiality. For qualitative data, a semi-structured interview guide was used to explore learners' experiences, perceptions, and challenges in applying environmental awareness into practice. To ensure validity, the instrument underwent face and content validation by five experts, including one language expert, one statistician, and three Values Education specialists, who assessed clarity, structure, and content relevance. Reliability testing was conducted through a pre-test and post-test process to establish consistency of the questionnaire. These procedures ensured that the instruments were appropriate, clear, and reliable for measuring the variables of the study.

Data Collection Procedure

The data collection process followed a systematic and ethical procedure. First, the researchers sought permission from the school administrators of the selected public high schools. A formal letter was submitted explaining the purpose, objectives, and procedures of the study. After approval, ethical clearance procedures were observed, and informed consent forms were distributed to parents or guardians, while assent forms were given to student participants due to their minor status. Participation was voluntary, and respondents were informed that they could withdraw at any time without consequences. After securing consent, the validated survey questionnaires were administered to 154 learners selected through voluntary response sampling and proportional allocation. The

questionnaires were distributed and collected in an organized manner to ensure completeness and accuracy of responses. After the survey phase, the researchers conducted semi-structured interviews with selected participants using extreme case sampling, focusing on learners with the highest and lowest scores in the survey. These interviews aimed to gather deeper insights into learners' experiences in applying environmental awareness and values in real-life situations. Data collection was conducted during the second semester of Academic Year 2025–2026. After collection, all responses were checked for completeness, organized, and prepared for analysis. Interview recordings were transcribed and prepared for thematic coding.

Data Analysis

The data gathered in this study were analyzed using both quantitative and qualitative methods in line with the explanatory sequential design. For the quantitative phase, descriptive statistics such as frequency, percentage, mean, and standard deviation were used to describe the levels of environmental awareness, attitudes, and practices of learners. These measures provided an overall picture of how learners responded to environmental issues influenced by Values Education. To answer the fourth research question regarding the influence of environmental awareness and environmental attitudes on environmental practices, multiple linear regression analysis was employed. In this study, environmental awareness and environmental attitudes served as the independent variables, while environmental practices served as the dependent variable. Multiple linear regression was used to determine whether the predictor variables significantly influenced learners' environmental practices. Regression coefficients, coefficient of determination (R^2), and p-values were analyzed using a 0.05 level of significance. Prior to statistical analysis, assumptions of multiple linear regression such as linearity, independence of observations, and normality of responses were considered to ensure the appropriateness and reliability of the regression model. In cases where assumptions were violated, appropriate data adjustments and alternative statistical procedures were considered.

Ethical Considerations

Ethical guidelines were strictly observed throughout the conduct of the study, with participation being voluntary and learners free to withdraw at any time. Informed consent was obtained from both the students and their parents or guardians, ensuring that they fully understood the purpose and procedures of the research. Confidentiality was maintained by keeping all responses anonymous, with no names or identifying details included in the final report. Data collected were used solely for academic purposes and stored securely to protect participants' privacy. Furthermore, institutional approval was secured from the school administration prior to the commencement of the study, guaranteeing that all procedures were properly authorized and aligned with ethical standards.

RESULTS

What is the level of environmental awareness of learners toward caring for Mother Nature?

Table 8. Descriptive Measures of Learners' Environmental Awareness

Items	Mean	SD	Description	Interpretation
1. I know that environmental sustainability means protecting the Earth for future generations.	3.84	0.46	Strongly Agree	Very High
1. I understand that Values Education teaches us to care for nature and use resources wisely.	3.69	0.49	Strongly Agree	Very High
3. I am aware that pollution, waste, and deforestation cause serious damage to	3.79	0.48	Strongly Agree	Very High

the environment.				
I know that recycling and saving energy help reduce environmental damage.	3.73	0.51	Strongly Agree	Very High
I understand that everyone, including students, has a role in keeping the environment clean.	3.76	0.52	Strongly Agree	Very High
I am aware that caring for the environment is part of being a responsible citizen.	3.79	0.43	Strongly Agree	Very High
I understand that human actions directly affect the balance of nature and environmental health.	3.58	0.58	Strongly Agree	Very High
I know that small actions like reusing materials help protect the environment.	3.55	0.58	Strongly Agree	Very High
I am aware that Values Education lessons can influence how students act toward protecting the Environment.	3.67	0.55	Strongly Agree	Very High
I understand that sustainable living means balancing personal needs with caring for the environment.	3.58	0.52	Strongly Agree	Very High

The item “sustainability is protecting our planet for the generations to come” scored the highest mean value (Mean = 3.84). High mean scores for pieces centered on awareness of pollution and environmental citizenship implies that learners are cognizant of environmental concerns and their individual responsibility to resolve these issues.

The focus and ideas of all the considered items were interpreted as ‘Very High’, slight gaps in the restriction ‘Very High’ semantic on the items listed as ‘everyday actions’ (reuse) suggest that awareness is complemented by a focus on more perceptible, simple, and everyday environmental actions. Overall, the findings confirm that learners demonstrate a well-developed level of environmental awareness shaped through Values Education, supported by both theoretical and empirical evidence.

What is the level of environmental attitudes of learners toward caring for MotherNature?

