

Implementation and Practices of Teachers on Solid Waste Management at Esperanza District I: Basis for Implementation of School-Based Practices

Maria Runa C.Orbe

Teacher III, Esperanza Central School, DepED Sultan Kudarat, Philippines

Abstract: This study determined the implementation of solid waste management practices in Esperanza Central School. The researcher utilized the mixed method of research that involved quantitative approach and qualitative approach. The descriptive-survey and correlational method was used in quantitative approach and key-informant interview and Focus-Group Discussion (FGD) in qualitative approach. The study was conducted at Esperanza District I for the school year 2021-2022. The respondents of the study were 100 teachers. Weighted means and Pearson r Moment correlation type of data treatment were in the study.

Findings revealed that the Mean Percentage Scores on extent of the implementation was 3.25. The extent of the solid waste management was apparently practiced by teachers in school and community as manifested in the result of mean (3.14). The solid waste management practices and the implementation were significantly associated with the t-computed value = 3.93 > t-critical value at 1.57 (p-value=0.0001<0.05). The solid waste management practices helped in controlling the use of plastics in school and bringing of garbage in school. Through the project on solid waste management program and initiatives could help them understand the waste issues and its consequences on human and environmental health, and the ways they could mitigate it.

Keywords: Implementation, Practices, Solid Waste Management

Introduction

The situation of the Philippine environment has reached critical proportions in relation to solid waste management that needs immediate and collective action from all sectors of the government. The enactment of RA 9003, otherwise known as the Ecological Solid Waste Management (ESWM) Act of 2000, provides for an Ecological Solid Waste Management Program creating the necessary institutional mechanisms and incentives, declaring certain acts prohibited and providing penalties, appropriating funds therefore and for other purposes (Azuelo, 2016).

Solid waste management is the collection, transport, processing, recycling or disposal of waste materials. It is the materials produced by human activity, and is generally undertaken to reduce their effect on health, aesthetics or amenity. Waste management is also carried out to reduce the materials' effect on the environment and to recover resources from them. It can also involve solid, liquid or gaseous substances, with different methods and fields of expertise for each essential (Marello and Helwege, 2014).

Management of solid waste in Sultan Kudarat should be undertaken to have the awareness and proper waste disposal especially in the urban areas. However, people need to be educated and made aware of the implementation of solid waste management and segregation. Studies revealed that many LGUs still struggle in the implementation of SWM since SWM has not been among the top priorities in most LGUs. Therefore, to achieve sustainable solid wastes management lack of awareness, technical knowledge, legislation policies, and strategies should be adequately addressed.

In local setting, through solid waste management program, there are establishments, offices, LGU and even schools implemented the solid waste management to adhere with RA 9003. In some localities an ordinance has been already executed and putted into actions like prohibiting the use of plastics.

With this idea, the researchers intended to promote and improve the implementation of solid waste management by incorporating the effect of the programs proposed to the call of zero waste inside the school. The capacity of the researcher is to provide clear perspective of the solid waste implementation could give and help improve the condition that brought by students' activities and lack of control. Thus, this research study was conducted.

Conceptual Framework

This research study was anchored to the concept of Solid Waste Management. In 2000, Republic Act 9003 or the Ecological Solid Waste Management Act was enacted to provide a framework for managing the growing problem of solid waste in the country. Furthermore, Republic Act 9003 gives prime importance to the roles of LGUs in managing their respective solid wastes (Torres, 2009).

Waste mismanagement has serious environmental effects making the passage of the Republic Act (RA) 9003 or the Ecological Solid Waste Management Act of 2000 a landmark environmental legislation in the Philippines. The law was crafted in response to the looming garbage problems in the country. RA 9003 declares the policy of the state in adopting a systematic, comprehensive and ecological solid waste management program that ensures the protection of public health and the environment and the proper segregation, collection, transport, storage, treatment and disposal of solid waste through the formulation and adoption of best environmental practices. Moreover, it illustrates the potentials and benefits of recycling not only in addressing waste management problems but also in alleviating poverty (Aquino, et al, 2013).

The management of waste become complex and the facilities provided cannot cope with the increasing demand and needs. Therefore, best approach needs to be implemented immediately while considering environmental, social and economic aspects (Aye & Widjaya, 2006, cited by Paragoso, et al, 2018).

Figure 1 depicts the independent and dependent variables of the study. The INDEPENDENT VARIABLE is the extent of the implementation of solid waste management. This includes information education and communication campaign, policies on solid waste management and awareness on solid waste management. The dependent variable served as determinants of the independent variable. The DEPENDENT VARIABLE of this study is all about the solid waste management practices of teachers that includes waste segregation, reuse and recycling of marketable materials, collection and transport and composting of organic materials.

The following diagram depicts how the two variables were treated and the relationship of the independent and dependent variable.

