

Effectiveness of the Environmental Education Program in Enhancing Preparedness of the Vulnerable Populations in Coastal Communities of Manito, Albay

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Abstract

Environmental education (EE) in the community seeks to empower the people to take control of the environmental issues that affect their lives. Hence a well-planned and strongly supported environmental program can help people cope with environmental problems that confront them. A descriptive-qualitative and quantitative research was conducted among the in-school-youth and out-of-school-youth of Barangay It-ba and Cawit in Manito, Albay to assess the effectiveness of the environmental education in enhancing the preparedness of the vulnerable populations in the coastal community of Manito. Data indicated that the respondents were aware of basic environmental issues and had satisfactory level of competence but were found to be more concerned with other issues of personal nature. Feedbacks from the participants and observers showed that the EE program implemented was effective in preparing the vulnerable populations for environmental disasters. Comprehension on fundamental concepts of environment and sustainability needs to be enhanced further through additional authentic activities. As the academe is a partner in educating people in the community, it is also recommended that the academic institutions should continue to collaborate with the local government in the municipality to implement more programs on environmental education and for wider dissemination. Emphasis on application or practice of what have been taught must be imperative to ensure holistic and lifelong learning.

Keywords: *Awareness, Disaster, In-school-youth, Out-of-school-youth, Practice*

Introduction

Defined as the interface or transition areas between land and sea, coastal areas present favorable biophysical and climatic conditions, which have encouraged human settlements since the prehistoric times. These plus the ease of communication and navigation paved the way for man to build major cities in these areas. The coastal zone has become an area of convergence of activities such as shipping, tourism, and industry along with those of the traditional resource-based ones, such as coastal fisheries and aquaculture. Hence, coastal areas are extremely important for the social and economic welfare of the current and future generations. With its dynamic nature, coastal areas in the Philippines are also important ecologically as the people depend heavily on its rich resources for the many biodiversity values and services they provide.

United Nations Education, Scientific and Cultural Organization (UNESCO), recognized globally

as the lead agency for Education for Sustainable Development (ESD), sees education as the change agent that will eventually motivate and empower learners to change their behavior and take action for sustainable development. ESD consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way. One of its thrusts is building public understanding and awareness through community education, including information education through media.

Government initiatives, on the other hand, include the passing of Republic Act No. 9512 otherwise known as National Environmental Awareness and Education Act of 2008. This Act provides for the promotion of environmental awareness through environmental education. This encompasses environmental concepts and principles, environmental laws, the state of international and local environment,

local environmental best practices, the threats of environmental degradation and its impact on human well-being, the responsibility of the citizenry to the environment and the value of conservation, and protection and rehabilitation of natural resources and the environment. This will hopefully spur the people to take action in caring for the environment that will eventually lead to a sustainable future.

Bicol University (BU), with its advocacy for a green campus, serves as a very powerful channel toward a more environment-conscious community. Its collaboration with the Department of Environment and Natural Resources and the National Network of Normal Schools (3NS) through a research titled Bicol University as Environmental Education Learning Resource Center of the 3NS is an example of its stand in the campaign for the environment.

It is for these reasons that this research undertaking titled Program CREED (Coastal Restoration through Environmental Education Development) was conceptualized. The program aimed to deliver generated knowledge to the in-school and out-of-school youths in the coastal areas, specifically in Manito, Albay. Generally, the program aimed to provide environmental education using sustainable technologies to the adopted community. Specifically, the program aimed to transfer knowledge to the different sectors particularly the in-school and out-of-school youths in coastal communities and to assess the effectiveness of this program in enhancing the preparedness of these vulnerable populations. The people who live near or in a threatened ecosystem are those who are best positioned to repair and protect that system for the long term. When people understand that their quality of life is reliant upon the health of their natural environment and that they have a direct hand in identifying and creating ways to protect and sustainably use their natural resources, both nature and people are served.