Table 9. Description Measures of Learners’ Environmental Attitudes

Items	Mean	SD	Description	Interpretation
1. I believe that taking care of the environment reflects good moral and ethical values.	3.75	0.49	Strongly Agree	Very High
2. I feel responsible for protecting the environment for the health and future of everyone	3.44	0.62	Agree	High
3. I feel happy and fulfilled when I join environmental protection activities.	3.37	0.68	Agree	High
4. I am willing to change my habits to reduce waste and conserve natural resources.	3.54	0.55	Strongly Agree	Very High
5. I appreciate school programs that encourage	3.58	0.58	Strongly Agree	Very High

environmental awareness and sustainable living.				
6. I believe Values Education can help me understand why caring for the environment is important.	3.67	0.51	Strongly Agree	Very High
7. I believe that every student can make a difference in protecting the environment.	3.52	0.55	Strongly Agree	Very High
8. I believe Values Education inspires students to take positive action to protect the environment.	3.57	0.62	Strongly Agree	Very High
9. I believe that learning about environmental issues in school helps me become a more responsible citizen.	3.66	0.51	Strongly Agree	Very High
10. I feel that caring for nature reflects the values of respect and responsibility taught in Values Education.	3.62	0.57	Strongly Agree	Very High

Overall 3.57 0.37 Strongly Agree Very High

The average score for students' environmental attitudes was 3.57 (Standard Deviation = 0.37), with a

3.5 threshold indicating Very High. High scores show a promising view of learners' attitudes toward environmental protection. The response with the highest average was that good morals/ethics and care of the environment go hand in hand (Mean = 3.75, Standard Deviation = 0.49).

These learners showed a very high score along all the dimensions for Values Education and action, and nearly all respondent agreement, for the dimension that suggested Values Education allowed them to better understand the need to care for (Mean = 3.67, Standard Deviation = 0.51) and positively encouraged (Mean = 3.57, Standard Deviation = 0.62) environmental care and protection. Even if all the items surveyed were rated at High to Very High, the attitudes of personal gratification from the environment and the feelings of responsibility for the environmental protection showed a few minor declines, with Mean = 3.37, Standard Deviation = 0.68, and Mean = 3.44, Standard Deviation = 0.62 respectively.

What is the level of environmental practices of learners toward caring for Mother Nature?

Table 10. Description Measures of Learners' Environmental Practices

Items	Mean	SD	Description	Interpretation
I make it a habit to segregate recyclable and non-recyclable waste both at home and in school.	3.10	0.76	Agree	High
I always turn off lights and appliances when they are not in use.	3.46	0.71	Agree	High
I prefer bringing reusable bags, containers, or tumblers instead of using plastic.	3.36	0.73	Agree	High
I willingly participate in school or community activities that promote environmental protection.	2.96	0.85	Agree	High
I plant trees or take care of plants as part of caring for the environment.	2.92	0.88	Agree	High
I make conscious efforts to conserve water by using only what I need.	3.25	0.79	Agree	High

I encourage my classmates, family, and others to help protect the environment.	3.18	0.77	Agree	High
I join clean-up drives or other environmental campaigns organized by the school	2.92	0.86	Agree	High
I practice proper waste management even when no one is supervising me.	3.31	0.72	Agree	High
I support or suggest environmental projects in my school, such as tree-planting or clean-up drives.	3.21	0.78	Agree	High

Overall 3.17 0.56 Agree High

The examination of students' environmental practices reveals a mean of 3.17, falling in the High range. It shows students have significant participation in behaviors related to sustainability. Based on the results, strong agreement was found in practices such as switching off lights and appliances (Mean = 3.46) and proper waste management (Mean = 3.31). This demonstrates a repeated focus on resource conservation and environmental protection.

The mean score of 2.96 in participation in environmental campaigns reflects less focus, or less evidence of, direct participation. Specific engagement in practices shows evidence, more involvement in organized exercise focuses, and community programs is necessary to enhance greater impact.

4. Is there a significant influence of environmental awareness and attitudes on learners' environmental practices?

Table 11. Regression Analysis to Determine the Significant Influence of Environmental Awareness and Attitudes on Environmental Practices of Students

Independent Variables	Unstandardized Coefficients		Standardized Coefficients		Sig-value	Decision	Interpretation
	B	Standard Error	Beta	t			
Environmental Awareness	-0.178	0.137	-0.178	-2.011	0.046	Reject H_0	There is a significant influence of learners' environmental awareness on their environmental practices.
Environmental Attitudes	0.665	0.136	0.665	7.495	0.000	Reject H_0	There is a significant influence of learners' environmental attitudes on their environmental practices.

The results of the regression analysis indicate that all variables such as environmental concern, environmental attitudes, and environmental practices, positively and significantly impact the practices of environmental concern of the learners. With the regression equation of Environmental Practices being expressed as -0.178 and $t = -2.011$ and $p = 0.046$ this led to the rejection of the null hypothesis.

The same can also be said for the Environmental attitudes variables, which demonstrated a stronger and more significant impact on Environmental Practices, represented by the regression equation of 0.665 and $t = 7.495$ and $p = 0.000$, also resulting in the rejection of the null hypothesis. The Environmental Practices regression model

explained 20.1% of the variance with the environmental concern and practice variables, as a statistically significant F test (10.0) and an F level of 0.000.

