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Research Article

Awareness, Attitude and Practices of Grade 10 Students Toward Environmental Stewardship

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ABSTRACT

The purpose of this study was to assess the environmental awareness, attitudes towards environmental protection, and environmental practices of Grade 10 students. The study used a mixed-method sequential design and involved 150 students from three National High Schools in Zambales. The results showed that Grade 10 students had a good level of awareness about environmental protection laws (M=8.42, SD=1.63) and environmental stewardship promotion (M=8.58, SD=1.42). They were supportive of community environment protection (M=3.33) and school environment protection (M=3.46). However, the students observed improper waste segregation in both the school and community, leading to an increased interest in promoting environmental protection activities. There was a moderate positive correlation between the students' level of awareness on environmental protection and stewardship promotion and their environmental practices. Similarly, there was a moderate positive correlation between their environmental attitude in the community and school and their environmental protection practices. The Grade 10 students who are aware of the importance of protecting the environment and promoting ecological stewardship tend to be more concerned about conserving energy and natural resources. They are also supportive of activities aimed at protecting their school and community environments, and are observant of environmental problems in these areas. The study found that students' awareness and attitudes towards environmental protection and ecological stewardship have a positive impact on their practices to conserve and protect the environment. The study recommends that schools and communities should involve students in environmental protection activities to encourage their support for conserving energy and natural resources.

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Introduction

As technology and population continue to advance, environmental issues are on the rise. The disturbance of ecological balance is becoming more and more prevalent each day (Urey et al., 2009). From devastating phenomena, and human-activity-modified natural disasters that turned to reap numerous lives, to sophisticated economic development, and populous consumption and accommodation that turned to neglect numerous natural habitat and wildlife preservation, for worst-case - environmental degradation. Such disasters significantly impact human lives and properties and can be considered the most threatening events for human beings (Rogayan et al., 2022). In recent years, natural hazards' social and economic costs have increased in response to rapid urbanization and shifts in land use patterns, mobility and unregulated industrialization, environmental devastation, and global climate change (Rogayan & Dollete, 2020). Environmental protection is what the world much needed in this ripened era and primarily in today's context of contemporary education (Badal, 2021; Jiao et al., 2023; Zinchenko et al., 2021).

Amidst its shielding laws, community policies, numbered commitments and programs, the environmental still receives unfair treatments and unbalanced resources exploration and crushing. Hence, education that takes an enormous role in the realization of environmental appreciation before young minds is not an ample solution and preventive ways to create a difference. Awareness and information dissemination are not the key program to help mitigate climate change and global warming, but a deeper realization and action management plan for achieving large-scale practice in environmental stewardship that will be proposed by the findings of the current study.

On the other hand, not just the education itself but curriculum plays a vital role in helping to solve the environmental degradation and importantly the educator who will serve as the judiciary and even executor of the environmental practices and safeguarding. Where in fact, learners are very aware of the Environmental dilemmas and policies but still they are very poor in commitment, practices, and conduct (Garg, 2021; Grilli, & Curtis, 2021; Raza et al., 2021). Schools play an important role in shaping students as environmental ambassadors and should provide a conducive learning environment for this purpose (Rogayan & Nebrida, 2019).

Therefore, learners are poor in environmental values and realization toward ecological retention (Chen et al., 2021; Ndubuka, & Rey-Marmonier, 2019). To be able to solve an existing environmental complexity, the goal may not just require environmental awareness but it also needs environmental values and realization in able to meet environmental protection achievement. This goal must be deeply engrained in the curriculum of the education system at all levels both public and private institutions. As a matter of fact, curricula in primary, secondary and higher educational levels offer a huge opportunity to give a clear and achievable vision toward Environmental realization and attitude. Environmental education is a crucial foundation for sustainable development and aims to promote responsible environmental behavior (Yurtta & Sullun, 2010 as cited in Dhanya & Pankajam, 2017). It is crucial for individuals to have an understanding and appreciation for the environment in order to maintain its well-being (Sigit et al., 2021). Those who possess a strong sense of environmental stewardship tend to be more mindful of their actions towards the environment, resulting in a balanced and harmonious coexistence with all living things (Sigit et al., 2021).

This study intended to determine the awareness, attitude and practices on environmental laws and ethics of the grade 10 students. It also aims to find out their commitment to sustainable development goals.

