

# Internal Stakeholders' Ecological Awareness and Practices: Basis for School-Based Greening Program

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## Abstract

This study aimed to determine the level of ecological awareness and practices of the internal stakeholders of San Roque Elementary School to serve as a foundation for developing a school-based greening program. The researcher used a survey questionnaire to collect and obtain information from 100 students, 30 parents, and 30 school personnel. Results revealed that the stakeholders are "moderately aware" of policies and environmental concepts but "very aware" of waste disposal and campaigning. They "seldom practice" recycling and planting trees but "often practice" segregation, recycling, reusing, reducing, disposing of, proper food consumption, water preservation, proper energy use, and vegetation. Additionally, after analyzing the result of the survey the researcher designed the school-based greening program, and it was perceived as effective by the respondents. It is suggested that the future researcher concentrate on recycling, planting trees, and disseminating knowledge about environmental policies and concepts in designing the school-based Greening Program

Keywords: greening program; ecological awareness; ecological practices; school-based

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## 1. Main text

The list of environmental problems in the world is endless, but there are three main ones that have the biggest impact on all of them: loss of biodiversity, pollution, and climate change. As the environment changes, people need to be aware of the various environmental difficulties our world is facing due to the tremendous increase in natural disasters, warming and cooling periods, various forms of weather patterns, and much more.

These problems must be addressed because human health and prosperity depend on ecology. It gives a fresh perspective on how interdependence between humans and nature is crucial for producing food, maintaining clean water and air, and preserving biodiversity in a changing climate. According to the World Health Organization (WHO), Up to 24% of all fatalities worldwide in 2016 could be attributed to environmental factors. Air pollution, water contamination, poor sanitation, an increase in heat waves and other extreme weather, hazardous chemical exposure, and more are all contributing factors.

According to Raji (2022), major environmental issues in the Philippines are air, land, and marine pollution. Air pollution is mainly caused by vehicular emissions particularly in Metro Manila while the main cause of

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land and marine pollution is plastics due to an inefficient recycling system. Aside from the problem stated, other problems in the Philippines include illegal mining and logging, deforestation, dynamite fishing, landslides, coastal erosion extinction, global warming, and climate change.

This is the reason why the Philippine setting Republic Act 9003 or also known as the “Ecological Solid Waste Management Act of 2000” was implemented. This act encourages the Department of Education (DepEd) to incorporate ecological waste management in the school system to promote environmental awareness and practices among pupils.

It also stated in Deped Order No. 62 s. 2022 (Brigada Eskwela Memorandum) that the school should improve its solid waste management, including the establishment of garbage bins for waste segregation, compost pits and material recovery facilities, and/or securing local garbage collection services.

Due to these problems “Makakalikasan” has become one of the core values of the Department of Education. Therefore, the department aims to strengthen the integration of environmental education in the elementary and high school curriculum.

The department also wants to increase climate-literate learners therefore they are aiming to support the integration of Climate Change Education in the curriculum.

The department also establishes programs like the formation of Youth for Environment in School – Organization (YES-O) that will lead in the activities that involve environmental awareness and practices. In the Division of San Pablo City, Laguna, YES-O is an active organization. Each school has its own set of Yes-O leaders who take charge of the different environmental activities implemented inside the school. This is the reason why this research is conducted.

This research aims to answer the following questions:

1. To what extent is the internal stakeholders’ ecological awareness manifested in school as to:
  - 1.1 policies;
  - 1.2 waste disposal;
  - 1.3 campaigns; and
  - 1.4 environmental concepts?
2. What is the level of practices of the internal stakeholders as to the following:
  - 2.1 segregation;
  - 2.2 recycling;
  - 2.3 reusing;
  - 2.4 reducing;
  - 2.5 disposing;
  - 2.6 food consumption;
  - 2.7 water preservation;
  - 2.8 energy use;
  - 2.9 vegetation; and
  - 2.10 tree planting?
3. What is the internal stakeholder’s perception of the effect of the designed program as to its:
  - 3.1 pre-implementation.
  - 3.2 implementation; and
  - 3.3 post-implementation?

The following are the results of the research.