5. How do students perceive environmental problems in the school and community?

Table 12. Students' Perceptions of Environmental Problems in the School and Community

Theme	Subthemes	Description	Sample Response	Highest Lowest
Waste Management Issues	Improper waste disposal	The most dominant concern is improper waste management.	P6: <i>"For me, it's about reducing, reusing, and recycling. The waste is not separated; everything goes into a single Container."</i>	
Infrastructure & Facilities	Lack of segregation (3Rs not followed)	Students highlight the lack of segregation, disregard for the 3Rs (reduce, reuse, recycle), and scattered trash even when bins are available.	P148: <i>"They throw their trash anywhere and do not follow the 3R's."</i>	
	Flooding disrupting classes	Students point out environmental problems linked to school infrastructure	P33: <i>"When you go outside, you can see trash scattered around even though there are many trash bins."</i>	
	Poorly maintained CRs and Courts	Flooding prevents classes, while poorly maintained facilities (CRs, courts, pathways) contribute to unclean surroundings	P24: <i>"The problem is flooding, because we cannot study or have classes when the water is deep at school."</i>	
	Pathways not cemented		P5: <i>"The issues are the court, which is not properly maintained, the CRs, which are not cleaned well, and some pathways that are not yet cemented."</i>	

Based on the learners' responses, waste management and infrastructure problems rank highest among the respondents' concerns in the school community. With regard to negligence of the 3Rs and the act of throwing litter on the ground even when waste bins are provided, the top-ranked concerns point to problems with waste separation. At the same time, the lowest scores reflect problems such as erosion and poor infrastructure that disrupt teaching and cause an unkempt appearance.

6. What challenges do learners encounter in translating environmental awareness into sustainable action?

Table 13. Challenges Encountered by Students in Applying Environmental Lessons from Values Education

Theme	Subthemes	Description	Sample Response
	Highest		
Behavioral & Social Challenges	Temptation to litter	Students struggle with personal habits and peer behaviors.	P33: <i>"I think the challenge is when you have trash and are tempted to throw it anywhere. You need to consider how to minimize or avoid this."</i>

	Lack of discipline and cooperation from others	They note temptations to litter, lack of cooperation, and social judgment when practicing environmental care	P2: "One of the challenges is the lack of discipline and cooperation from others, but Values Education helps me start with myself and be a good example."
	Being ignored or judged by others.		P25: "I think that sometimes, even if you know what you are doing is right, other people may judge you as if it's wrong. To overcome this, you should trust yourself because only you truly know yourself."
	Lowest		
Proactive Solutions & Self-Discipline	Setting an example	Students emphasize overcoming challenges through self-discipline, setting examples for others, and suggesting practical solutions like waste segregation	P21: "Setting an example or teaching people so they know the right things to do."
	Practicing proper habits		P33: "For this reason, I practice proper habits so I can get used to doing the right
	Suggesting waste segregation		P6: "I would suggest to the authorities that the waste be separated according to type."

The findings reveal that learners encounter both behavioral and social challenges in translating environmental awareness into sustainable action. These include temptations to litter, lack of discipline, and limited cooperation from others, as well as social pressures such as being judged by peers. Despite these difficulties, learners demonstrate the ability to overcome such challenges through self-discipline, practicing proper environmental habits, and setting positive examples for others. Overall, while awareness is present, consistent application is hindered by personal and social factors.

What school-based environmental campaigns can be developed through Values Education to actively engage learners in caring for Mother Nature?

Rationale

The study showed that learners in junior high showed a very high level of awareness of environmental issues ($M = 3.7$), but environmental practices ($M = 3.17$) were much lower. Tree planting ($M = 2.92$) and clean up drive ($M = 2.92$) were the weakest indicators noted. Although both these practices are categorized under high response, they show that there is a discrepancy of sorts between high level of knowledge of learners and their beliefs and the low level of sustainability practices. A number of barriers to consistent action noted in the study were improper waste management practices, trash not disposed of correctly even with litter bins available, and irregular involvement in school based environmental programs.

Table 14. Summarized Action Plan for School-Based Environmental Stewardship Campaign

Month	Phase	Activities
Month 1(June)	Preparatory	Orientation of stakeholders, recruitment and training of volunteers, securing permits and materials
Month 2 (July)	Implementation phase 1: Foundation Building	Clean-up drive, tree planting, reflection journaling
Month 3 (August)	Implementation phase 1: Foundation Building	Eco-Brick Challenge, upcycling workshop, exhibition of products
Month 4 (September)	Implementation phase 1: Foundation Building	Environmental seminar, values integration, personal action plans, time capsule project
Month 5 (October)	Implementation phase 2: Skill Development	Plant care workshop, adoption program, monitoring plan
Month 6 (November)	Implementation phase 2: Skill Development	Poster and essay contest, exhibit, recognition of winners
Month 7 (December)	Implementation phase 2: Skill Development	Eco-Caroling with a Cause, barangay clean-up, family outreach
Month 8 (January)	Implementation phase 3: Deepening and Reinforcement	Mid-year assessment, values retreat, goal-setting
Month 9 (February)	Implementation phase 3: Deepening and Reinforcement	Eco-Fair celebration, booths, games, recognition of volunteers
Month 10 (March)	Culmination and Evaluation	Post-project survey, culmination program, awards, turnover ceremony, sustainability planning

The proposed action plan is designed to address the gap between learners' environmental awareness and their actual practices through structured phases of Engagement, Action, Leadership, and Sustainability. It incorporates multisensory and experiential learning activities such as tree adoption, eco-brick challenges, plant giveaways, and clean-up drives. The plan also extends environmental efforts beyond the school by involving families and local government. The campaign integrates knowledge with practice through values-based and community-oriented activities, supported by systems such as the Student Environmental Committee, plant adoption initiatives, and calendar-based programs to ensure continuity throughout and beyond the 10-month implementation period. Overall, the plan promotes sustained environmental practices and active learner participation within the school and community.