Methods

Research Design

The study used mixed-method sequential design. A research design that collected, analyzed and interpreted quantitative data

followed by qualitative data to ensure answering the raised problems and describe the study. Creswell and Plano (2011) suggest that combining quantitative and qualitative approaches is a more effective way of comprehending research issues than relying on either approach individually.

Study Respondents

A total of 150 Grade ten students of three national high schools of Zambales served as the respondents of the study. The schools were chosen as they are near the coastal areas of the province and they are promoting different environental initiatives through its YES-O and Science clubs.

A purposive sampling method was used in the study in choosing the respondents. A purposive sampling technique allows all the samples in the given set of the population to be selected based on the objective of the study.

Research Instrument

The Likert scale-type survey questionnaire served as the main instrument in collecting the data. It is composed of three parts, specifically the first until the second parts analyzed through a quantitative approach while the third part is a qualitative approach. Part I assesses the Grade 10 students Environmental Awareness in terms of environmental protection and promotion of ecological stewardship. Part II assesses the Grade 10 students regarding Environmental Attitude categorized in two: a) Environmental Attitude school, b) Environmental Attitude in community. Part III is an open-ended question that seeks to know Grade 10 students' Environmental Ethics toward ecological stewardship.

Before collecting data, the survey questionnaire underwent testing to ensure its accuracy and reliability. Experts reviewed the questions to make sure they were consistent and relevant. To test the reliability of the questionnaire, a pilot study was conducted with a group of students who were not part of the main study.

Data Gathering Procedure

Data gathering procedures helped the researcher to collect the data needed without wasting time and the process without hesitation and voids biased. The study was guided by the following procedures: a) Development and validation of the research questionnaire; b) Securing of permission and approval from the school the principals of the three selected schools; c) Securing the Health protocol as per the guidelines of Inter-Agency Task Force (IATF) in terms of social distancing, wearing face mask and face shield, using own ball pen and sanitation before the administration of the awareness test; d) Analysis and interpretation of data gathered; e) Writing of the research report.

Data privacy was also considered to safeguard the respondents' identity. Te respondents were also oriented to withdraw from the study should they feel uncomfortable or harmed.

Data Analysis

To process the data, the researcher utilized SPSS version 20 and MS Excel 2016 computer software. The statistical tools that were employed for analyzing and interpreting the data and testing hypotheses included frequency count, percent, mean, standard deviation, and Pearson r.

Result and Discussion

Student's Level of Environmental Awareness

Environmental awareness pertains to qualities of being mindful and well- informed on the current status of the environment and its different dilemmas, ways to mitigate the impact of natural disaster, and its policies and laws. The awareness of student respondent was measured in terms of their awareness of environmental protection and environmental promotion of stewardship.

Environmental Protection. This involved the commitment of young minds as they should be aware of the dilemma and practices of the environment actively applied environmental Ethics and has environmental attitudes at all times. It can be seen on Table 1 that majority (95 out 150) of the student respondent among the three schools are Aware (Mean Score=8.42, SD=1.63) of the environmental protection laws. This indicates that that students in this community have a good understanding of the importance of separating solid waste into

categories of biodegradable, compostable, and reusable materials. They are aware of the policies and regulations in their barangays pertaining to the protection of the environment in response to RA 9003 or the Solid Waste Management Act.

Table 1. Frequency Distribution on Students' Level of Awareness on Environmental Protection

Level	School 1	School 2	School 3	Total
Highly Aware	5	0	1	6
Aware	32	29	34	95
Somewhat Aware	13	21	15	49
Mean Score	8.86	8.16	8.24	8.42
SD	2.07	1.25	1.38	1.63
Mean Level	Aware	Aware	Aware	Aware

This implies that the students acquire their awareness on environmental protection in the schools where spent their secondary education. This finding is supportive with Ningrum and Herdiansyah (2018) that Environmental education can help create awareness and attitudes to deal with environmental issues, whilst curbing the negative role of human actions on the environment. In addition, if education is integrated into the principle of sustainable development, it can ultimately encourage changes in behavior towards the environment.

Environmental Promotion of Stewardship. This pertains to the young minds that possess environmental attitude, ethics and being aware. Table 2 shows that majority (129 out 150) of the student respondent among the three schools are Aware (Mean Score=8.58, SD=1.42) of the environmental promotion of stewardship. This indicates that these students have a good understanding of the world and are actively trying to minimize their negative impact on it. They take responsibility for using and protecting the natural environment through conservation and sustainable practices.

