Teachers' Integration of Environmental Awareness and Sustainable Development Practices

Asia Pacific Journal of Multidisciplinary Research Vol. 5 No.3, 102-110

August 2017 Part II P-ISSN 2350-7756 E-ISSN 2350-8442 www.apjmr.com

Russel A. Labog

Mindoro State College of Agriculture and Technology – Calapan City Campus, Oriental Mindoro, Philippines polemath@yahoo.com

Date Received: April 4, 2017; Date Revised: August 18, 2017

Abstract – The study aimed to determine the relationship between teachers' integration of environmental awareness and level of sustainable development practices of selected public high schools in the First District of Oriental Mindoro. Using the descriptive correlational and comparative studies, the questionnaires were distributed to 384 students. The study found out that the teachers integrated environmental awareness topics on waste management, pollution, forest conservation and climate change on their class lessons; the schools were practicing proper waste disposal, recycling, composting, tree planting and energy conservation for sustainable development practices. Teachers' integration of environmental awareness influences sustainable development practices. This integration and practices can be enhanced by reaching out to communities outside the school and by strengthening the established linkages to other environment-related agencies in order to achieve sustainability. It means amplifying by extending sustainable practices as collaborative effort of the students, schools, outside communities, LGU's and other related government and nongovernment agencies. Such interaction can improve the quality and coverage of sustainable practices not only in school but in the whole community.

Keywords – environmental awareness, sustainable development practices, public high schools, Oriental Mindoro

INTRODUCTION

As the Earth grows older, the minds and abilities of humans undergo some changes which are based on multidisciplinary system of survival that is more on harnessing the potential of everything around us to make our lives more comfortable, satisfy our basic needs along with our wants. People became more futuristic and are always attributed by upgrading and updating technology for more satisfactory living inputs. These developments push human to exhaust the environment with a little sense of being a steward. This is the idealism of the 21st century. Youth are more committed in computer games, surfing the internet, chatting with friends over Facebook and other social networking sites. With this given circumstance only a little portion of the Earth's population are working to reverse or minimize the negative impact of false sustainability planted in the digital minds of the youth [1], [2].

Sustainability is a problem all over the world. Moving toward it is a social challenge which is always based in international, national, and local laws

together with proper implementation and planning. Sustainable development can be achieved by embracing the social, environmental, and economic pillars through good governance with active participation of the community. It is more on creating a global network in response to environmental problems along with industrialization and technological innovation [1], [3], [4].

Many countries, especially poor countries all over the world mark sustainability as expensive to implement and most of these countries are not convinced about the commitment of other countries to sustainable development. The point is that government has also a great responsibility of its people for them not to believe that environmental problems can wait until they become richer [5].

As a third world country, Philippines is surely in a great challenge not only in revitalizing its title as "The Tiger Economy of Asia" but also in installing a cohesive society with balance formation on industrialization and environmental preservation. There are few government sectors for environment,

agriculture, health, and education working together to attain the goals of sustainable development in the country. But on the other hand Filipinos are more focused on how to live on and improve their economic status. These common walks in life lie in the idea of practicality not idealism. It is perhaps the weakest point of sustainability. People are more likely to do things for a personal material prize. This habit was brought by improper training, orientation, and education. It is indeed a challenge to educate young minds to change the perception for the next generations. Definitely it is a challenge to most of the teachers to make their students equipped with not only knowledge and skills but also to become aware to counteract in global environmental issues and problems. Therefore, as educators, teachers should have inculcated the love, awareness and care for the environment into the students' mind and these require cognitive, affective and psychomotor learning through integration of the concepts students learned [6], [7].

It is mandated whereas formal school system must comply with the provisions of the Philippine Constitution, Presidential Decree and Memorandum from Department of Education such as Presidential Decree 1152, Republic Act No. 9512, DepEd Order No. 52, s. 2011, DepEd Order No. 72, s. 2003 and DepEd Memorandum No. 133, s. 2014. It is a challenge to educators as well to the school administrators to cultivate political, social, and moral responsibility of caring for the environment of the students in order to attain and sustain the benefits of engaging to sustainable development [8] - [13]. In compliance to these provisions, most of the schools, not only in the first district of Oriental Mindoro, Philippines, are actively engaging their students in some sustainable practices like waste segregation and energy conservation. There are also income generating projects like selling plastic bottles and papers that help students practice 3R's, i.e. reduce, reuse, and recycle.

Based from the aforementioned discussion the researcher felt that these ecological crises are not just of policy-makers, scientists, task and environmentalists to find solution but rather it involves everyone. Theories and applications are mostly learned at school that's why this study aimed to explain the status on the level of integrating environmental education and level of sustainable development practices to gain more information and understanding which the researcher believes as supplement for deeper understanding of its readers. This academic undertaking provides the most reliable information on sustainable development practices and environmental education of the respondent schools.

