



Short Paper

# Shaping the Environmental Education in School: Basis for Enhancing Extension Services to the Coastal Community

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## Abstract

Environmental Education is a learning process that improves people's environmental understanding and awareness. It is linked to difficulties and the development of the requisite skills and ability to meet them. It attempts to empower people to address issues that affect their lives. The study aimed to determine the level of awareness of the stakeholders in a coastal school. The study utilized the concurrent-triangulation mixed-method design. The subject of the study is the stakeholders in a coastal school, composed of students, teachers, and parents. The study was done during the SY 2020-2021. The questionnaire was distributed in google forms via messenger, and a focus group discussion was done via Google Meet. The stakeholders' environmental awareness level in *waste management* ( $M = 4.02$ ) implies that they are aware of the practices in segregating waste and adequately managing it. In terms of *pollution* ( $M = 3.93$ ), the community is aware that pollution impacts human health is well-known among the stakeholders. Regarding water conservation ( $M = 3.89$ ), it is discovered that they are aware of the dissemination of *information on sea/river preservation*. Lastly, in terms of *climate change* ( $M = 3.6$ ), it is believed that time is allotted to give concrete examples and



share experiences related to climate change. The stakeholders are aware of the projects in school regarding environmental education. The focus group discussion found that the neighborhood has a competent waste management system. However, their environmental experience has risen to several challenges and worries. As a result, training and seminars were advised to address the community's concerns.

*Keywords* – environmental education, environmental awareness, waste management, pollution, water conservation, climate change

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## **INTRODUCTION**

Environmental Education (EE) in the community aims to enable individuals to take charge of the problems that impact their lives. According to Abbas and Singh (2014), the primary goal of environmental education is to redirect and influence human behavior toward environmentally responsible activities and commitments. Hence, good environmental education prepares and encourages individuals to act responsibly concerning the environment and environmental preservation.

Environmental education helps people understand the complexities of the environment and the need for nations to adapt and pursue activities and development in environmentally friendly ways. According to Igbinokpogie (1990, cited in Sola, 2014), it aims to acquire knowledge, skills, and a desirable attitude toward a better interaction with the natural world. Environmental Education should educate the public by increasing public awareness of environmental issues. It will assist people in comprehending some of the alternatives to the identified environmental problems.

As Rogayan (2019) lamented, the earth is currently suffering from incalculable afflictions caused by heinous human activities that continue to devastate the environment. Thus, schools play a critical role in educating students to be environmentally conscious and aware (Rogayan & Nebrida, 2019). Environmental awareness must come first and foremost from those in positions of authority to effectively communicate vital information to their subordinates and, eventually, to spread knowledge about how to care for the environment. Therefore, a collaborative effort is required to further this advocacy (RA 9512, 2008).

The researchers believed that environmental education and awareness could help develop an environmentally-conscious attitude. Consequently, students and other stakeholders should develop an appropriate range of attention and perspectives on the environment and make critical judgments.

### **Objectives of the Study**

1. To determine the level of environmental awareness on waste management, pollution, water conservation, and climate change.
2. To identify the environmental programs implemented in the school and the community
3. To determine the environmental problems in the school and the community

## **LITERATURE REVIEW**

### ***Environmental Education***

Environmental Education progresses people's knowledge, awareness, and understanding of the environment and its issues. Develop the necessary skills and expertise to address the challenges, attitudes, motivations, and commitments needed to make informed decisions and take responsible action (Sola, 2014). Environmental Education refers to environmental learning activities organized at all levels of Education (Prihantoro, 2014). It is expected to shift public perception and behavior toward positively associated environmental concerns and foster an early love for the environment.

As stated in Republic Act 9512 (2008), Promote Environmental Awareness through Environmental Education and other purposes. According to Yildiz and Budur (2019), school gardens are the best places to teach and inform students about the importance of arranging, organizing, and decorating the fields.

### ***Environmental Awareness***

Education at various levels can improve people's environmental knowledge and attitudes. It is expected to increase their willingness to act individually and collectively to address environmental issues and promote environmental conservation (UNESCO, 1980; Laiphrakpam et al., 2019). Understanding the fundamental relationships between nature and humans and initiatives to protect the natural and future environment are all part of it. According to numerous studies, environmental awareness is linked to people's perceptions of environmental problems, interdependence, and relationships with nature, behavior, and attitude toward the environment (Yingchao et al., 2011).