**Table 1: Internal Stakeholders' Level of Ecological Awareness**

Variables	Over-all Mean	Over-all SD	Verbal Interpretation
1. Policies	3.40	0.97	MA
2. Waste Disposal	3.97	0.84	VA
3. Campaigns	3.89	0.84	VA
4. Environmental Concepts	3.49	1.0	MA

Legend: 4.50 – 5.00 Strongly Aware (SA) (Very Familiar), 3.50 – 4.49 Very Aware (Familiar) (VA), 2.50 – 3.49 Moderately Aware (MA) (Somewhat Familiar), 1.50 – 2.49 Slightly Aware (Fairly Familiar) (SA), 1.00 – 1.49 Totally Not Aware (TNA) (Unfamiliar)

The results in the table show that the students, parents, and school personnel of San Roque Elementary School are moderately aware of the ecological policies which means that they are “Somewhat Familiar” with most ecological policies implemented in the Philippines. One reason that contributes to these results is that YES-O in the school is disseminating information about these policies through posters but only a few are giving time to read and comprehend it.

It also describes students, parents, and school personnel’s ecological awareness of waste disposal. The result shows an overall mean of 3.97 and a standard deviation of 0.84 which means that the internal stakeholders are “Very Aware” of the process of how waste can be disposed of. One reason for this result is that the school personnel of San Roque Elementary School is very intensive in informing the students and parents of the proper waste disposal inside the school because they know that improper waste disposal is a health hazard. Trash bins with proper labels are available inside the school premises to intensify proper waste disposal inside the school. A compost pit is also available inside the school so the biodegradable waste will be properly disposed of. Another reason that the internal stakeholder of San Roque Elementary School is very aware of proper waste disposal is that the Barangay Officials also conducts symposiums to properly inform the community about the dos and don’ts in disposing of waste material.

In terms of campaigns, there is an overall mean of 3.89 and a standard deviation of 0.84 which means that the internal stakeholders are “very aware” of the ecological campaign of the school. The Ecological campaigns in San Roque Elementary School include the establishment of seed banks for “Gulayan sa Paaralan”, a clean-up drive, conserving water and energy, and waste management inside the school. According to DepEd Order No. 93, s. 2011 the campaigns stated above are the mandated activity that the YES O members should lead. Since there are many active YES O members in San Roque Elementary School these campaigns are conducted. The result also shows that there is a good link between the three internal stakeholders because San Roque Elementary School personnel have a good dissemination strategy to inform the parents about the ecological campaigns or activities in the school.

School personnel takes advantage of the use of technology like online pages to explain to parents and students rapidly about the ecological waste management programs and different ways how to conserve water and energy inside the school. According to Sheridan (2016), a good relationship between school personnel, parents, and teachers is important to achieve the school’s goals regarding ecological activities. It is also related to the study of Sikat and Chua (2022) which proposed that the school head should keep promoting open and effective communication to further boost teamwork and cooperation at work to achieve the objective of the organization.

The table also describes the level of awareness of students, parents, and personnel in terms of environmental concepts. The data in the table shows that the computed overall mean is 3.49 with a standard deviation of 1.00 which can be interpreted as “moderately aware”. Some of the concepts like global warming, the ozone layer, sustainable development, acid rain, and indigenous people are interpreted as “very aware” which means that the internal stakeholders are well-informed about these concepts. This is because teachers in

San Roque Elementary School teach these concepts during their Science Class. Some of the concepts like Agenda 21, rainforests, desertification, percentage of available water for drinking, and duty of the Philippine Constitution in the ecology were interpreted as “Moderately Aware” This means that these concepts are “Somewhat Familiar” to the stakeholders. One reason for this result is that these concepts are tackled in their science curriculum but not in detail. Since teaching in public schools focus on localization and contextualization foreign environmental concepts like Agenda 21 is a slight priority in teaching.

Another reason that may affect the awareness of the stakeholders to environmental concepts can be connected to the study of Reiners et.al. (2017) wherein it is concluded that only a few of the respondents pay attention to different environmental concepts because many feel that these concepts are not important in their daily lives, especially to the parent respondents. This only means that another reason why the internal stakeholders are moderately aware of the environmental concepts is that only a few are interested in learning them.

**Table 2.** Internal Stakeholders’ Extent of Ecological Practices

Variables	Over-all Mean	Over-all SD	Verbal Interpretation
1. Segregation	3.71	0.85	OP
2. Recycling	3.35	1.00	SP
3. Reusing	4.03	0.93	OP
4. Reducing	4.03	0.93	OP
5. Disposing	3.91	0.82	OP
6. Food Consumption	4.02	0.96	OP
7. Water Conservation	4.28	0.93	OP
8. Energy Use	4.28	0.93	OP
9. Vegetation	3.59	1.10	OP
10. Tree Planting	3.41	1.18	SP