Factors that contribute to the success of environmental education in schools have been the focus of studies like that of Kingston (2013) and Reilly (2008). Kingston (2013) revealed that there is inconsistent and low quality EE in schools in Pemba Island, a member of Zanzibar archipelago, and that the clubs are not as effective as they should be. This lack of progress is likely due to the limited role of students, poor club administrative structure, lack of creativity and shortage of resources. For these clubs to have a greater impact they need to re-allocate

club responsibilities to the students, internally restructure, form solid connections with outside sources (NGOs), and diversify their activities. These adjustments will enable clubs to be more effective in educating and engaging both students and community on environmental conservation. Reilly (2008) recommended that an identified need, a strong emphasis on natural and human resources located within the community, program structure, and long-term commitment to developing student's skills are four variables necessary for educational reform and program success.

Strategy, on the other hand, was the main focus in the study of Alexandar and Poyyamoli (2014) involving an experimental and control group of students exposed to active environmental education for sustainable development (EESD) teaching strategies and the students who have been educated by the traditional instructional methods. EESD students gained more basic conceptual knowledge, attitudes and skills on air and water quality, biodiversity conservation and solid waste management than the students who have been educated by the traditional teaching methods with existing curriculum.

In connection with this, the study of Athman and Monroe (n.d.) posited that for environmental education program to succeed it must have certain elements. It must be relevant to the mission of the agency, the learning objectives of the audience and to the lives of the learners. It must involve stakeholders in all the stages of the program. It must empower learners with skills to help prevent and address environmental issues with a sense of personal and civic responsibility. They should be accurate and balanced, incorporating multiple perspectives and interdisciplinary aspects. They are instructionally sound using the "best practices" in education.

Several studies on effective environmental education programs affirm the claim of Athman and Monsro (n.d.). Ballantyne and colleagues (2001) surveyed and interviewed students and their parents in Queensland schools regarding their perceptions about the program's influence on their environmental learning, and the extent and nature of discussions that the programs simulated between students and their parents. The study revealed that students being able to share their learning and environmental attitudes with their parents can bring about positive change in household practices. They further suggested that programs can be designed

to involve parents in activities that stimulate intergenerational communication that is potentially educative for parents and students. Likewise, Duval and Zint (2007) reviewed and synthesized results from seven studies that sought to determine how to design environmental education (EE) programs in ways that encourage children to influence the environmental knowledge, attitudes, and behaviors of adults. The authors suggested that amidst the potentially devastating environmental problems we have, children can act as catalysts for promoting environmental knowledge, attitudes, and changed behaviors in their parents and throughout their communities.

Morgenstern and Pizer (2008) studied seven voluntary environmental programs across three continents. They were convinced that voluntary action can produce sharp and truly fundamental improvements in environmental protection. Effectiveness and success of environment programs are not easy to achieve much less measure. Stakeholders and program implementers attempt to look for techniques to evaluate the success of environmental programs. Thomson and Hoffman (n.d.) attempted to outline and describe pertinent educational evaluation methodologies and tools. Their study revealed that there is a real need within the environmental education community for training in the area of evaluation. Furthermore, they claimed that environmental education professionals are experts in program design and delivery, but not necessarily in conducting evaluations of these activities. Evaluation is an expensive and time-consuming activity, and practitioners need to recognize this in their budget preparations and should recognize the importance and validity of external evaluators, despite the increased cost.

Environmental Education in schools is deemed necessary and crucial as its results are aimed toward transforming students into critical thinkers, informed decision makers, and competent communicators who will become advocates of change. Likewise, its relevance to the community cannot be considered any less. Therefore, this study aimed to implement an EE Program for the in and out-of-school youth of two barangays in Manito, Albay and determine the effectiveness of the program in enhancing their preparedness for disasters.

Methodology

The study used the developmental and descriptive-qualitative methods of research. As a developmental research whose focus is on the design, development, and evaluation of instructional products and processes (Richey & Klein, 2005), this study proposed, implemented, and assessed an environmental education (EE) program in Manito, Albay.