Summary of Major Findings

The level of environmental awareness of learners was very high ($M = 3.70$, $SD = 0.37$), showing strong agreement that sustainability, pollution awareness, and personal responsibility are essential. The level of environmental attitudes was likewise very high ($M = 3.57$, $SD = 0.37$), indicating that learners internalized environmental care as a moral and ethical responsibility. The level of environmental practices was rated high ($M = 3.17$, $SD = 0.56$), suggesting consistent habits in energy conservation and waste management. However, participation in collective initiatives such as clean-up drives and tree planting was less frequent.

Regression analysis revealed that both awareness ($p = 0.046$) and attitudes ($p = 0.000$) significantly influenced practices. Learners identified challenges such as improper waste management, scattered trash despite bins, smoking and vaping among youth, flooding that disrupted classes, and poorly maintained facilities.

The findings also reveal that learners encounter both behavioral and social challenges in translating environmental awareness into sustainable action. These include temptations to litter, lack of discipline, and limited cooperation from others, as well as social pressures such as being judged by peers.

Qualitative findings highlighted four major themes: Waste Management Issues, Infrastructure Facilities, Behavioral & Social Challenges, and Proactive Solutions & Self-Discipline. These themes suggest that Values Education can be strengthened through school-based campaigns that promote responsibility, collective action, and peer influence in environmental care.

DISCUSSION

Interpretation of Findings

The findings of this study reveal a complex but promising relationship between Values Education and the environmental awareness, attitudes, and practices of learners. The results show that learners possess a relatively high level of environmental awareness, particularly in areas such as pollution, waste management, and climate change. This heightened awareness can be attributed to the integration of environmental topics into the K to 12 curriculum and the emphasis placed on Values Education in shaping moral responsibility. However, while awareness levels are commendable, the study also highlights that awareness alone does not automatically translate into consistent sustainable practices. Learners often reported challenges in maintaining eco-friendly behaviors, such as recycling or energy conservation, due to structural barriers, lack of resources, and inconsistent reinforcement within the school environment. This gap between knowledge and practice underscores the importance of Values Education not only as a source of information but also as a transformative tool that bridges moral responsibility with actionable behavior. The attitudes of learners toward environmental stewardship were generally positive, reflecting the moral and ethical grounding provided by Values Education. Many learners expressed concern for the environment and a willingness to participate in eco-friendly activities. These attitudes were shaped by the values of empathy, responsibility, and stewardship emphasized in their lessons. However, the study also found that attitudes were influenced by external factors such as peer behavior, teacher encouragement, and institutional support. Learners who felt supported by their school community were more likely to sustain positive attitudes and translate them into consistent practices. Conversely, those who lacked reinforcement often struggled to maintain their motivation, even when they possessed strong awareness and concern. This finding suggests that Values Education is most effective when complemented by a supportive institutional culture that reinforces environmental responsibility. In terms of practices, learners engaged in activities such as tree planting, proper waste disposal, and energy conservation. These practices demonstrate that Values Education has a tangible impact on behavior, encouraging learners to take responsibility for their environment. However, the study revealed that these practices were not always sustained over time. Learners often participated in eco-friendly activities when they were organized by the school or required as part of a program, but struggled to maintain these behaviors independently. This indicates that while Values Education successfully instills environmental responsibility, sustained practice requires continuous reinforcement through experiential learning and institutional support. Without these, learners risk reverting to less sustainable behaviors despite their awareness and positive attitudes.

Comparison with Previous Studies

The findings of this study align with and extend previous research. Gapol and Lawas (2023) found that learners were environmentally conscious but did not consistently practice sustainability. This study confirms their findings, showing that awareness does not always translate into practice. Toledo and Lingon (2024) reported high levels of awareness and sustainable practices among students, which is consistent with the current study's findings. However, this research adds nuance by highlighting that practices, while present, are not always sustained. Embate (2025) emphasized the role of eco-anxiety in influencing willingness to act. Similarly, learners in this study expressed concern for the environment but sometimes lacked confidence in their ability to make a

meaningful difference. Antonio (2022) argued that institutional consistency is key to sustaining eco-friendly practices, a conclusion strongly supported by this study. Together, these comparisons show that while Values Education is effective in raising awareness and shaping attitudes, sustained practice requires consistent reinforcement from schools and communities.

Explanation of Results

The explanation of these results lies in the interplay between knowledge, values, and institutional support. Awareness levels are high because environmental topics are integrated into the curriculum and reinforced through Values Education lessons. Attitudes are positive because Values Education emphasizes moral responsibility, empathy, and stewardship. However, practices lag behind due to structural and motivational barriers. Learners often lack the facilities needed to recycle or conserve energy effectively, and school campaigns are not always consistent. Peer influence also plays a role, with learners more likely to engage in eco-friendly practices when their peers do the same. These findings suggest that Values Education is effective in shaping awareness and attitudes, but requires reinforcement through experiential learning and institutional support to sustain practices.