According to Li (2018), environmental awareness entails absorbing, comprehending, storing, and organizing environmental information. It includes more than just physical elements of the environment; emotions, experiences, perceptions, and attitudes. People's awareness is recognized as a powerful tool for environmental protection, and information gained through education significantly impacts behavior (as cited in Gonzaga, 2016).

## **Waste Management**

Solid waste can also be defined as the useless and unwanted solid products derived from and discarded by society's activities. It can be divided into three categories: 1) any materials that are recycled or accumulated, stored, or treated before recycling, 2) any materials that are discarded, burned for energy recovery, reclaimed, or accumulated speculatively; and 3) any discarded material that is abandoned, recycled, and inherently waste-like. Waste management aims to reduce pollution in the environment and substantial waste. Reduce, Recycle, and Reuse are the three Rs of waste management (Mahat et al., 2016). According to Affandy, Isnaini, and Laksono (2017), the 3R approach will lower waste volumes.

Sustainable development requires a well-organized waste management program. Similarly, a school-based waste management education program improved students' understanding of waste issues. Involving parents in environmental discussions can encourage them to become more involved in instilling environmental education in their children, resulting in long-term environmental awareness and concern (Grodzinska-Jurczak et al., 2003).

## **Pollution**

Pollution is contamination; defilement; dirtying, soiling; spoiling, and devastation. Contamination material is a component that shouldn't be present or whose concentration is high. It would hurt living things (Karatas & Karatas, 2016). Pollution of the environment is a widespread issue that threatens humanity's well-being (Khan & Ghouri, 2011). The physical, chemical, and biological characteristics of air, land, and water are contaminated by pollution. Likewise, Orencio and Fujii (2013) cited that human-induced hazards, including pollution and illicit environmental practices, are indicators of social hazards.

However, Ugulu (2015) suggested some measures to prevent and minimize the pollution (1) Legal regulations prohibiting and sanctioning contaminating behaviors/activities, (2) fiscal measures (taxes, fees, etc.), and (3) incentives to consume environmentally friendly goods and services (electric cars, public transportation, and bicycles), (4) promotion of/subsidies for renewable energy sources, and (5) investment in infrastructure and equipment (wastewater treatment plants, recycling, and waste management) Also, the application of 3Rs (Reduce, Reuse, Recycle). Recycling, in particular, helps to reduce solid waste pollution by converting it into new products that can be reused.

## **Water Conservation**

Water conservation is becoming a global issue as demand for water rises, but supply is expected to decrease due to population growth and climate change (Chang,

2016). In addition, water resource management has become a more delicate issue over time due to population growth, climate extremes, and decreasing water availability (Sahin et al., 2017). Water demand management, according to Tsatsi et al. (2010, p. 24), is the adaptation and implementation of a strategy by a water institution or consumer to influence water demand and usage to meet any of the following objectives: (1) economics (2) efficiency, (3) social development, (4) social equity, (5) environmental protection, (6) water supply, and service sustainability, and (7) political acceptability.

Onyenankeya and Salawu (2018) concluded the horizontal, two-way, or dialogic approach, which consults and encourages grassroots interaction and participation, is critical for unlocking people's attitudes and perceptions and promoting desired change. Suppose a genuine effort is made to gain widespread support from stakeholders by making them partners. Then provide them with approaches that encourage people to willingly and easily embrace water-saving behavior; hence, water conservation programs could be more effective and sustainable.

### ***Climate Change***

According to Chi (2007), climate change results from a combination of negative factors such as soil erosion, deforestation, pollution, and ozone layer thinning. Climate change is worsening, resulting in disastrous consequences such as the escalation of natural disasters (Kolmannskog & Trebbi, 2010). It is a difficult task for humanity. Climate change, like other long-term disasters, exacerbates gender disparities. Natural resource depletion and declining agricultural output are said to harm women's and girls' health and limit their participation in income-generating activities and decisions. Children and young people must change agents to prevent and adapt to climate change. Education is the key to finding a solution to the already well-known dangers posed by climate change. People will undoubtedly do what they can if environmental education and climate change awareness programs are integrated into all levels of education.