As a descriptive research it described the characteristics of the population or phenomenon that is being studied. Researcher-made pretests and posttests were used to determine the awareness of the EE concepts of the 20 participants from the in-school-youth who were second year college students of the Community College of Manito (CCM) and 20 out-of-school youth-under the Alternative Learning System (ALS). Given the small population of the two barangays (It-ba and Cawit in Manito), the predetermined sample size of 20 per group of youth was estimated to be appropriate as confirmed by the ALS coordinator and the dean of CCM.

From the results of the study Environment Education Materials for the Academe and Vulnerable Populations (Barbacena & Laguilles, 2015), a thirty-item test was made, based on the seven environmental principles. The test was divided into three parts. Part 1 is self-assessment of the participants on the evaluation on the effectiveness of the environmental education program. Self-assessment can provide insight into students' true comprehension and can help to identify gaps in students' knowledge. Part 2 and Part 3 of the pretest both aimed to determine the environmental concepts, which the respondents know prior to the implementation of the EE program while the posttest sought to establish what they have learned as a result of the EE program. The pretest for Part 2 is a modified identification on the seven environmental principles while Part 3 is multiple choice type test on environmental concepts. The test was tried out to a group of learners, and a revision was done afterward. To facilitate the understanding of the questions, the items were translated in Filipino.

ORID, a specific facilitation framework that enables a focused conversation with a group of people, was used at the end of program implementation. The researcher as the facilitator used four levels of questioning with each level building on previous levels. ORID is based on the theory that people need

to be conscious of the actual data and deal with their emotional responses to the matter discussed so that they analyze their reactions better and make informed decisions. “O” in ORID stands for the objective phase, which lays down the facts that the group knows; “R” stands for reflective, a phase which “allows people to express how they feel about the topic being evaluated and what they liked and disliked”; “I” stands for interpretive phase where the respondents are enabled “to point out the issues or challenges they had”; and “D” stands for the decisions they have to make as a result of the discussions (Stanfield, 2000). After a careful and thorough review of the responses given, they were categorized based on the recurring themes.

Four-process observers were invited to take note of activities that were handled well, and those aspects of the process that did not work as well. The process observer were given few minutes at the end of the meeting to summarize the behavior of the group so that the group can learn and, if needed, improve its functioning. This is not a summary of the meeting itself, only the process. The goal of having a process observer is to help keep the group’s meetings functioning well and encourage group members to share responsibility for the tone and productivity of the meeting. The process observers were asked to identify the strengths and weaknesses of the discussions during the program implementation and to provide suggestions for future references.

Results and Discussion

Environmental Education Program for the Vulnerable Populations

In a study conducted by Paje (2017), the in-school-youth (ISY) of Barangay It-ba and Cawit recognize environmental degradation as the number one man-made hazard confronting their community. This is closely followed by pollution, which is directly related to environmental degradation. The out-of-school-youth, however, pointed out that pollution ranks first as a man-made hazard followed by environmental degradation. Either way the two groups emphasized on these two hazards as the primary vulnerabilities of their community over the others which are fire, conflict, famine, and accident. When asked about the environmental programs being implemented in the community, the vulnerable populations ranked greening, tree planting, reforestation program,

mangrove tree planting as the priority program. This was followed by community clean-up drive, vegetable gardening, socio-cultural environmental programs, environmental related livelihood program; and environmental trainings, seminars, workshops respectively. About 40% of the population identified waste disposal as number one problem closely followed by waste segregation and waste collection with 32% and 23% of the population saying so, respectively. Only 5% pointed other environmental problems in the community.

As a response to these needs, Program CREED (Coastal Restoration through Environmental Education Development)—a program that cascaded generated knowledge to the different sectors particularly the in-school and out-of-school youths—was conceptualized. In a workshop organized by the research program leader, the program plan was presented, critiqued, and improved with the help of experts from the Department of Environment and Natural Resources and Bicol University researchers. There were 10 sessions deliberately and carefully planned parallel to the objectives of a holistic environmental education program that tackles the seven principles. Galang and co-workers (2003) explained these subjects of ecological principles that clarify and highlight why ecology and the environment matter. These seven principles include (1) nature knows best, (2) all forms of life are equally important, (3) everything is connected to everything else, (4) everything changes, (5) everything must go somewhere, (6) ours is a finite earth, and (7) nature is beautiful and we are stewards of God’s creation.