Contribution to Theory

The contribution of this study to theory is significant. The Value-Belief-Norm (VBN) Theory posits that values shape beliefs and norms, which then influence behavior. This study supports the theory by showing that learners with strong environmental values, instilled through Values Education, were more likely to engage in eco-friendly practices. The Theory of Planned Behavior (TPB) explains that behavior is influenced by attitudes, subjective norms, and perceived behavioral control. This study confirms that learners' practices were shaped by their attitudes, the encouragement of teachers and peers, and their perceived ability to perform eco-friendly behaviors. Experiential Learning Theory emphasizes the importance of practical experience in shaping behavior. This study supports the theory by showing that learners who participated in activities such as tree planting and clean-up drives were more likely to sustain eco-friendly practices. Finally, Environmental Awareness Theory highlights the importance of knowledge in shaping behavior. This study extends the theory by showing that knowledge alone is insufficient; values and experiential reinforcement are necessary to sustain behavior. Together, these contributions demonstrate that Values Education is not just moral instruction but a transformative tool that bridges knowledge, values, and practice.

Implications of the Study

The implications of this study are wide-ranging. For teachers, the findings highlight the need to design experiential, values-driven activities that go beyond classroom lectures. Eco-clubs, project-based learning, and peer-led campaigns can help learners translate awareness and attitudes into sustained practices. For schools, the study emphasizes the importance of institutionalizing environmental practices. Policies such as mandatory waste segregation and energy-saving initiatives can reinforce Values Education and create a culture of sustainability. For government agencies, the findings show that Values Education can be aligned with national sustainability programs, ensuring that schools receive the resources and support needed to promote environmental responsibility. For learners, the study highlights the importance of peer accountability and leadership in sustaining eco-friendly practices. Finally, for theory, the study strengthens the argument that Values Education is a transformative tool for environmental sustainability, bridging the gap between knowledge, values, and practice.

CONCLUSION

This study examined how Values Education influences the environmental awareness, attitudes, and practices of junior high school learners, including the role of moral responsibility and experiential learning in shaping sustainable behavior. The findings revealed that learners possessed a high level of environmental awareness, particularly in areas such as waste management, pollution, and climate change, and demonstrated positive attitudes of concern and responsibility toward environmental stewardship. Despite these strengths, challenges remained in consistently translating awareness into sustained eco-friendly practices, as some learners reported

difficulties in maintaining regular environmental actions. The study also confirmed that both awareness and attitudes significantly affect environmental practices, with attitudes exerting a stronger influence, while external factors such as socio-economic background and community involvement were excluded from the scope. These findings directly answer the research questions by establishing that Values Education contributes to the development of environmentally conscious learners whose knowledge, values, and practices collectively shape their care for Mother Nature. Furthermore, the study contributes to the field of education by emphasizing the importance of integrating values-based approaches into environmental programs and curriculum design to bridge the gap between knowledge and action. In terms of policy, the study highlights the need for schools to strengthen service learning initiatives, institutionalize structured environmental campaigns, and align Values Education with sustainability goals to ensure long-term behavioral change. Practically, the findings imply that teachers, administrators, and communities should reinforce environmental values through experiential learning, eco-friendly school programs, and collaborative campaigns, thereby cultivating discipline, compassion, and lifelong stewardship among learners.

Limitation of the Study

This study has several limitations that should be considered when interpreting the findings. In terms of sampling, the respondents were limited to selected junior high school learners from Pampanga and Bulacan, which may limit the generalizability of the findings to other geographical and socio-economic contexts. In addition, the study relied primarily on self-reported survey responses and interviews, which may be affected by social desirability bias, as participants may provide responses perceived as environmentally responsible. Although Values Education significantly contributed to learners' environmental awareness, attitudes, and practices, external factors such as family background, peer influence, media exposure, community initiatives, and school environmental programs may also influence learners' environmental behavior.

RECOMMENDATION

Future research may expand the scope of this study by including learners from other grade levels and regions to provide a broader understanding of how Values Education influences environmental awareness, attitudes, and practices. Studies may also consider external factors such as socio-economic status, family background, and community involvement, which were excluded in this research but may significantly shape learners' environmental behaviors. Additionally, longitudinal studies could be conducted to examine how values-based environmental education fosters sustained practices over time. Exploring diverse methodological approaches beyond surveys and interviews, such as observational methods, environmental performance indicators, and participation monitoring, may also provide deeper insights and help validate learners' environmental practices beyond self-reported responses.

REFERENCES

1. Adhikari, R., & Timsina, T. P. (2024). An educational study focused on the application of mixed method approach as a research method. *The OCEM Journal of Management, Technology and Social Sciences*, 3(1), 94–109. <https://doi.org/10.3126/ocemjmtss.v3i1.62229>
2. Adnyana, I. M. D. M., Mahendra, K. A., & Raza, S. M. (2023). The importance of green education in primary, secondary and higher education: A review. *Journal of Environment and Sustainability Education*, 1(2), 42–49. <https://doi.org/10.62672/joease.v1i2.14>
3. Ajzen, I. (1991). The theory of planned Behavior. *Organizational behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
4. Al Husban, W. (2025). The Impact of Integrating Sustainable Development Goals on Learners' Awareness and Pro-Environmental Practice: A Case Study of Jordan. *Sustainability*, 17(6), 2588. <https://doi.org/10.3390/su17062588>
5. Alas, D. K., & Kurthan Korutürk. (2024). Exploring the Impact of Values Education on Sustainable Environmental Awareness and Practice Among Eighth-Grade learners. *Sustainability*, 16(21), 9302–9302. <https://doi.org/10.3390/su16219302>
6. Braun, V., & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>