OBJECTIVES OF THE STUDY

This study determined teachers' integration of environmental awareness and level of sustainable development practices of selected public high schools in the first district of Oriental Mindoro, Philippines.

Specifically, it aimed to: determine the level of teachers' integration of environmental awareness in terms of waste management, pollution, forest conservation and climate change; determine the level of sustainable development practices in terms of proper waste disposal, recycling, composting, tree planting and energy conservation and determine the relationship between the level of teachers' integration of environmental awareness and sustainable development practices.

METHODOLOGY

This study employed descriptive-correlational method of research to describe and determine the relationship among variables. Out of 33 schools with a total population of 19,340 students, the researcher selected the largest high schools in the 7 municipalities of the first district of Oriental Mindoro, Philippines. Respondents of the study were 384 students from the first sections and Special Science Classes (SSC) who were selected using proportional stratified sampling.

The main instrument used was a self-prepared questionnaire which was subjected to validation by experts such as DENR officer, environment-advocate priest and high school subject teachers. Test- retest method was used and found out that there were very high reliability of the questionnaire with the following computed r-value of each variable of the study: waste management: 0.977; pollution: 0.977; forest conservation: 0.975; climate change: 0.922; proper waste disposal: 0.960; recycling: 0.962; composting: 0.939; tree planting: 0.889; energy conservation: 0.886 [14].

The researcher sought permission from the Schools Division Superintendent of DepEd Oriental Mindoro and the request was presented to the principals of the selected schools. Before answering the questionnaire, the researcher explained the purpose of the research and its potential benefit to the society. The researcher also sought permission from the students and assured their privacy will be protected. The questionnaire was completed by the

students in the presence of the researcher. Then, the retrieval of the questionnaires from the respondents was done immediately after answering.

Descriptive statistics, mean and rank, were used to describe the gathered data. Pearson's r was also used to determine the magnitude of the relationship between variables.

Perception of the respondents was measured using a five-point Likert scale with its numerical scale, statistical limits and verbal description: 4.50 - 5.00: very high; 3.50 - 4.49: high; 2.50 - 3.49: moderate; 1.50-2.49: low; 1.00-1.49: very low level.

RESULTS AND DISCUSSION

Table 1. Mean Perception of the Respondents on the Teachers' Integration of Environmental Awareness in terms of Waste Management

| Awareness in terms of waste Ma | | |
|--|------|-------------|
| Items | Mean | Description |
| 1. My teachers encourage students to | | |
| improve or develop local waste | 4.31 | high |
| management at home and in the | | C |
| campus. | | |
| 2. My teachers set uniform standards | 1.16 | 1.1.1. |
| for the segregation, management, | 4.16 | high |
| and disposal of solid waste. | | |
| 3. My teachers use allotted time | | |
| wisely through discussion providing concrete data and information on the | | |
| | 4.15 | high |
| importance of proper waste management practice in school, | | |
| home, and community. | | |
| 4. My teachers train students on how | | |
| to effectively practice waste | | |
| segregation by designating | | |
| receptacles for biodegradable, non- | 4.13 | high |
| biodegradable waste, and hazardous | | |
| waste. | | |
| 5. My teachers conduct regular | | |
| assessment of waste management | 2.02 | |
| procedure to assure compliance with | 3.83 | high |
| the set standards. | | |
| 6. My teachers encourage students to | | |
| participate in government programs | 3.80 | high |
| on waste management. | | |
| 7. My teachers introduce new | | |
| techniques in waste management | 3.50 | high |
| which are based on professional | 3.30 | mgn |
| researches. | | |
| 8. My teachers invite resource | | |
| speakers from DENR, DA, and other | 3.01 | moderate |
| related offices for fora and seminars | 5.01 | moderate |
| about waste management. | | |
| Overall Mean | 3.86 | high |

As reflected from Table 1, the item about teachers' encouragement to improve or develop local waste management at home and in the campus got the highest weighted mean of 4.31 and described as high. Perhaps this is common and basic among all teachers to encourage their students to practice waste management at home and school. Based from the follow up interviews to the teachers they set standards on waste management in and out of the classroom as the basic substance of maintaining cleanliness in the school campus.

On the other hand, teachers' encouragement of waste management does not end in the classroom or school but they also encourage students to participate in government programs on waste management. But in terms of synchronizing the ideas and effort of teacher with the resource speakers and other governmental offices such as DENR also requires a little effort to materialize. According to some teachers they are more focus on finishing their competencies for the whole school year. Though item number eight got a weighted mean of 3.01, moderate, there is still a room to improve the support *via* fora which must be conducted by resource speakers from related government offices.