Legend: 4.50 – 5.00 Always Practiced (AP), 3.50 – 4.49 Often Practiced (OP), 2.50 – 3.49 Seldom (S), 1.50 – 2.49 Rarely Practiced (RR), 1.00 – 1.49 Never Practiced (NP)

This represents the internal stakeholders’ extent of ecological practices. It shows the level of ecological practice of students, parents, and personnel in terms of waste segregation. The computed overall mean is 3.71 with a standard deviation of 0.85 which indicates the internal stakeholders “often practice” waste segregation. This result is due to San Roque Elementary School’s establishment of three properly labeled trash bins in each classroom and in different areas of the school that enables personnel, students, and parents to practice segregating their waste from biodegradable to non-biodegradable waste. This is why they seldom mix their garbage in one container.

The importance of segregation is also one of the topics in the students’ Edukasyon sa Pagpapakatao subject which makes the personnel and students aware and practice proper waste segregation. Another reason why segregation is well practiced in school is that the Barangay Garbage Collection team is very particular in the segregation of waste. After all, unsegregated waste will not be collected which makes people around the barangay be disciplined in terms of segregating their waste. This result can be related to the study of Dolipas et.al (2020) which states that the level of practice in segregation is affected by the awareness campaign and strict compliance of the school. This means San Roque Elementary School is often practicing segregation properly because they are well informed about it.

It represents the result of the level of practice of students, parents, and personnel in terms of recycling. The computed overall mean of 3.35 and standard deviation of 1.00 suggests that the respondents “seldomly” practice recycling.

The results reflect that students still seldom do recycling even though it is part of the Edukasyon sa Pagpapakatao Curriculum this is because others choose to buy inexpensive materials instead of recycling to

save time and energy.

Another reason for this result is connected to the study of Schumaker (2016). According to his study people do not recycle because they are busy with work and have no time to do it and some people are not aware of its importance and benefits which is very true because, in San Roque Elementary School, parents and teachers are busy in their work this is why they were not able to showcase their creativity through recycling.

It reveals that the computed mean of 4.03 and standard deviation of 0.93 suggest that the students, parents, and personnel are “often practicing” reusing. The internal stakeholders of San Roque Elementary School prefer reusing items because it is less expensive which makes them save money. After all, reusing means that they will not be buying a new one. Parents are very particular about saving money because of the status of the economy today. Reusing is also part of Edukasyon sa Pagpapakatao and the Science Curriculum of the students which makes them aware of this.

The table also shows that the computed overall mean of 4.05 and standard deviation of 0.91 states that the students, parents, and personnel “often practiced” in reducing their waste material. Same with reusing the internal stakeholders of San Roque Elementary School choose to reduce because it is less expensive, which makes them save money because reducing means they will reuse items rather than buy new ones as said above parents are very particular about being prudent because items today in the market are very expensive. Reducing being part also of the curriculum of Edukasyon sa Pagpapakatao has become a factor also of the computed result. This result is also connected to the article of the United States Environmental Protection Agency (2023) which states that people choose to reduce because aside from saving money it allows them to fully use the product.

The data shows that the internal stakeholders “often practiced” proper waste disposal. One factor that affects this result is that the internal stakeholder of San Roque Elementary School is properly informed of the proper waste disposal by the school and local government unit. In San Roque Elementary School proper waste disposal is taught to children because it is included in the curriculum of Araling Panlipunan and Edukasyon sa Pagpapakatao while parents are informed about proper waste disposal by the Baranggay Official during their barangay assembly.

This result is connected to the study of Hayudini (2022) wherein it stated that waste will be disposed of properly if people are well informed of the process of proper waste disposal and they know the effect of improper waste disposal on their health and environment. Proper waste disposal will also be possible if there is a partnership between local government officials and the community. It shows that the internal stakeholders (students, parents, and personnel) “often” consume food properly. With an overall computed mean of 4.02 and a standard deviation of 0.96, it is interpreted that the internal stakeholders do not waste food in school. This is because San Roque Elementary School allows sharing and donating uneaten food during the school-based feeding program to pupils and parents who cannot afford to buy meals so that food spoilage will be avoided. The school canteen in San Roque Elementary School also makes sure that they are offering food that is nutritious and liked by the students to make sure that there will be no leftover food. Another reason why the students are consuming food properly is that this topic is taught in Edukasyon sa Pagpapakatao Curriculum and Health Curriculum this is why they understand they should consume their food properly.