The following literature on environmental education offers an experience of learning outside the classroom, allowing students to find connections and apply their learning in the real world. Environmental education and awareness is a continuous, interdisciplinary effort. Hence, people will care for the environment if they are educated on how to do so. A well-organized waste management program can reduce pollution and substantial waste. Likewise, applying the 3R's (Reduce, Reuse, Recycle) helps reduce solid waste pollution. Water conservation is predicted by environmental values, knowledge, and concern. Thus, proper education on managing and conserving water will help value the environment. More so, education is the key to addressing climate change's dangers. Environmental education and climate change awareness initiatives at all levels of education will help.

## METHODOLOGY

The study utilized the mixed-methods type of research. Mixed-methods research provides an integrated, comprehensive knowledge of the topic under investigation. Mixed methods take advantage of the strengths of both qualitative and quantitative procedures while improving on their flaws (Scammon et al., 2013).

Basias and Pollaries (2018) quoted that quantitative research comprises systematic, empirical analysis of phenomena through statistics, math, and data processing; thus, the data is analyzed numerically. The level of environmental awareness was measured and described based on the following indicators: (1) waste management, (2) pollution, (3) water conservation, and (4) climate change.

On the other hand, qualitative research encompasses methods that analyze experiences, actions, and relationships without using statistics, math, or numerical data. The data from the focus group discussion (FGD) was done through a google meet among selected stakeholders and were analyzed thematically. It discussed their awareness of the school and community's environmental education. It likewise deliberated some issues and concerns regarding the implementation of environmental education.

Concurrent triangulation, in particular, is a single study that simultaneously collects quantitative and qualitative data. Kroll and Neri (2009) The main goal of the concurrent method is to corroborate or cross-validate findings using both quantitative and qualitative investigations. The study's respondents are the 61 stakeholders in the small coastal school in the City of Malolos, Province of Bulacan, Philippines. This 61 is comprised of students, teachers, and parents. The instrument of the study is a validated questionnaire adapted from the study of Labog (2017) entitled Teachers' Integration of Environmental Awareness and Sustainable Development Practices. The questionnaire was disseminated via google forms.

## RESULTS AND DISCUSSIONS

### Level of Environmental Awareness

**Waste Management.** The respondents' level of awareness in terms of waste management is 4.02, which means that they are aware of the given indicators. The highest hand is statement number 1, which says they are very much aware of the *local waste management practice at home and in the school*. While the item with the lowest mean of 3.67 is number 8, which states there are seminars on waste management, the students' understanding of waste issues improved due to a school-based waste management education program. Involving parents in environmental discussions can motivate them to become more involved in their children's environmental education, resulting in long-term environmental awareness and concern (Grodzinska-Jurczak et

al.,2003). The coastal school and community are currently implementing waste segregation programs at home and school, as requested in the questionnaire. On the other hand, seminars on waste management should be emphasized to expand their knowledge of environmental education.

**Pollution.** The level of awareness of the stakeholders in terms of pollution is 3.93, which indicates that they are aware of it. The highest mean from the set of indicators is 4.06, both on statements that suggest that *using an eco-friendly bag is a better alternative than using plastic bags to prevent pollution*. Likewise, they are aware of the guidelines on *minimizing sources of pollutants*. Conversely, *activities that explain reducing pollution* got the lowest mean of 3.77. Khan and Ghouri (2011) stated that environmental pollution is a widespread problem that threatens humanity's well-being. Hence, the application of 3R, as Ugulu (2015) said, can further reduce pollution.

**Water Conservation.** The level of awareness on water conservation is 3.89, which is verbally interpreted as aware. The indicator which got the highest mean (4.09) is statement 5, which says *there is information dissemination on water preservation*. On the other hand, statement 8 got 3.72 states that they are *encouraged to join civic organizations on water conservation that comply with the Department of Education in the Philippines policies*. As Onyenankya and Salawu (2018) stated, a genuine effort is made to gain widespread support from stakeholders by making them partners. Then provide them with approaches that encourage people to willingly and easily embrace water-saving behavior; hence, water conservation programs could be more effective and sustainable.