Result also showed an overall weighted mean of 3.86 described as high implying that teachers' integration of environmental education in terms of waste management is good at the respondent schools. Perhaps this could become better if there is an excellent assessment of teachers and participation from other related government offices.

Classroom-based learning and practices of waste management equipped students as an individual with a good habit of managing waste and sustaining a pleasant environment. Integration of management must be sustained because continuous reminder influences the practice of waste management of the students. Yet, the items that are moderate in description needs further improvement. Perhaps if these are integrated properly, the practices in terms of waste management will gain better result. Teachers' must exert their most effort for their student to realize the benefits of proper waste management in the community. This is supported by B.F. Skinner's Operant Conditioning that describes the effects of the consequences of a particular behavior on the future occurrence of that behavior.

Table 2. Mean Perception of the Respondents on the Teachers' Integration of Environmental Awareness in terms of Pollution

| Awareness in terms of 1 offution | | |
|---|------|-------------|
| Items | Mean | Description |
| 1. My teachers provide students with concrete data and information about the effects of pollution to human health. | 4.24 | high |
| 2. My teachers play as role models to students by counteracting the effects of pollution on simple ways. | 4.14 | high |
| 3. My teachers explain where waste pollutants are generated in school. | 4.11 | high |
| 4. My teachers provide appropriate activities which helps me understand the concepts and ways to minimize pollution. | 4.00 | high |
| 5. My teachers encourage students to use eco-friendly products such as Eco bags as an alternative to plastic. | 3.93 | high |
| 6. My teachers encourage students to participate in outreach programs which orients the community in minimizing the generation of air, water, and land pollutants like not burning plastics, dry leaves, and rice hays. | 3.93 | high |
| 7. My teachers provide guidelines to help minimize the emission or generation of pollutants. | 3.92 | high |
| 8. My teachers encourage students to conduct a regular assessment of pollution in the community. | 3.61 | high |
| Overall Mean | 3.99 | high |

As presented in Table 2 it can be noted that the item relating to providing students with concrete data and information about the effects of pollution to human health has highest weighted mean of 4.24. Based from follow up interviews to the students their teachers' cited different types of respiratory diseases, food poisoning, as well as cancerous disease caused by pollution. It can be noted that teachers also provide activities for their students to assess pollution in the community which has the lowest weighted mean of 3.61 and is described as high. These activities was focused on information dissemination to the community.

The overall weighted mean of 3.99 indicates that environmental awareness in terms of pollution is highly included and practiced in the school and in the community. But the teacher must continue to highly integrate the environmental practice in terms of pollution. If this happens, there will be a high inclination on the knowledge of the students regarding this phenomena. Positively, it will develop the awareness of the students and will then start practice counter and lessen the effects of pollution. According to University of Michigan in the case of air and water pollution, the damage is done because they are open access resources, i.e., no-one owns them, and there is no individual incentive to restrict pollution. This is why the phenomenon of global climate change has come about, which has motivated governments to act. This means that teachers must also develop the awareness of their students in terms of environmental laws by the government.

Table 3. Mean Perception of the Respondents on the Teachers' Integration of Environmental Awareness in terms of Forest Conservation

| Awareness in terms of Forest Conservation | | | | | | | | | |
|--|------|-------------|--|--|--|--|--|--|--|
| Items | Mean | Description | | | | | | | |
| 1. My teachers provide information on | 4.35 | High | | | | | | | |
| the importance of forest to human life. | 4.33 | nigii | | | | | | | |
| 2. My teachers make involvement of the | | | | | | | | | |
| school community in tree planting in | | | | | | | | | |
| identified tree-less areas, riverbanks and | 3.99 | High | | | | | | | |
| other flood prone areas with proper | | | | | | | | | |
| coordination from LGU. | | | | | | | | | |
| 3. My teachers impart to the students the | | | | | | | | | |
| responsibility of everyone to report to | 3.93 | High | | | | | | | |
| proper authority illegal logging | 3.73 | High | | | | | | | |
| activities. | | | | | | | | | |
| 4. My teachers encourage students to | 3.74 | High | | | | | | | |
| join in forest conservation activities. | 3.74 | mgn | | | | | | | |
| 5. My teachers encourage student to | | | | | | | | | |
| participate in information dissemination | 3.70 | High | | | | | | | |
| on wildlife preservation. | | | | | | | | | |
| 6. My teachers familiarize students in | | | | | | | | | |
| different programs in forest conservation | 3.68 | High | | | | | | | |
| by different national and local | 2.00 | 111811 | | | | | | | |
| environmental-related offices. | | | | | | | | | |
| 7. My teachers encourage students to | | | | | | | | | |
| participate in information campaign on | 3.64 | High | | | | | | | |
| forest conservation. | | | | | | | | | |
| 8. My teachers encourage students to | | | | | | | | | |
| join civic organization on forest | 3.54 | High | | | | | | | |
| conservation that are in compliance to | | 8 | | | | | | | |
| DepEd policies. | | | | | | | | | |
| Overall mean | 3.82 | High | | | | | | | |