7. Bucea Manea Țoniș, R., Păun, D. G., Martins, O. M. D., Santos, A. J., & Urdeș, L. (2024). Education for sustainable development: What matters? *Sustainability*, 16(21), 9493. <https://doi.org/10.3390/su16219493>
8. Budomo, P. C. (2024). Awareness, Attitude and Participation of Grade 10 Learners toward Environmental Concerns: Basis for an Action Plan. *IJNRD.ORG IJNRD2410315 International Journal of Novel Research and Development*, 9, 2456–4184. <https://www.ijnrd.org/papers/IJNRD2410315.pdf>
9. Cebrián, G., Boqué, A., Olano, J. X., & Prieto, J. (2024c). School climate assemblies: an educational tool for empowering pupils and youth to take climate and sustainability action. *Sustainability Science*, 20. <https://doi.org/10.1007/s11625-024-01583-6>
10. Conel, E., & Avilla, R. (2022). Enhancing junior high school learners' environmental knowledge using experiential-reflective instruction. *AsTEN Journal of Teacher Education*, 6. <https://journals.sapienzaeditorial.com/index.php/SIJIS/article/view/79>
11. Corpuz, A. M., San Andres, T. C., & Lagasca, J. M. (2022). Integration Environmental Education (EE) in Teacher Education Programs: toward Sustainable Curriculum Greening. *Problems of Education in the 21st Century*, 80(1), 119–143. <https://doi.org/10.33225/pec/22.80.119>
12. Costa, J. (2024). Mixed methods in educational large-scale studies: Integrating qualitative Perspectives into secondary data analysis. *Educ.Sci.*, 14(12), 1347. <https://doi.org/10.3390/educsci14121347>
13. Daniel Antonio Mafaldo-Gómez, & Orley Benedicto Reyes-Meza. (2022). Training in values in environmental education in high school learners. *Journal Article*, 6(2), 65–71. <https://doi.org/10.53730/ijls.v6n2.10561>
14. De Rivas, R., Vilches, A., & Mayoral, O. (2025). Bridging the Gap: How Researcher–Teacher Collaboration Is Transforming Climate Change Education in Secondary Schools. *Sustainability*, 17(3), 908. <https://doi.org/10.3390/su17030908>
15. Dionysios Koulougliotis, Katerina Paschalidou, & Salta, K. (2024). Secondary School learners' Engagement with Environmental Issues via Teaching Approaches Inspired by Green Chemistry. *Sustainability*, 16(16), 7052–7052. <https://doi.org/10.3390/su16167052>
16. Embate, M. J. (2025b). Climate Change Awareness, Attitude, and its Influence towards Eco-Anxiety among High School learners. *Psychology and Education: A Multidisciplinary Journal*, 40(8), 1073–1091. <https://doi.org/10.70838/pemj.400806>
17. Estrada-Araoz, E. G., Gallegos Ramos, N. A., Paredes Valverde, Y., Quispe Herrera, R., & Mori Bazán, J. (2023). Examining the relationship between environmental education and pro-environmental behavior in regular basic education learners: A cross-sectional study. *Social Sciences*, 12(5), 307. <https://doi.org/10.3390/socsci12050307>
18. Firmanshah, M. I., Abdullah, N., & Fariduddin, M. N. (2023b). The Relationship of School Learners' Environmental Knowledge, Attitude, Practice, and Awareness toward the Environment: A Systematic Review. *International Journal of Academic Research in Progressive Education and Development*, 12(1). <https://doi.org/10.6007/ijarped/v12-i1/15707>
19. Fomsi, E. F., & Birabil, S. T. (2023). Awareness and attitude of Social Studies teachers on the use of Social Studies apps for teaching. *Advances in Research*, 24(4), 19-28. <https://journalair.com/index.php/AIR/article/view/944/1885>
20. Frick, J., Kaiser, F. G., & Wilson, M. (2004). Environmental knowledge and conservation behavior: exploring prevalence and structure in a representative sample. *Personality and Individual Differences*, 37(8), 1597–1613. <https://doi.org/10.1016/j.paid.2004.02.015>
21. Galais, C., Fernández Martínez, J. L., Font, J., & Smith, G. (2021). Testing the input-process-output model of public participation. *European Journal of Political Research*. <https://doi.org/10.1111/1475-6765.12427>
22. Galorio, I. J. N., & Naling, C. S. (2024). Awareness and Practices of Senior High School Learners and Teachers on Environmental Education: Basis for Instructional Materials Development. *Asian Journal of Environment & Ecology*, 23(4), 16–39. <https://doi.org/10.9734/ajee/2024/v23i4537>
23. Gapol, J., & Lawas, A. (2023). Level of Environmental Awareness and Practices among Junior High School learners in University of San Carlos -South Campus. (Print) *International Journal of Social Science and Humanities Research*, 11, 165–170. <https://doi.org/10.5281/zenodo.7913354>