The environmental education program plan was presented to the officials of the Municipality of Manito, Albay, particularly to those who were involved in its implementation. In a series of meetings with the implementer of the program and other officials, the respondents, dates, and venue of the sessions were identified. The respondents were of two categories. The in-school youth and the out-of-school youth of Barangay It-ba and Cawit were identified as the vulnerable populations of the community since they belong to that sector of the community who are defenseless in terms of power and authority but have the responsibility of being the stewards of the environment and the capacity to effect change. The in-school-youth (ISY) in this study are persons aged 15 to 21 who are attending school. The out-of-school youth (OSY), on the other hand, are classified as persons aged

15 to 21 years who are not attending school, have not finished any college or post-secondary course, and are not working.

Initially, the implementation of the program was scheduled based on the availability of the respondents. Three sessions were held on Fridays while the rest were scheduled on Saturdays. These were the days and dates when all the respondents were available for the meetings as planned. The venue chosen for the program implementation was the Community College of Manito, whose president and dean were present in one of the meetings and who committed to support the program.

Effectiveness of the Environmental Education (EE) Program in Preparing the Vulnerable Populations

In this study, effectiveness was measured based on the competence achieved by the respondents as evidenced by the results of the posttest in comparison to the results of the pretest. In Table 1, initially, the respondents belonging to the in-school youth group earned a weighted mean of 1.78, which when interpreted based on the rating scale means an average understanding of the concepts. The self-assessment result after the training, on the other hand, shows an increase in the average of the weighted mean which is 2.80. There was an increase in the weighted mean scores for all statements. This signifies that for the respondents, their knowledge or understanding of the concepts has increased, which means that to some extent the EE Program was effective.

A rundown of Table 2 would show a comparison of the students' self-assessment on evaluation on the effectiveness of the environmental education program before and after the implementation of the program. The out-of-school-youth respondents gained an average mean of 1.81 interpreted as average. After the training, however, there was an increase in the average of the weighted mean which is 2.40. There was an increase in the weighted mean scores for all statements. This suggests an increase in the understanding of the concepts which like that of ISY's result may be attributed to the effectiveness of the EE Program implemented.

The t-test results in Table 3 revealed that there was a slight increase in the pretest and posttest results of the ISY Group with a mean score of 4.83 and 6.17 on the Environmental principles, 6.42 and 7.33 on Environmental concepts and principles and an overall

SD of 2.09 and 2.50 respectively. On the other hand, the test on environmental concepts revealed a slightly different t-test result with the t-test less than the t-critical, which will be interpreted as not significant. The p value, however, was less than 0.05 which was significant. Combining both tests, the t-test registered a result of 3.88, which was higher than 1.79 indicating a significant increase at p value of 0.001. This means that the environmental education conducted rendered a positive effect on the in-school youth group. Being in the academe may have helped the students in understanding the concepts discussed during the 10 sessions given in the environmental education program.

On the other hand, the t-test results for the out-of-school youth (OSY) group revealed a decrease in the pretest and posttest results for both the environmental principles (Part 2) and the environmental concepts (Part 3). While the increase may not be significant as indicated in the result, the effectiveness of the EE Program may not be categorically summed as ineffective as reports (Philippine Statistics Authority, 2015; World bank, 2003) show that out-of-school-youth are bombarded with difficulties ranging from socio-economic problems, family concerns, behavioral issues to disabilities, and social pressure attributed to the stigma that their status bring. This could probably be the reasons why they did not do well as expected in the posttest.

Views and Opinions on the Environmental Education Program

In the focused group discussions conducted using the ORID format, the respondents freely expressed their views and opinions as regards their experiences, learning, and decisions. The findings in this part of the study are presented based on recurring themes for an extensive discussion and clarity of the salient thoughts of the discussion.