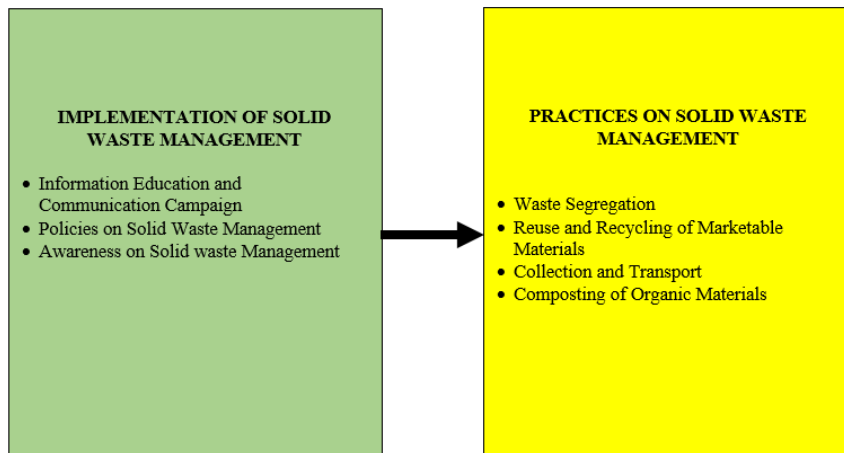


Figure 1. Research Paradigm

Statement of the Problem

This study determined the extent of implementation and practices of teachers on solid waste management.

Specifically, this study sought answers to the following questions:

1. What is the extent of implementation of the solid waste management in terms of:
 - 1.1 Information Education and Communication Campaign;
 - 1.2 Policies on Solid Waste Management
 - 1.3 Awareness on Solid waste Management?
2. What is the extent of the practices of teachers on solid waste management in terms of:
 - 2.1 Waste Segregation
 - 2.2 Reuse and Recycling of Marketable Materials
 - 2.3 Collection and Transport and
 - 2.4 Composting of Organic Materials?
3. Is there a significant relationship between the implementation of schools and the practices of teachers on solid waste management?
4. What are the challenges of teachers in implementing the solid waste management?

METHODOLOGY

Research Design

The researcher utilized the mixed method of research that involved quantitative approach and qualitative approach. The descriptive- survey and correlational method was used in quantitative approach and key-informant interview and Focus-Group Discussion (FGD) in qualitative approach.

In descriptive survey, this study involved the description and survey of the characteristics of the populations. It was described the level of the implementation and practices of teachers on solid waste management

In qualitative approach, the aim of using interview is to draw concrete conclusions about the respondents. Furthermore, through interview of key informants was used to stem the waste management need to do to minimize its negative impact on the environment. Focus-Group Discussion (FGD) was used to validate the description and rating of respondents as well as to gain insight if the practices.

This research design underlie three premises in gathering necessary data. First, information for the relevant variables involved was collected, averaged and synthesized. Second, after determining the average score for each variable, the extent to which the subjects' scores using the set criteria for each variable was determined. Third inferential statistics utilized to examine the relationship of two variables (Abdullah, 2015).

The respondents of the study were 100 teachers at Esperanza District I. This research study employed the total sampling technique to determine the sample of teacher respondents to participate in data gathering. All data gathered from the respondents was organized, tallied, tabulated and presented in a series of tables. Weighted means and Pearson r Moment correlation type of data treatment was used in the study.

RESULTS AND DISCUSSIONS

Implementation of Solid Waste Management

There are lots of ways that we can reduce waste at school. Solid waste management aims to map all illegal dumps and managing the solid waste implementation in all schools. The extent of the implementation of solid waste management of schools was revealed in Table 1.

Table 1 Extent of the Schools' Implementation of Solid Waste Management

Indicators	Mean	Interpretation
Information Education and Communication Campaign	3.36	Evident
Policies on Solid Waste Management	3.17	Evident
Awareness on Solid waste Management	3.22	Evident
Overall mean	3.25	Evident

As shown, the overall mean of 3.25 was described as Evident. The consistent ratings for all the indicators further substantiate the overall result. This means solid waste management was implemented in schools. This further implies that the implementation of solid waste management helped to control the use of plastics in school and bringing of garbage in school. Learners and teachers are aware of the implementation they could

integrate the solid waste management in the lesson and being part of the classroom policy. Being informed about the waste awareness give them the knowledge to help become environmentally friendly. Connecting the activities with nature helps to increase appreciation and gives extra motivation to take actions to preserve and protect it.

In particular, when taken singly, Information Education and Communication Campaign obtained the higher mean of 3.36 and described as Evident. This means that in all indicators, teachers are evidently aware of the waste management by giving campaign and information as to the benefits, impact and practices in the implementation of the project.

The solid waste management implementation helps in minimizing the problems of the school plastics and other wastes. It is recommended this project will be implemented and sustained so that it will highly manifested to be followed by others.

Practices on Solid Waste Management

Waste management refers to the collection, transport, recovery, and disposal of waste, including the supervision of such operations and after-care of disposal sites. It concerns itself with the existing amount of waste, trying to minimize the human-waste or environment-waste interface and to minimize potential impact. The extent of the practices on solid waste management in Esperanza Central School is revealed in Table 2.