As presented in the table 3 the item pertaining to providing information on the importance of forest in human life has the highest weighted mean of 4.35 which is described as high. Moreover, teachers' encouragement to students in joining civic organization on forest conservation in compliance to DepEd policies has the lowest weighted mean of 3.54

and described as high. Hence, linkages between the school, community and other organizations must be improved.

Based on the results, the overall weighted mean is 3.82 which mean that there is a high integration of environmental awareness in terms of forest conservation. Meaning the teachers did not fail to inculcate to their students the value of forest conservation and its positive effects to people. According to Climate Rally, an environmental organization, trees do not only remove harmful chemicals from the soil, but also help reduce the greenhouses leading to global warming.

Table 4. Mean Perception of the Respondents on the Teachers' Integration of Environmental Awareness in terms of Climate Change

| Awareness in terms of Climate Change | | | | | | | | | |
|---|---------|-------------|--|--|--|--|--|--|--|
| Items | Mean | Description | | | | | | | |
| My teachers develop positive | | | | | | | | | |
| attitude of students on risk reduction | 4.22 | high | | | | | | | |
| and disaster preparedness. | | | | | | | | | |
| 2. My teachers update students on the | | | | | | | | | |
| current global issues like the effects of | | | | | | | | | |
| climate change in biodiversity, | 4.20 | high | | | | | | | |
| agriculture, lands, bodies of water, and | | · · | | | | | | | |
| human life. | | | | | | | | | |
| 3. My teachers use the allotted time | | | | | | | | | |
| wisely through giving concrete | 4.11 | | | | | | | | |
| examples and sharing of experiences | 4.11 | high | | | | | | | |
| related to climate change. | | | | | | | | | |
| 4. My teacher enhance awareness of | | | | | | | | | |
| students on climate change by | 200 | | | | | | | | |
| involving them in information | 3.96 | high | | | | | | | |
| campaigns on climate change. | | | | | | | | | |
| 5. My teachers encourage students to | | | | | | | | | |
| participate in information | • • • • | | | | | | | | |
| dissemination about climate change in | 3.80 | high | | | | | | | |
| the school and community. | | | | | | | | | |
| 6. My teachers initiate pilot activities | | | | | | | | | |
| about climate change education by | | | | | | | | | |
| implementing activities in the | 3.61 | high | | | | | | | |
| community for scientific observation. | | | | | | | | | |
| 7. My teachers invite resource speakers | | | | | | | | | |
| to enhance knowledge and skills of the | | _ | | | | | | | |
| students about climate change and | 3.43 | moderate | | | | | | | |
| disaster preparedness. | | | | | | | | | |
| 8. My teachers conduct regular forum | | | | | | | | | |
| and seminars on climate change by | | | | | | | | | |
| resource speakers from DENR, | | | | | | | | | |
| Department of Agriculture and other | 3.33 | moderate | | | | | | | |
| related government and | | | | | | | | | |
| nongovernmental agencies. | | | | | | | | | |
| Overall mean | 3.83 | high | | | | | | | |
| ~ · · · · · · · · · · · · · · · · · · · | | 8 | | | | | | | |

As indicated in Table 4, the development of positive attitude of students on risk reduction and disaster preparedness got the highest weighted mean of 4.22 which is described as high. These positive attitudes are mostly developed from activities and

drills such as fire and earthquake drill which were done in specific months of every school year. On the other hand, conduction of regular fora and seminars on climate change by resource speakers from DENR, DA, and other related government and nongovernmental agencies got the lowest weighted mean of 3.33 and moderate in description.

Based on the results, the overall weighted mean of teachers' integration of environmental awareness in terms of climate change is 3.83. This is described as high. This implicates that students are aware of global issues like climate change. This is a good start for the students to have a better understanding of such phenomena. And perhaps the dissemination and deepening of the ideas will be better if teachers will provide training, fora, and seminars by resource speakers from related agencies instead of classroom-based discussion.