Gratitude. When asked to share their views and opinions on the strengths of the environmental program, majority of the participants expressed these strengths in the form of gratitude for the EE program given. One statement says: "*Nagpapasalamat kami at napukaw ang isipan ng bawat isa sa amin sa pangangalaga ng kapiligiran upang maiwasan ang pagkasira o pagdami ng basura sa isang komunidad.*" (We are thankful, that our awareness on caring for the environment has been kindled in order to prevent the destruction and avoid proliferation of garbage in the community.) Gratitude

Table 1. Evaluation on the Effectiveness of the Environmental Education (EE) Program, ISY's Learning Self-Assessment

Self-Assessment ng kaalaman at kasanayan kaugnay sa pitong prinsipyo	Mean Rating (Before)	Interpretation	Mean Rating (After)	Interpretation
1 Kahalagahan ng punongkahoy sa ating Kagubatan	2.48	Mataas	3.00	Mataas
2 Kaalaman sa kahalagahan ng baybaying lugar sa ating buhay.	1.96	Katamtaman	2.96	Mataas
3 Mga tamang paraan ng pagprotekta sa mga baybaying lugar.	1.78	Katamtaman	2.89	Mataas
4 Mga tungkulin ng mga katiwala sa isang ecosystem.	1.78	Katamtaman	2.81	Mataas
5 Sapat na kaalaman tungkol sa R.A 9275 o Philippine Clean Water Act of 2004.	1.56	Mababa	2.74	Mataas
6 Tamang paraan ng paggawa ng organikong fertilizer.	1.59	Mababa	2.67	Mataas
7 Tamang paggamit ng organikong fertilizer.	1.56	Mababa	2.74	Mataas
8 Mga produktong gawa sa nareresiklong basura.	1.93	Katamtaman	2.70	Mataas
9 Mga paraan sa paggawa ng compost.	1.74	Katamtaman	2.74	Mataas
10 Tamang segregation, collection, transportasyon, imbakan, paggamit at pagtatapon ng basura.	1.81	Katamtaman	2.81	Mataas
11 Sapat na kaalaman tungkol sa R.A. 9003 o Ecological Solid Waste Management Act of 2000.	1.37	Mababa	2.74	Mataas
12 Paggawa ng Materials Recovery Facility (MRF)	1.48	Mababa	2.59	Mataas
13 Kahalagahan ng Materials Recovery Facility sa Barangay	1.85	Katamtaman	2.81	Mataas
14 Pagsunod sa mga ordinansa tungkol sa basura	1.96	Katamtaman	2.93	Mataas
15 Kahalagahan ng Water Conservation at Protection	1.85	Katamtaman	2.89	Mataas
Average Mean	1.78	Katamtaman	2.80	Mataas

Rating Scale: 1.00 - 1.66 = Mababa, (Low) 1.67 - 2.33 = Katamtaman (Average) 2.34 - 3.00 = Mataas (High)

is an expression of appreciation or recognition of something that someone has done for you. The fact that the respondents see the value of learning to care for the environment as equated to the strength of the EE Program implemented by way of expressing their gratitude emphasizes the effectiveness of the program.

Likewise, a few of the OSY participants underscored the fact that they have learned many things. This was captured in the statements: "Nadagdagan ang aming kaalaman tungkol sa aming

kapaligiran at baguhin ang mga maling gawain lalo na sa pag-abuso sa ating kapaligiran" (Our knowledge about our environment was enhanced and we learned how to change our habits that destroy our environment). "Nagkaroon kami ng kaalaman kung paano mapapabuti ang isang kaomunidad" (We learned how to improve a community). "Maraming natutunan ang mga tao sa programang ito dahil naipapaliwanag ang mga dapat nating malaman sa kalikasan" (People learned from the program because it was able to explain concepts on the environment).