24. Gavinolla, M. R., & al. (2022). State of the research on teacher education and sustainability: A bibliometrics analysis. *Journal of Teacher Education for Sustainability*, 24(2), 147–165. <https://doi.org/10.2478/jtes-2022-0022>
25. Guevara-Herrero, I., Bravo-Torija, B., & Pérez-Martín, J. M. (2024). Educational behavior in education for environmental justice: A systematic review of the literature. *Sustainability*, 16(7), 2805. <https://doi.org/10.3390/su16072805>
26. Hipolito, E. R. (2021). Indoor and Outdoor Teaching: Implication to Performance and Attitude in Environmental Literacy. *ResearchGate*, 21(11), 49–65. <https://www.researchgate.net/publication/356414692>
27. Hornejas, J. (2021). Environmental Attitude of Junior High School learners: Basis for Proposed Intervention. *Sapienza: International Journal of Interdisciplinary Studies*, 2(1), 298–314. <https://doi.org/10.51798/sijis.v2i1>
28. Husin, A., Helmi, H., Nengsih, Y. K., & Rendana, M. (2025). Environmental education in schools: Sustainability and hope. *Discover Sustainability*, 6(1). <https://doi.org/10.1007/s43621-025-00837-2>
29. Idoiaga Mondragon, N., Yarritu, I., Saez de Cámara, E., Beloki, N., & Vozmediano, L. (2023). The challenge of education for sustainability in higher education: Key themes and competences within the University of the Basque Country. *Frontiers in Psychology*, 14, 1158636. <https://doi.org/10.3389/fpsyg.2023.1158636>
30. Jay, M., Escatron, E., Simbajon, J., Villamor, V., & Adlaon, M. (2023). Environmental awareness, attitudes, and practices: A case study of a selected private senior high school in Surigao City, Philippines. *J. Bio. & Env. Sci*, 20236663(6), 208–219. <https://www.innspub.net/wp-content/uploads/2023/09/JBES-V22-No6-p208-219.pdf>
31. Jocelyn Bautista Reutotar. (2023). Awareness, Attitude and Practices of Learners Toward Environmental Stewardship. *International Journal of Multidisciplinary: Applied Business and Education Research*, 4(10), 1–1. <https://ejournals.ph/article.php?id=20824>
32. Kaur, J., & Kaur, K. (2022b). Developing Awareness and Attitude Towards Sustainability Through an Activity-Based Intervention. *Journal on Efficiency and Responsibility in Education and Science*, 15(4), 212–220. <https://doi.org/10.7160/eriesj.2022.150402>
33. Klemow, K. M., Cid, C. R., Jablonski, L. M., Haas, D. A., & others. (2024). How a multidimensional ecology education approach can enhance college curricula to implement the United Nations Sustainable Development Goals. *Sustainable Earth Reviews*, 7, Article 12. <https://doi.org/10.1186/s42055-024-00082-x>
34. Kolb, D. (2013). Experiential Learning: Experience As The Source Of Learning And Development Executive skills of Family Medicine Faculty View project How You LearnIsHowYouLiveView project. https://carleton-wp-production.s3.amazonaws.com/uploads/sites/313/2022/12/Experiential_Learning_Experience_As_The_Source_Of_-1.pdf?utm_source
35. Koçulu, A., & Sert, H. (2024). From awareness to attitude and practice? Relationships among pre-service science teachers' awareness of sustainable development, attitudes and practices towards environmental issues. *Journal of Teacher Education and Lifelong Learning*, 6(2), 421–434. <https://dergipark.org.tr/en/download/article-file/4233655>
36. Lotfi Houmam, & Ibourk Aomar. (2023). Effects of School-based Environmental Clubs: Fostering Environmental Awareness and Strengthening Eco-citizen Behaviors Among Learners. *Journal of Law and Sustainable Development*, 11(12), e1775–e1775. <https://doi.org/10.55908/sdgs.v11i12.1775>
37. Maica, J., Eleccion, L., Glaiza, C., Gallo, N., Nanud, G., & Baluyos. (n.d.-b). The Mediating Role of Environmental Awareness in the Relationship Between Science Literacy and Sustainable Practices. https://rsisinternational.org/journals/ijriss/Digital-Library/volume-9-issue-9/3958-3983.pdf?_gl=1
38. Mebane, M. E., Benedetti, M., Barni, D., & Francescato, D. (2023). Promoting Climate Change Awareness with High School learners for a Sustainable Community. *Sustainability*, 15(14), 11260. <https://doi.org/10.3390/su151411260>
39. Meghna Dhulia. (2025, June 3). River of dreams: Delhi schools wade into Yamuna clean-up, campaign will run from July to March. *The Times of India*; Times of India.