Table 5. Mean Perception of the Respondents on the Level of Sustainable Development Practices in terms of Proper Waste Disposal

| terms of Froper waste Disposar | | | | | | | | | | |
|---|------|-------------|--|--|--|--|--|--|--|--|
| Items | Mean | Description | | | | | | | | |
| 1. School designates a specific place for garbage bins and pits in the | 4.30 | High | | | | | | | | |
| campus. | | | | | | | | | | |
| 2. School sets standards on proper | | | | | | | | | | |
| solid waste management inside the campus. | 4.21 | High | | | | | | | | |
| 3. School employs in classroom | | | | | | | | | | |
| activities some best practices on | | | | | | | | | | |
| solid waste management by other | 4.14 | High | | | | | | | | |
| secondary schools in the province | | | | | | | | | | |
| and in the country as well.4. School monitors periodically the | | | | | | | | | | |
| disposal of stored wastes in order to | 4.05 | High | | | | | | | | |
| prevent emission of foul odor. | | 6 | | | | | | | | |
| 5. School segregates waste properly | | | | | | | | | | |
| into biodegradable, non- | 2.06 | TT' 1 | | | | | | | | |
| biodegradable, and hazardous waste from chemicals on the science | 3.96 | High | | | | | | | | |
| laboratory. | | | | | | | | | | |
| 6. School organizes symposiums | | | | | | | | | | |
| and seminars for students on how to | | | | | | | | | | |
| effectively practice waste | 3.88 | High | | | | | | | | |
| segregation by designating receptacles for biodegradable and | | Ü | | | | | | | | |
| non-biodegradable waste. | | | | | | | | | | |
| 7. School provides financial | | | | | | | | | | |
| assistance for maintenance and | 3.77 | High | | | | | | | | |
| continuous proper waste disposal in | 3.11 | Tilgii | | | | | | | | |
| the campus. | | | | | | | | | | |
| 8. School coordinates with LGUs for | 2.70 | | | | | | | | | |
| proper waste collection and disposal. | 3.58 | High | | | | | | | | |
| Overall mean | 3.99 | High | | | | | | | | |
| Over an mean | 3.77 | High | | | | | | | | |

As reflected in Table 5, schools designates a specific place for garbage and pits in the campus with a weighted mean of 4.30 and described as high. According to the principals of the respondent school it is given that every school must have an area for proper disposal of solid waste in the campus specifically the biodegradable waste. Moreover, the item pertaining to coordinating with LGUs for proper waste collection and disposal has the lowest weighted mean which is 3.58, described as high.

Likewise, the overall weighted mean sustainable development in terms of proper waste disposal is 3.99 described as high. Perhaps this is brought by everyday routine in the classroom which is of course guided by the teachers. Maintaining order by cleanliness greatly affects the behavior of the students in terms of proper waste disposal. But the challenge will remain intact as this practice is high and due to some influence from the population in and out of the school. Teachers must have follow-up activities and interviews to students about practicing waste disposal outside the school to monitor the level of sustainable practices and make appropriate steps to sustain and maintain sustainability.

Table 6. Mean Perception of the Respondents on the Level of Sustainable Development Practices in

| terms of Recycling | | |
|--|------|-------------|
| Items | Mean | Description |
| 1. School implants in the students the | 4.11 | Uich |
| value of reduce, reuse, and recycle. | 4.11 | High |
| 2. School practices simple recycling | | |
| activities such as reuse of plastic | 3.95 | High |
| containers, plastic bags, etc. | | |
| 3. School separates recyclable | | |
| materials such as paper and | 3.83 | High |
| cardboards, plastic bottles, metal | 3.63 | High |
| strip, aluminum cans, glass etc. | | |
| 4. School implants the value of wise | | |
| conservation of school supplies such | 3.82 | High |
| as paper and notebooks. | | |
| 5. School demonstrate techniques of | | |
| storing recyclable materials such as | 3.80 | High |
| plastic bottles, aluminums cans, | 3.60 | High |
| cardboards, etc. | | |
| School generates income from | | |
| garbage by selling cardboards, paper, | 3.73 | High |
| and plastic bottles in junkshops. | | |
| 7. School designates a specific place | | |
| in the campus as materials recovery | 3.54 | High |
| facility (MRF). | | |
| 8. School invites resource speakers | | |
| and speaker from DENR and other | 3.35 | moderate |
| related agencies that provide proper | 3.33 | moderate |
| training in recycling. | | |
| Overall mean | 3.77 | high |

Table 6 shows that the value of reduce, reuse, and recycle has a weighted mean of 4.11 and described as high. Likewise, the respondent schools invite resource speakers from DENR and other related agencies that provide proper training in recycling at moderate extent. As shown in the table the weighted mean of item 8 is 3.35 and is described as moderate which suggest to create more coordination to other related governmental environmental offices and respondent school mainly focused on accomplishing their school calendar.