Table 2. Evaluation on the Effectiveness of the EE Program, OSY's Learning Self-Assessment

Self-Assessment ng kaalaman at kasanayan kaugnay sa pitong prinsipyo	Mean Rating (Before)	Interpretation	Mean Rating (After)	Interpretation
1 Kahalagahan ng punongkahoy sa ating Kagubatan	2.15	Katamtaman	2.76	Mataas
2 Kaalaman sa kahalagahan ng baybaying lugar sa ating buhay.	1.65	Mababa	2.48	Mataas
3 Mga tamang paraan ng pagprotekta sa mga baybaying lugar.	1.50	Mababa	2.29	Katamtaman
4 Mga tungkulin ng mga katiwala sa isang ecosystem.	1.85	Katamtaman	2.43	Mataas
5 Sapat na kaalaman tungkol sa R.A 9275 o Philippine Clean Water Act of 2004.	1.35	Mababa	2.19	Katamtaman
6 Tamang paraan ng paggawa ng organikong fertilizer.	1.75	Katamtaman	2.38	Mataas
7 Tamang paggamit ng organikong fertilizer.	1.95	Katamtaman	2.52	Mataas
8 Mga produktong gawa sa nareresiklong basura.	2.05	Katamtaman	2.55	Mataas
9 Mga paraan sa paggawa ng compost.	1.90	Katamtaman	2.43	Mataas
10 Tamang segregation, collection, transportasyon, imbakan, paggamit at pagtatapon ng basura.	1.85	Katamtaman	2.38	Mataas
11 Sapat na kaalaman tungkol sa R.A. 9003 o Ecological Solid Waste Management Act of 2000.	1.60	Mababa	2.43	Mataas
12 Paggawa ng Materials Recovery Facility (MRF)	1.55	Mababa	1.90	Katamtaman
13 Kahalagahan ng Materials Recovery Facility sa Barangay	1.75	Katamtaman	2.33	Katamtaman
14 Pagsunod sa mga ordinansa tungkol sa basura	2.05	Katamtaman	2.48	Mataas
15 Kahalagahan ng Water Conservation at Protection	2.20	Katamtaman	2.48	Mataas
Average Mean	1.81	Katamtaman	2.40	Mataas

Rating Scale: 1.00 - 1.66 = Mababa, (Low) 1.67 - 2.33 = Katamtaman (Average) 2.34 - 3.00 = Mataas (High)

Actions Planned. The participants were asked on what they can or will do as a result of the environmental education program. Very interestingly, they committed to the advocacy of the EE program implemented. Some of the salient answers were given: “*Maraming pagbabago sa environmental conservation bilang resulta ng programang ito sapagkat mas nadagdagan ang kaalaman tungkol sa pangangalaga ng kalikasan na dapat nating gawin sa satong kumonidad para sa ikakarahay tang gabos.*” (There will be changes in the environmental conservation as a result of this program because we have learned many things about caring for the environment which we should all do for

the betterment of our community.) “This program is a wakeup call for me. I realized that listening without application is nonsense. I will apply the lessons that I learned, and I will share it to my friends and family.” These statements express positivity that actions can be done as a result of the activity.

The statements given in the previous paragraph may be analyzed in the light of the expression of gratitude as discussed earlier. The Filipino value of *utang na loob* places itself as an integral component in ensuring social transactions that considers acknowledging what was received, indirectly or directly repaying the person who gave something

Table 3. T-test Results for the Pretest and Posttest of the ISY and the OSY

In-School Youth Group								
Competence on Environmental Education	Pretest		Posttest		t-test	t Critical	p value	Interpretation
	Mean	SD	Mean	SD				
Test on Environmental Principles	4.83	1.99	6.17	1.64	2.7663	1.7959	0.0092	Significant
Test on Environmental Concepts	6.42	1.62	7.33	1.72	1.7333	1.7959	0.0555	Significant
Over-all	11.25	2.09	13.50	2.50	3.8861	1.7959	0.0013	Significant
Out-School Youth Group								
Test on Environmental Principles	4.86	2.11	4.64	1.60	-0.5247	1.7709	0.3043	Not Significant
Test on Environmental Concepts	4.36	1.34	4.29	2.05	-0.1011	1.7709	0.4605	Not Significant
Overall	9.21	2.55	8.93	2.81	-0.4714	1.7709	0.3226	Not Significant

and demonstrating the value as a function of social responsibility (Rungduin et al., 2015) so much so that they have expressed commitment to do something to protect the environment.