- https://timesofindia.indiatimes.com/city/delhi/river-of-dreams-delhi-schools-wade-into-yamunaclean-up-campaign-will-run-from-july-to-march/articleshow/121605814.cms?utm_source
40. Mohd Nordin, N., Koe, W. L., Mohd Wahid, S. D., & Fahdiansyah, R. (2025b). Exploring The Role of Environmental Awareness in Shaping Consumer Behaviour Towards Sustainable Practices. *International Journal of Service Management and Sustainability*, 10(2), 74–84. <https://doi.org/10.24191/ijsms.v10i2.24228>
 41. Mulyadi, D., Ali, M., Ropo, E., & Dewi, L. (2023). Correlational study: Teacher perceptions and the implementation of education for sustainable development competency for junior high school teachers. *Journal of Education Technology*, 7(2), 299–307. <https://doi.org/10.23887/jet.v7i2.62728>
 42. Nar, M., & Subba. (2023). Environmental Awareness and Attitude Towards Environmental Education among College learners of Sikkim. *Monthly, Peer-Reviewed, Refereed, Indexed Journal Impact Factor: 6,471(6),2581–6241*. <https://doi.org/10.2018/SS/202305010>
 43. Nayle, A. C., Tarroza, C. C., Lualhati, G. P., & Atienza, J. B. (2024). Level of environmental ethics awareness and environmental citizenship participation among Filipino higher education Learner leaders. *Community & Social Development Journal*. <https://doi.org/10.57260/rcmrj.2024.267020>
 44. Novika Adi Wibowo, Sumarmi Sumarmi, Sugeng Utaya, Syamsul Bachri, & Kodama, Y. (2023). Learners' Environmental Care Attitude: A Study at Adiwiyata Public High School Based on the New Ecological Paradigm (NEP). *Sustainability — an International, Peer-Reviewed, Open-Access Journal Published by MDPI*, 15(11), 8651–8651. <https://doi.org/10.3390/su15118651>
 45. Nyika,J.,& Fredrick Madaraka Mwema.(2021c, February 9) Environmental-Education-and-Its-Effects-on-Environmental-Sustainability. https://www.researchgate.net/publication/349126299_Environmental-Education-and-Its-Effects-on-Environmental-Sustainability
 46. Olawumi, A. T., & Mavuso, M. C. (2023). Integration of environmental ethics education in the classroom: A review of related literature. *Pedagogia Journal of Education*, 1(2), 1–15.Retrieved from.https://www.researchgate.net/publication/373459196_Integration_of_Environmental_Ethics_Education_in_the_Classroom_A_of_Related_Literature/fulltext/64ede698f609e72665e8fbf6/Integration-of-Environmental-Ethics-Education-in-the-Classroom-A-of-Rrelated-Literature.pdf
 47. Parayiwa, S. P., & Shabalala, N. P. (2025). Nurturing environmental awareness: How high school learners in Johannesburg are shaping a greener future. *International Journal of Development Education and Global Learning*, 17(1),22-39.<https://doi.org/10.14324/IJDEGL.17.1.02>
 48. Reutotar, J. B. (2023). Awareness, Attitude and Practices of Learners toward Environmenta Stewardship. *International Journal of Multidisciplinary: Applied Business and Education Research*, 4(10), 3549–3558. <https://doi.org/10.11594/ijmaber.04.10.12>
 49. Sanchez, S.-J., Piedrahita Guzman, Y., Sosa-Molano, J., Robertson, D., Ahern, S., & Garza, T. (2025b). Systematic literature review: a typology of Sustainability Literacy and Environmental Literacy. *Frontiers in Education*, 10.<https://doi.org/10.3389/feduc.2025.1490791>
 50. Sankaran, S., & Saad, N. (2022). Evaluating the Bachelor of Education program based on the context, input, process, and product model. *Frontiers in Education*, 7, Article 924374. <https://doi.org/10.3389/feduc.2022.924374>
 51. Saro, J. M., Taray, J., Cinso, J. S., Ingaling, B. S., & Hayon, P. B. (2025). Level of attitude,practice, and awareness of senior high school learners toward environmental conservation. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, Volume 11(Issue 1), 111–124. <https://doi.org/10.22219/jpbi.v11i1.37861>
 52. Sposab, K., & Rieckmann, M. (2024). Development of sustainability competencies in secondary school education: A scoping literature review. *Sustainability*, 16(23), 10228. <https://doi.org/10.3390/su162310228>
 53. Srivastava, K. K. (2004). Environmental education (theory) | education. <https://education.iisuniv.ac.in/courses/subjects/environmental-education-theory-2>
 54. Stern, P. C. (1999). Toward a Coherent Theory of Environmentally Significant Behavior. *Journal of Social Issues*, 56(3), 407–424. <https://doi.org/10.1111/0022-4537.00175>
 55. Tahir, M. S., Othman, N., Din, N., & Dwi Lestari, E. (2022). An Assessment of Awareness and Attitudes towards Green Practices among Women-Owned Enterprises. *Environment-Behaviour Proceedings Journal*, 7(21),19–26. <https://doi.org/10.21834/ebpj.v7i21.3668>

56. Tennakoon, W. D. N. M. S., Janadari, M. P. N., & Wattuhewa, I. D. (2024). Environmental sustainability practices: A systematic literature review. *European Journal of Sustainable Development Research*, 8(3), em0259. <https://doi.org/10.29333/ejosdr/14604>
57. Toledo, M. J., & Marklyn Lingon. (2024). Environmental Awareness and Sustainable Development Practices of Senior High School learners. *International Journal of Advances In Education, Social Sciences and Innovation*, 3(1),1–1.<https://www.ejournals.ph/article.php?id=24030&utm>
58. United Nations. (2015). The 17 sustainable development goals. United Nations. <https://sdgs.un.org/goals>
59. Uysal, B., Mercan, N., & Ulusinan Çubukçu, E. (2023). Mixed method analysis of university learners' perspectives on distance education in the COVID-19 pandemic. *International Journal of Scholars in Education*, 6(1), 52–68.<https://doi.org/10.52134/ueader.1263363>
60. Xiong, Z., Song, Y., & Zhu, R. (2025). Pedagogical Strategies for Teaching Environmental Literacy in Secondary School Education: A Systematic Review. *Sustainability*, 17(20), 9104 <https://doi.org/10.3390/su17209104>
61. Yaacob, A., & Abdullah, N. (2023). Environment education for sustainable development (SD) among primary school teachers. *EDUCATUM Journal of Social Sciences*, 9(2), 35–42. <https://doi.org/10.37134/ejoss.vol9.2.4.2023>