The data also revealed that the internal stakeholders (students, parents, personnel) “often practiced” water preservation. One reason for this result is that water preservation is being taught in school. This topic is included in Edukasyon sa Pagpapakatao, Science, and Araling Panlipunan subjects. Even before water conservation is taught in school this is why the parents are still informed and aware of this. At home, water preservation is taught by the parents to their children so their water bill cost will not become too expensive. In San Roque Elementary School the school head is always reminding the school personnel to preserve water so that the water bill will not cost a lot of money because the school budget is only limited. Another reason is, in San Roque Elementary School YES O is an active organization and one of the mandated activities of YES O is to ensure that the students, parents, and teachers are efficiently using the water supply.

The data shows that the internal stakeholders (students, parents, personnel) “often practiced” proper energy usage. One factor that affects this result is that proper use of energy is often started at home. Parents teach their children to save energy to also save them from high-priced electricity bills. This is why the student adapted it to the school setting. In San Roque Elementary School the school head is always reminding the school personnel to save energy so that the electric bill will not cost a lot of money because the school budget is only limited. Another reason is in San Roque Elementary School YES O is an active organization and one of the mandated activities of YES O is to ensure that the students, parents, and teachers are efficiently using the energy and power supply. The result is connected to the article written by Lauren (2017). In her article, she stated that in able for schools to save energy staff should be aware of the usage of the electrical appliances inside the classrooms. Lights should be turned off if no one is using them at any time of the day. Computers, printers, and electric fans should also be turned off if nobody is using them.

It is presented in the data about the practices of students, parents, and personnel about vegetation. The overall computed mean is 3.59 with a standard deviation of 1.10 which indicates that the internal stakeholder is “often” participating in the vegetation or “Gulayan sa Paaralan” The reason for this result is the implementation of DepEd Order No. 95 series 2018 or the mandatory establishment of Gulayan sa Paaralan inside the school to promote vegetable production and consumption among students to address malnutrition. Vegetable planting is also part of the curriculum of Technology and Livelihood Education (TLE) which requires the students to participate in the vegetation activity of the school. In San Roque Elementary School parents, students, and personnel are encouraged to sustain and maintain its “Gulayan sa Paaralan”

The data regarding the extent of the practice of the internal stakeholders (students, parents, personnel) in terms of tree planting shows that they “seldomly practiced” tree planting activities in the school. One reason for this result is San Roque Elementary School seldom offers tree planting activities inside the school because of the land area of the school. There is only a small space for three planting activities. Most of the land area in the school is indicated for vegetation. There are also a lot of trees planted in a different area of the school which makes it difficult to plant another tree seedling. According to Harris (2021), the barriers to a successful tree planting activity in the school are the following: time pressures, cost, and land space.

The result of the survey shows that the internal stakeholders are “moderately aware” of the Ecological Policies and Environmental Concepts. They “seldomly practiced” recycling and tree planting activities. This has become the basis of the researcher in designing the activities for the pilot implementation of the School-Based Greening Program.

**Table 3.** Internal Stakeholders Perception on the Effectiveness of the Designed Program as to Pre-Implementation

<b>Indicators</b>	<b>Mean</b>	<b>SD</b>	<b>VI</b>
1. Way of explaining the objectives School-Based Greening Program.	4.72	0.47	HE
2. Way of explaining the role of stakeholder.	4.53	0.56	HE
3. Way of explaining the activities to be done in School-Based Greening Program.	4.63	0.53	HE
4. Way of explaining the timetable of the School-Based Greening Program.	4.58	0.58	HE
5. Way of explaining the importance of the School-Based Greening Program.	4.64	0.59	HE
<b>Mean</b>	4.62	0.37	<b>HE</b>

Legend: 4.50 – 5.00 Highly Effective (HE), 3.50 – 4.49 Effective (E), 2.50 – 3.49 Moderately Effective (ME), 1.50 – 2.49 Slightly Effective (SE), 1.00 – 1.49 Not Effective (NE)

Table 3 indicates the result of the internal stakeholders' perception of the effectiveness of the designed program in terms of pre-implementation. The pre-implementation phase includes the orientation of the students, parents, and school personnel. The computed overall mean is 4.62 with a standard deviation of 0.37 shows that the perception of the internal stakeholder to the pre-implementation of the program is "highly effective".

The result is due to the eagerness of the proponent to conduct the program. The proponent makes sure that during the orientation the details of the greening program are comprehensively tackled to the parents, students, and personnel. The proponent also makes sure that the details like timetable and activities are clearly explained to the internal stakeholders. The proponent also used simple words to explain the procedures to make sure that it is understandable to the internal stakeholders. It only implies that the proponent communicated the details of the designed School-Based Greening Program properly.