There were participants who gave specific actions in the likes of these statements: “*Ang paggawa ng compost pit sa bahay o paaralan*” (Make a compost pit in our home and school). “*Hikayatin silang gumawa ng composting*” (Encourage others to do composting). “*Ang pagbabago na pwede kong gawin sa aming bahay ay ang pagrecycle para mabawasan ang basura*” (The change that I can do is to recycle to reduce waste in our home). “*Ang tamang pagtapon ng basura at pag recycle ng mga bagay upang maiwasan ang paglobo o pagdami ng basura na maaaring magdulot sa atin ng sakit. At dahil din dito maaari pa nating pagkakitaan ang mga bagay na di nabubulok*” (The proper disposal and recycling of things to prevent inflation or increase in waste that may cause sickness. For this very reason we can still profit from non-biodegradable items).

These specific expressions of plans of actions may be regarded as positive immediate impact on the resolve of the respondents. Theories in motivation (Cherry, 2019) prove that while no single theory can adequately explain all human motivation certain forces cause people to take action. The fact that they have decided on doing something about their current situation as regards the environment is already a good start toward something bigger and greater. This can already be an attestation to the effectiveness of the EE program.

Propositions. The participants also expressed some of their observations on the weaknesses of the environmental education program. From the students’ group, one said: “*Sa tingin ko magkakaroon ng kahinaan ang programang ito kung hindi isasapuso at gagawin ang mga impormasyong kaalaman na nakuha namin sa programang ito*” (I think, if people will not follow and do sincerely the knowledge and information they learned, this will be one of the weaknesses of this program). This suggestion indicates that the respondent sees the weakness on the part of the people given the information. While this may have been pointed out as a weakness of the EE Program at the outset, it can still be a testimony to effectiveness as the statement is expressed in the future tense “*magkakaroon*,” which means “to have.”

Moreover, some OSY participants said, “*Ang kahinaan nito ay, hindi lahat ng tao dito sa aming lugar ay nakaalam sa programang ito*” (The weakness of this program is not all the people in the community were informed of this environmental program). This statement expresses some form of regret that others were not able to learn from the program the way they have learned. This can only mean that they see the value of the EE Program in their lives. Such value placed on the program proves that the EE program was effective in disseminating information that will help them become more prepared for disaster.

An evaluation of the report of the process observers shown in detail in Table 4 will reveal that the environmental education program was effective to some extent. The resource persons were able to

reach out to the participants. The participants showed enthusiasm during the sessions and objectives were accomplished. There were, however, other factors that might have affected the attendance of the participants as the number of attendees dropped in the succeeding days. When asked about their failure to attend some sessions, some participants said that they had to attend to the farm. Others mentioned that they needed to look for ways to earn money for their livelihood. There were also in-school-youth participants who said that they had to work on school reports and projects and they felt they needed to prioritize. The suggestions given by the observers were given consideration; however due to financial constraints, they were not done.

Conclusions

The study recognizes the existence of environmental problems. This calls for an environmental education program that will provide generated knowledge to the vulnerable communities mainly the in-school and out-of-school youths in Manito, Albay. A strong support from the Department of Environment and Natural Resources, Bicol University, the local government unit and local school administrators was needed to serve as an impetus for the program implementation. Backed up by relevant community policies parallel to the national laws on protection and preservation of the environment, the environmental program used EE materials developed and validated by Bicol University in partnership with DENR. The implementation of the EE program was done with the help of dedicated, committed, and competent resource persons. Evaluation tools designed to measure the effectiveness and success of the program from the perspectives of the participants and observers were used all throughout the process of implementation.

Preparedness may be viewed in terms of "data preparedness" and considered as a subset of "information management preparedness" as it needs to be connected to wider preparedness plans (Raymond & Al Achkar, n.d.). This means that it is but a small part of a bigger and a more extensive set of actions that an organization undertakes. Hence, awareness of data will enable organizations to be ready responsibly and effectively before a disaster strikes. Although preparedness may be interpreted and factored in many ways, in this study preparedness

is equated to understanding measured in terms of the test results. The Environmental Education Program CREED implemented in Manito, Albay, was effective in improving the understanding of the vulnerable populations as validated in the self-assessment tests. The responses of the participants during the focused group discussions and their participation in activities like the clean-up drive, greening, and coming up with waste segregation drive were indicators of the EE Program's success.