Table 2. Extent of the Practices on Solid Waste Management

Indicators	Mean	Interpretation
Waste Segregation	3.25	Evident
Reuse and Recycling of Marketable Materials	3.09	Evident
Collection and Transport	2.93	Evident
Composting of Organic Materials	3.27	Evident
Overall mean	3.14	Evident

As shown, the overall mean of 3.14 was described as Evident. The consistent ratings for all the indicators further substantiate the overall result. This means that the extent of the solid waste management was apparently practiced by teachers in school and community.

This further implies that the practices on solid waste management was frequently utilized in school. This further indicates that teachers practiced the waste management by showing as an example to their learners. The presence of school practices on waste reduction and waste separation was strongly implemented as part of the school program. Using positive environmental image and performance within teachers and community stakeholders can become enthusiastically involved and push for sustainable SWM practices.

In particular, when taken singly, composting of organic materials obtained the higher mean of 3.27 and described as Evident. This means that among the solid waste practices, composting of organic materials was mostly done by the school. This is manifested by the presence of vermi project. The result concluded that waste management practices must be fully practiced by all people so that wastes materials could be properly utilized and thrown in designated area.

Significant Relationship on the Extent of Implementation and Practices on Solid Waste Management

The 3rd research problem deals on the significant relationship between the implementation and practices of teachers on solid waste management. Critical to a successful solid waste management program is without implementation and practice in school. The correlational analysis was presented in Table 3.

As shown, on the analysis of implementation and practices on solid waste management, the t-computed value = 3.93 > t-critical value at 1.57 (p-value=0.0001<0.05) indicates that there is significant relationship existed between the two variables, thus null hypothesis is rejected.

This means that the practices on waste management of teachers were dependent on its implementation. In other words, if solid waste management was highly implemented and followed, they also have good practices in school. Through the project on solid waste management program and initiatives can help them understand the waste issue and its consequences on human and environmental health, and the ways they can to mitigate it.

Table 3. Correlational Analysis on the Extent of Implementation and Practices of Teachers on Solid Waste Management

Variables	<i>r</i>	t _{comp}	t _{critical}	<i>p</i> -value	Interpretation
Extent of Implementation and Practices on Solid Waste Management	0.5524	3.93	1.57	0.000	Significant

*= 0.05 Level of Significance

Challenges in Implementing the Solid Waste Management

Based on the qualitative analysis, the following were the perspectives of the challenges experienced by the teachers on solid wastes management. It is categorized on the following themes based on the transcription and coding of responses using the RQDA. These are improper wastes disposal and attitude.

One of the challenges experienced by the teachers is improper wastes disposal. Based on the data gathered through key informant interview utilized by the researcher, the following were some excerpts of their statements with the question raised by the researcher.

During the formal interview with the research participants, five of them have similar responses;

“In school many pupils throw their garbage anywhere. The school implemented zero plastics, however, they brought plastics in school coming from outside vendors”

It was noted from them that,
“We teachers always remind the pupil to throw their garbage in garbage box or bring their plastics at home”

It noteworthy to share their thoughts such as,
“It is difficult to remind pupils about their plastics and other wastes and how to teach them in proper waste disposal”

This means that improper waste disposal is noted as one of the challenges of teachers in solid waste management practices. Improper waste disposal has negative impact on environment and to the physical aspects of the school. Waste if not properly disposed created hazardous and unfriendly learning environment.

Another of the challenges experienced by the teachers is the attitude of pupils. Based on the data gathered through key informant interview utilized by the researcher, the following were some excerpts of their statements with the question raised by the researcher.

During the formal interview with the research participants, four of them have similar responses;

“It is difficult to implement the practices because of the attitude of the pupils. The practices in waste management was taught to them, however pupils just take it for granted”.

Others stated that,
“It is difficult to teach pupil on how to segregate and disposing their waste properly”.

Moreover,
“It is our perennial problem is the implementation of good practices because learners are and to teach. They don’t follow the proper waste disposal.”

The responses of the research participants indicate that attitude of learners hinders the implementation of practices on waste management. In order to have successful implementation, learners should adhere and follow the proper waste disposal.

Conclusion

The implementation about the waste management and awareness give them the knowledge to help become environmentally friendly. Connecting the activities with nature helps to increase appreciation and gives extra motivation to take actions to preserve and protect it. The solid waste management implementation helps in minimizing the problems of the school plastics and other wastes. The practices on solid waste management was frequently utilized in school. This further indicates that teachers practiced the waste management by showing as an example to their learners. The presence of school practices on waste reduction and waste separation was strongly implemented as part of the school program. Using positive environmental image and performance within teachers and community stakeholders can become enthusiastically involved and push for sustainable SWM practices.

Recommendations

It is recommended that solid waste management school-based project will be implemented and sustained so that it will highly manifested to be followed by others. Policies may be integrated in the lesson for the awareness of the learners. Educational campaign about solid waste management must be included among the parents and the community meetings.

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