**Table 4.** Internal Stakeholders' Perception on the Effectiveness of the Designed Program as to Implementation

Indicators	Mean	SD	VI
1. Choice of activities for the School-Based Greening Program	4.72	0.47	HE
2. Leadership while executing the activities for the School-Based Greening Program.	4.53	0.56	HE
3. Time frame of the execution of the activities for the School-Based Greening Program.	4.63	0.53	HE
4. Way of monitoring the lapses in the execution of the School-Based Greening Program.	4.58	0.58	HE
5. Way of monitoring the progress of the execution of the School Based Greening Program.	4.64	0.59	HE
<b>Mean</b>	4.62	0.37	<b>HE</b>

Legend: 4.50 – 5.00 Highly Effective (HE), 3.50 – 4.49 Effective (E), 2.50 – 3.49 Moderately Effective (ME), 1.50 – 2.49 Slightly Effective (SE), 1.00 – 1.49 Not Effective (NE)

Table 4 shows the internal stakeholders' perception on the effectiveness of the designed program in terms of implementation. The overall mean is 4.62 and standard deviation of 0.37 suggests that the internal stakeholders perceived the program implementation as "highly effective".

The internal stakeholder perceived that the choice of the activity for the School-Based Greening Program as "highly effective" this is because the chosen activities are the one that they didn't experienced before.

The internal stakeholder also perceived the leadership of the implementer during the implementation of the designed program as "highly effective". This is because the implementer ensures that there is a proper communication between the internal stakeholders specially to the schedule of activities. The implementer makes sure that the internal stakeholders are properly instructed of what to do during the execution of the activities so they will not be confused of they have to do.

The internal stakeholders also perceived that the time allotted for the execution of activities for the designed program is "highly effective". This is because the schedule to accomplish the activities is properly planned. Action plan was created to make sure that there will be a systematized plan to maximize the time allotted to accomplish the activities.

The internal stakeholders perceived that the monitoring of the lapses and progress of the program are "highly effective". This is because of the good leadership of the implementer. The implementer makes sure that she is listening to the internal stakeholders' concern like the schedule of the participants during the

execution of the activities under the program. The implementer also takes note if one activity is 100% accomplished before proceeding to the new activity to know the progress of the program.

**Table 5.** Internal Stakeholders' Perception on the Effectiveness of the Designed Program as to Post-Implementation in Terms of Collecting Feedbacks

Indicators	Mean	SD	VI
1. development of feedback form	4.46	0.60	E
2. The proponent's Mechanism on collecting feedback forms	4.40	0.63	E
3. proponent's presentation of the content of the feedback forms.	4.50	0.55	HE
4. quality of the feedback form	4.50	0.59	HE
5. Organizing the collected data.	4.60	0.51	HE
<b>Mean</b>	4.49	0.39	<b>E</b>

Legend: 4.50 – 5.00 Highly Effective (HE), 3.50 – 4.49 Effective (E), 2.50 – 3.49 Moderately Effective (ME), 1.50 – 2.49 Slightly Effective (SE), 1.00 – 1.49 Not Effective (NE)

Table 5 shows that the internal stakeholders' perception on the effectiveness of the designed program in terms of collecting feedback. The computed overall mean is 4.49 with the standard deviation of 0.39 indicates that the post implementation in terms of collecting feedback is "effective".

The stakeholders perceive the development of feedback form and mechanism of collecting feedback forms as "effective" because the feedback form is validated by the school head. This means that before the usage of the feedback form it check thoroughly to avoid errors. This is also the official feedback form use in San Roque Elementary School whenever there is an activity inside the school. The mechanism of collecting feedback was interpreted as "effective" because organized collection of the feedback form was observed. The stakeholders were properly informed on where to put their feedback forms after answering it. One school personnel were also assigned to organize the data of the collected feedback form.

The stakeholders also perceive the quality and content of the feedback form as "highly effective" because as mentioned above the feedback form was validated by the school head of San Roque Elementary School to know if the content is correct and if it is intended to what is needed to be evaluate. The feedback form has quality because its content is connected to the objective of the program, so it means that the result from the feedback form really evaluate what is intended to be evaluate.

The stakeholder also perceived the way of the proponent in organizing the collected data as "highly effective" because result of the data was very transparent to the stakeholders because the result was reported to them through bulletin board and transparency board.

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## **Appendix A. Research Main Questionnaires**

## **Appendix B. Reliability Test of Questionnaires**