This study recommends to the Department of Education and Natural Resources that a more aggressive campaign should be done among the communities as awareness of RA 9003 or the Solid Waste Management Act should be the concern of the different sectors of society. EE materials, which are simple and easy to understand, should be made available to the communities. It is also strongly suggested that through the academe, DENR should reach out more to the communities by providing more carefully planned activities where the community will not only learn more about the environment but also enjoy the process.

Furthermore, the LGU should strengthen the campaign on segregation of waste from its source and dispose of it accordingly to prevent pollution of creeks or rivers that lead to the sea. To this effect, an ordinance on waste segregation should be strictly enforced in the municipality or city. Moreover, a Materials Recovery Facility (MRF) must be built in each barangay or in accessible and strategic places in the community. Collection of waste must be scheduled for biodegradable, non-biodegradable, and recyclable on different days. Incentives may also be given to the cleanest barangay in the continued practice of Solid Waste Management (SWM). Likewise, monitoring of waste segregation and composting should be done by the authorities in school, in the LGU, and in the homes;

As the academe is a partner partner in educating people in the community, it is also recommended that academic institutions should continue to collaborate with the local government in the municipality or city to implement more programs on environmental education and for wider dissemination or vice versa. The schools should maintain their integration of environmental concepts and principles in the lessons in all levels: basic education and the tertiary level and among the different sectors, such as in-school, out-of-school, and adult groups. Emphasis on application or practice of what have been taught must be imperative

Table 4. Summarized Report of the Process Observers

Strengths	Weaknesses	Suggestions
<ul style="list-style-type: none"> The program plan was well-thought out. The speakers/lecturers gave a very thorough discussions of the topics assigned to them. 	<ul style="list-style-type: none"> All the seven principles were tackled in the topics discussed but there was heavier concentration on waste management. 	<ul style="list-style-type: none"> There were discussions that needed more time for demonstration. These topics should have been given more time.
<ul style="list-style-type: none"> The lecturers were very engaging. Clearly, the participants were absorbed in the discussions as they asked questions. The expertise of the resource persons was obviously felt by the participants in the way they participated. 		<ul style="list-style-type: none"> The topic on compost pit should have been actually demonstrated using authentic materials.
<ul style="list-style-type: none"> The participants were provided lunch. Hence, they did not have to go home anymore. This helped in ensuring the attendance for the afternoon session. Snacks, shouldered by the Municipality of Manito, were provided. This is a very good indication of the partnership between the Bicol University (BU) community and the Local Government Unit (LGU) of Manito. The discussants effectively delivered the topics. The researchers used the plastic wrapper of the snacks given to demonstrate how they can be managed to keep cleanliness in the environment. 	<ul style="list-style-type: none"> The snacks provided were wrapped in plastic and lunch served was in Styrofoam. This contradicted one of the discussions on waste management which is the reduction of residual wastes. 	<ul style="list-style-type: none"> There should have been a collaboration with the caterer so that snacks served were wrapped in biodegradable table napkins and use of disposable spoons, forks and Styrofoam should have been avoided in serving lunch.
<ul style="list-style-type: none"> Most of the objectives of the program per session were accomplished. The resource persons efficiently delivered the discussions and coaxed the participants' active involvement in the activities. Patronizing the local products like the softbroom made by some of the participants served as an incentive for them to return to the sessions. 	<ul style="list-style-type: none"> The number of participants was not as expected. As days go the attendance dwindled. 	<ul style="list-style-type: none"> Other motivational activities should have been included every meeting during the implementation of the program. A raffle draw, for instance, could have been added so there was something to look forward to every meeting.

to ensure holistic and lifelong learning. Waste management must be made part of everyone's routine. To further this cause, trash bins for waste segregation must be provided by the school and segregation done in the households should be reinforced in schools.

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