**Climate Change.** Regarding climate change, the level of awareness of the stakeholders is only 3.69, which is interpreted verbally as "aware". The highest indicator is statement 3, which states that *there is allotted time to give concrete examples and share experiences related to climate change*. In contrast, the lowest hand got only a mean of 3.37 and was verbally interpreted as neutral. This statement from number 8 states that *Regular forums and seminars are conducted on climate change by resource speakers from the Department of Environment and Natural Resources, the Department of Agriculture, and other related government and non-governmental agencies*. This means that the majority are either aware or unaware of the agencies giving forums and seminars regarding climate change. Similarly, education is still the key to finding a solution. People will undoubtedly do what they can if environmental education and climate change awareness programs are integrated into all levels of education.

## Environmental Programs

**School.** Currently, the coastal school is implementing a waste management program. There's a trash bin for biodegradable and non-biodegradable wastes disposed of by students. The second environmental education program implemented in the school

is the no-burning program. Lastly is the implementation of bringing your container in buying foods at the canteen.

**Community.** The community is likewise implementing environmental education programs: To wit: (1) The fallen leaves from the trees are collected and placed in a container that, when decomposed, is planted right there, accompanied only by a bit of soil. (2) The scratch papers are collected and sold at the junkshop. On the other hand, the other teacher gave it to the shops to make the packaging of the purchases instead of using plastic. (3) Peeled vegetables are collected and made into fertilizer. (4) The cans (tins) are collected and taken to the junkshop for income.

## **Problems Encountered as Regards Environment**

**Dumping of garbage in the river.** Since the coastal community is surrounded by water, some residents throw garbage at the river. People's habit of throwing trash in the river, which pollutes the water and harms the river's ecology, is getting worse. The majority of the waste disposed of is baby diapers and plastic waste; the community usually throws household waste into the river.

**Waste Incineration (Burning of Garbages).** Even though the community is oriented to the adverse effects of waste incineration, few people dispose of their wastes. However, Nayg and Kuti (2016) stated that advanced selective waste collection systems have made it possible to separate different materials and types of garbage. One of the most critical tasks is emphasizing the advantages of separating plastics to be reused and less polluting our environment. Likewise, the findings of He and Lin (2019) showed that waste incineration requires less financial support and reduces emissions effectively.

**Garbage is not appropriately segregated due to the lack o trash bins.** This problem of waste segregation still happens due to the lack of disposal bins. The disposal raises normative questions about how one should get rid of things, such as when and where they should be discarded. Making waste, in this sense, is a necessary part of becoming the ethical individuals we aspire to be (Hawkins 2006). The disposal can be done in various ways, including informal transactions with charities, junkyards or garages, car boot and yard sales, and so on (Gregson et al., 2007). It can also happen in more minor permanent ways, such as when items are temporarily stored with the possibility of later reclamation or discard.

## **CONCLUSIONS AND RECOMMENDATIONS**

Environmental Education benefits a good quality of life and develops ideas and practices for a sustainable environment. Environmental Education can also increase people's knowledge and awareness, leading to behavioral changes. Environmental Education can always involve the school in events that lead to the development of

environmental awareness. Henceforth, it can be concluded that the greater the people's environmental awareness, the more likely environmental problems can be solved.

For the recommendation, a proposed extension service for the community was prepared and ready for implementation as shown in Appendix A.

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**APPENDIX A**  
**Proposed Extension Service for the Coastal Community**

	SEMINARS AND TRAINING	OBJECTIVES	INDICATORS	INSTRUMENT FOR IMPACT ASSESSMENT / SOURCES OF DATA
1	Proper waste management	It aims to ensure environmental preservation through proper waste management procedures.	Composition of Waste collected.	Material Recovery Facility (MRF) Report on Waste Disposal.
2	Recycling	Its goal is to eliminate the need to extract, refine, and process raw materials which pollute water and air.	Collection rate Recycling rate	Product from the Recycled materials. Income from recycled materials.
3	Tree Planting	Its goal is to create public awareness about the necessity of planting and protecting trees, demonstrating our concern for the environment and mitigating climate change's negative consequences.	Tree-planting regulations awareness.	Number of Trees in the Coastal Community. Types of Plants available in the Coastal Community. The coastal community's funds grew after tree planting.
4	Water Conservation	It aims to protect the natural water bodies, and their aquatic habitats are protected. It concerns the volume and quality of water that should remain in rivers to protect natural bodies of water and their marine habitats.	Awareness of the efficiency, potential, and impacts of water-saving efforts	The number of volumes of water accessible in the area.