The overall weighted mean of sustainable development in terms of recycling is 3.77 described as high. This means that the schools highly contribute to economy and environment. According Shanmugapriva and Kiruthika [15], there environmental benefits like it saves trees, reduces air pollutants, save energy and reduce greenhouse gases emission, conserves natural resources, and prevents habitat destruction. And in terms of economy it saves money and creates jobs.

Table 7. Mean Perception of the Respondents on the Level of Sustainable Development Practices in

terms of Composting Items Description Mean 1. School separates recyclable 3.98 high

| Overall mean | 3.63 | high |
|---------------------------------------|------|----------|
| composting. | | |
| trainings and seminars on | | |
| agencies that provide additional | 3.21 | moderate |
| from DENR, DAR and other related | | |
| 8. School invites resource speakers | | |
| school | | |
| seminars to enhance composting in | 3.46 | moderate |
| 7. School provides trainings and | | |
| campus. | | |
| assistance for composting in the | 5.50 | high |
| initiatives by giving financial | 3.50 | high |
| 6. School shows composting | | |
| fertilizer thru composting. | | Č |
| biodegradable wastes to organic | 3.67 | high |
| 5. School practices converting | | |
| the community. | | Ü |
| practice composting at home and in | 3.71 | high |
| 4. School motivates students to | | |
| fertilizers in school gardens. | 3.77 | high |
| 3. School makes use of the organic | 2.55 | |
| environment. | | |
| positive effects in health and in the | 3.78 | high |
| organic farming in terms of its | | |
| 2. School promotes the benefits of | | |
| garbage to be treated. | 3.76 | mgn |

Table 7 revealed that separating recyclable garbage to be treated has the highest weighted mean

of 3.98 described as high. The respondent schools also promote the benefit of organic farming in terms of its positive effects in health and in the environment, also in a high extent. It is also apparent that the respondent schools use organic fertilizers in their schools gardens, also in high extent. However there is a moderate perception in providing trainings and seminars to enhance composting in the school and inviting resource speakers from DENR, DAR, and other related agencies that provides additional trainings and seminars on composting. It has the lowest weighted mean of 3.21. It means that the schools should focus not only in activities and inculcation of concepts of composting but provide opportunities for the students to have appropriate training via seminars, fora, and workshops in composting.

Lastly, the overall weighted mean of sustainable development practices in terms of composting is 3.63 described as high. Since these schools are highly practicing composting they must become careful and always follow the measures in composting technique because there are negative effects of composting when not done properly and carefully such as emission of gases. On the other hand, Silven [16] enumerates the benefits of composting. He emphasizes that everyone should help to reduce the amount of waste that is being directed to our landfills. This means that a reduction of methane gas that is being released into the atmosphere. Composting also cuts down on the usage of chemical fertilizers which are harmful to our supply. Composting can also save money not only for a household but it can also help to balance a city and eventually a country's budget.

As shown in the Table 8, the item pertaining to sustaining development of values in the students about the environmental importance of trees got the highest mean perception of 4.18 described as high. In terms of community involvement, items 7 and 8, have a mean perception of 3.54 and described as high but last in rank. Perhaps this is because these activities are merely done within the school year.

The overall mean of sustainable development practices in terms of tree planting has 3.79 weighted mean and described as high. It means that the respondent schools are practicing tree planting for sustainable development. This also suggests that school should also involve the community to participate in this kind of activity due to increasing rate of deforestation. It may develop the awareness not only of the students but also the community.

Table 8. Mean Perception of the Respondents on the Level of Sustainable Development Practices in terms of Tree Planting

| Items | Mean | VI |
|--|------|------|
| 1. School sustains development of values in the | | |
| students about the environmental importance of | 4.18 | high |
| trees. | | |
| 2. School allows students to participate in tree | | |
| planting activities that are in compliance to | 4.09 | high |
| DENR and DepEd policies. | | |
| 3. School imparts in the students the value of | 4.03 | high |
| reforestation and urban greening. | 4.03 | mgn |
| 4. School plant trees in identified tree-less | 3.76 | high |
| areas, riverbanks, and other flood prone areas. | 3.70 | mgn |
| 5. School designates a specific area in the | | |
| school as nursery for endangered species of | 3.61 | high |
| trees like narra, kamagong, molave, and etc. | | |
| 6. School conducts action researches about tree | | |
| planting within and outside the school | 3.59 | high |
| community with the approval from the DENR | 3.37 | mgn |
| in choosing the right site. | | |
| 7. School joins in urban greening with support | 3.54 | high |
| from DENR, LGU and school officials. | 3.34 | mgn |
| 8. School participates in reforestation in an | | |
| organized manner with support from DENR, | 3.54 | high |
| LGU and school officials. | | |
| Overall mean | 3.79 | high |

Table 9. Mean Perception of the Respondents on the Level of Sustainable Development Practices in terms of Energy Conservation

| Items | Mean | VI |
|--|------|----------|
| 1. School ensures that all lighting, computers, projectors, air conditioning, fans and other peripheral equipment are turned off during night as well as other unoccupied times. | 4.37 | high |
| 2. School encourages students to monitor energy usage, participate in auditing efforts, and contribute any thoughtful and innovative energy-saving ideas. | 4.06 | high |
| 3. School encourages students to practice energy conservation at home. | 3.97 | high |
| 4. School sets standards and guidelines on using electricity and other energy sources in the campus. | 3.83 | high |
| 5. School allows students to organize community campaign in energy conservation. | 3.64 | high |
| 6. School organizes a student energy patrol or a student energy commission to help monitor school energy usage. | 3.45 | moderate |
| 7. School invites resource speakers for more comprehensive lectures, trainings, and seminars about energy conservation. | 3.35 | moderate |
| 8. School uses alternative sources of energy such as solar panels as source of electricity. | 3.23 | moderate |
| Overall mean | 3.74 | high |

Results tends to show that schools ensure that all lighting, air conditions, fans and other electronic devices are turned off during nights. It gained the highest weighted mean of 4.37 and described as high.

Table 3. Correlation Analysis between Teachers' Integration of Environmental Awareness and the Level of Sustainable Development Practices

| of Bustainus | ic Deve | оршен | 114 | Cticts | | | | | | | | | | | |
|---|---------------------------------------|--------|--------|----------------------|--------|--------|----------------------|---------------|--------|----------------------|------------------------|--------|----------------------|--------|--------|
| | DV. Sustainable Development Practices | | | | | | | | | | | | | | |
| IV. Teachers' Integration of Environmental Awareness | Proper Waste Disposal | | | Recycling Composting | | | | Tree Planting | | | Energy Conservation | | | | |
| | Computed r- value | r2 | Result | Computed r- value | r2 | Result | Computed r- value | r2 | Result | Computed r- value | 1.2 | Result | Computed r- value | r2 | Result |
| Waste Management | 0.707 | 0.4997 | * | 0.664 | 0.4405 | * | 0.670 | 0.4485 | * | 0.581 | 0.3371 | * | 0.603 | 0.3635 | * |
| Pollution | 0.717 | 0.5143 | * | 0.670 | 0.4487 | * | 0.693 | 0.4798 | * | 0.585 | 0.3419 | * | 0.596 | 0.3551 | * |
| Forest Conservation | 0.676 | 0.4574 | * | 0.588 | 0.3457 | * | 0.640 | 0.4098 | * | 0.663 | 0.4395 | * | 0.598 | 0.3574 | * |
| Climate Change | 0.762 | 0.5810 | * | 0.723 | 0.5233 | * | 0.729 | 0.5308 | * | 0.674 | 0.4537 | * | 0.659 | 0.4348 | * |

^{* =} significant

Critical Value: 0.113

Level of significance: 0.05 Degree of freedom: 382

The findings further show that schools are using alternative sources of energy such as solar panels as source of electricity. This is reflected by the lowest weighted mean of 3.23 and is described as moderate.

The overall mean of sustainable development in terms of energy conservation is 3.74 and described as high. It means that the respondent schools are practicing sustainable development in terms of energy conservation. However, it is a challenge to the respondent schools continuously imparts to their student the value of energy conservation.

Result shows a significant relationship between waste management and proper waste disposal. Findings imply that the integration of waste management significantly influence proper waste disposal. Encouraging students to improve or develop local waste management at home and in the campus positively affects waste disposal practices of students.

Significant relationship also exists between pollution and proper waste disposal. This implies that the integration of pollution significantly influence proper waste disposal. Perhaps providing concrete example on the effect of pollution with the set standards of the school on solid waste management helps develop the right practice of students.

Findings also show a significant relationship between forest conservation and tree planting. The inculcation of information together with community involvement like tree planting and other civic programs regarding forest conservation will lift the positive attitudes of students in terms of tree planting.

There is also a significant relationship that exists between climate change and energy conservation. Perhaps teachers cite some examples on the negative effects of the use of fossil fuels in global climate patterns. And it is a challenge to most of the teachers to encourage students to conduct researches and science investigatory projects to maximize the use of renewable resources like wind and solar energy.

Generally, there is a significant relationship between teachers' integration of environmental awareness and level of sustainable development practices. This means that the schools are complying with national laws as well as the DepEd policies. But it is always a challenge to the school and teachers to maintain and improve these practices. Also, community involvement and participation should not be overlooked because these are also parts of the curriculum. It means that the goal of education is not only to inform but also transform an individual into becoming a better member of the community.

CONCLUSION AND RECOMMENDATION

Teachers' integration of environmental awareness influences sustainable development practices. Though there is an integration of environmental awareness among the students, the study found out that school together with the teachers must not only focus on learning and practicing the concepts and theories within the school community. Strengthening the established linkage to other agencies is also a vital part of the equation in order to achieve sustainability. This implies that the applications of what was learned in the schools are not limited to the school community itself. It means amplifying by extending sustainable practices as collaborative effort of the students, schools, outside communities, LGU's and other related government and nongovernment agencies.

Schools should take full advantage and possibility of inviting resource speakers from DENR, DA, and other related government and nongovernment environmental offices and organizations for further

fora, seminars, and trainings for the students to ensure that the integration of environmental awareness is strengthened and sustained. Schools should maximize the use of cheap but efficient alternative sources of energy to show the actual benefit of using renewable energy sources. Schools should initiate, organize, and support group of students that extend their knowledge in proper waste disposal, recycling, composting, tree planting and energy conservation to the community. Schools should include in their annual agenda/plan resorting to utilization of cheap but efficient alternative sources of energy. Local government units should sustain the involvement in schools to practice should sustainability. The community involvement in the extension programs of the schools for better understanding of the concepts and benefits of practicing sustainability.

Further study and training pertaining to waste management, pollution, forest conservation, climate change, waste disposal, recycling, composting tree planting, and energy conservation is recommended.

REFERENCES

- [1] Morelli, J. (2011). Environmental Sustainability: A Definition for Environmental Professionals. *Journal of Environmental Sustainability*, *I*(1), 1–27. https://doi.org/10.14448/jes.01.0002
- [2] Subrahmanyam, K., & Greenfield, P. M. (2008). Communicating online: adolescent relationships and the media. *Future of Children*, *18*(1), 1–27. https://doi.org/10.1353/foc.0.0006
- [3] Lavecchia, E. (n.d.). In Pursuit of Sustainable Development: Social and Political Efforts to Effectively Embrace the Principles Underlying International Environmental Law.
- [4] Meredith, C. (1991). Education for Peace. *Interdisciplinary Science Reviews*, *16*(2), 114–116. https://doi.org/10.1179/030801891789711025
- [5] Sachs, J. D. (2012). From millennium development goals to sustainable development goals. *The Lancet*, 379(9832), 2206–2211. https://doi.org/10.1016/S0140-6736(12)60685-0
- [6] Ravago, M., Roumasset, J., & Balisacan, A. (2009). Economic Policy for Sustainable Development vs . Greedy Growth and in the pursuit of sustainable development . The publication of Our Common Future a in 1987 by the World Commission on Environment and Development (WCED: the Brundtland Commission) place. Southeast Asian Studies, (9), 1– 43
- [7] Reyes, B. M. M. (2007). Migration and Filipino Children Left-Behind: A Literature Review, 1–28.
- [8] Horne, T., Instruction, P., & Superintendent, D. A. (2009). Department of Education, (72).

- [9] Presidential Decree No. 1152: Philippine Environment Code (1977). Manila. Retrieved from https://goo.gl/hMW59H
- [10] Republic Act No. 9512: Environmental Awareness and Education Act of 2008 (2008). Metro Manila. Retrieved from https://goo.gl/5QnMer
- [11] Department of Education. (2011). DO 52, s. 2011 Strengthening Environmental Education in Public and Private Schools. Retrieved from: http://www.deped.gov.ph/orders/do-52-s-2011
- [12] Department of Education. (2003). DO 72, s. 2003 Establishment of the Youth for Environment in Schools (YES) Organization. Retrieved from: http://www.deped.gov.ph/orders/do-72-s-2003
- [13] Department of Education. *DepEd Memorandum No.* 133 (2014). Retrieved from https://goo.gl/yccFvd
- [14] Valeria, G. (2008). Test-retest reliability of a simplified questionnaire for screening adolescents with risk behaviours for eating disorders in epidemiologic studies. *Rev Bras Epidemiol*, 11(3), 1–8.
- [15] Shanmugapriya S, V. D., & Kiruthika, P. (2015). An overview of Eco friendly products Recycling. *International Journal of Advanced Research*, *3*(7), 77–80. Retrieved from http://www.journalijar.com
- [16] Silven, K. (2010). The importance of Composting: Help Eliminate Organic Waste, Fertilize Soil; Published on December 2, 2010; Retrieved from: https://goo.gl/8VKFnE

COPYRIGHTS

Copyright of this article is retained by the author/s, with first publication rights granted to APJMR. This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (http://creative.commons.org/licenses/by/4.