Table 2. Frequency Distribution on Students' Level of Awareness onEnvironmental Promotion of Stewardship

Level	School 1	School 2	School 3	Total
Highly Aware	6	0	1	7
Aware	38	46	45	129
Somewhat Aware	6	4	4	7
Mean Score	8.94	8.28	8.52	8.58
SD	2.02	0.76	1.13	1.42
Mean Level	Aware	Aware	Aware	Aware

This means that the students take responsibility for environmental quality by making individual choices that continuously improve environmental performance. They are committed to using natural resources efficiently, protecting ecosystems, and complying with environmental requirements where necessary. This finding supports Omoogun and colleagues' (2016) idea that education needs to shift people's perspectives on the environment and their attitudes towards its resources in order to protect it. Environmental education can be more successful in promoting respect for the environment.

Attitude of Grade 10 Students towards Environmental Protection

The environmental protection attitude of students pertains to their deeper understanding and having a high sense of commitment, their fondness and decision- making towards environment even with or without conditions and acknowledgment. Their attitude towards

environmental protection was surveyed and the result is presented in Table 3.

Community Environment. The attitude of the students toward community environment was measured through their support on the activities that contributes to the protection of the environment. It can be seen on the table that the students in School 1 (Mean=3.39), School 2 (Mean=3.38) and School 3 (Mean=3.22) garnered a grand mean of 3.33 which indicates that they are Supportive of the environmental protection of their community. Studies have shown that outdoor environmental education can provide students with the knowledge, abilities, and motivation to adopt environmentally-friendly behaviors and become environmentally literate (Dillon et al. 2006; Hope, 2009). Outdoor environmental education is a unique and valuable way of learning that fosters both cognitive and emotional growth (Boyle et al., 2007; Fuller et al., 2006).

Table 3. Attitude of Students towards Environmental Protection

Environment	School 1	School 2	School 3	GrandMean	Verbal Description
Community	3.39	3.38	3.22	3.33	Supportive
School	3.51	3.41	3.47	3.46	Supportive

This implies that the students have the sense of willingness and to transform their environmental attitudes to protect nature in their community. This may be a product of their experiential learning outside the school.

School Environment. Students are expected to primarily acquire their values pertaining to environmental protection in the schools. They develop their attitude toward school environment protection. It can be seen on Table 5 that the students from School 1 (Mean=3.51), School 2 (Mean=3.41) and School 3 (Mean=3.47) garnered a grand mean of 3.46 which indicates that they are Supportive on the environmental protection of their schools. The results of this study align with Erhabor and Don's (2016) research, which suggests that environmentally conscious and empowered young people have the potential to be the most influential force in safeguarding and managing the environment for the future. This indicates that students, even at a young age, have a significant role to play in protecting the environment. Their involvement in school activities can extend to the preservation of natural resources.

Environmental Practices of Grade 10 Students

Environmental education involves integrating environmental content into the educational system to increase students' awareness of environmental issues at all levels of education. Table 6 tabulates the practices of the Grade 10 students measured in terms of frequency of actions.

It can be seen that the students Always (3.67) turn off the lights and unplug appliances when not in use to save energy. However, they Sometimes (2.13) write articles which encourage people to take part in responding to the different environmental problems. They Sometimes (2.27) ask the support of the media in exposing anomalies and irregularities which led to the destruction of the environment and Sometimes (2.19) write an appeal to the political leaders regarding environment concerns of their community. They also Sometimes (2.37) deliver a talk about environmental literacy to bring-up awareness to their fellow community occupants.

Moreover, qualitative responses on the problems normally encountered by the students in school and their community were thematically analyzed together with their suggested solution as young minds to help protect their environment and promote environmental stewardship.

Table 4. Environmental Practices of Grade 10 Students

Practices	M	QD
1. Turn off the lights and unplug appliances when not in use to save electricity.	3.67	Always
2. Harness solar energy, a radiation produced by nuclear fusion reactions deep in the Sun's core.	2.77	Seldom
3. Plant endemic trees in the vacant areas in the community to prevent soil erosion and get more oxygen to breathe.	2.91	Seldom
4. Avoid the use of plastic and styrofoam which cause harm not only to theenvironment but also to human health.	3.27	Seldom
5. Avoid throwing garbage anywhere and learn the science of segregation of solid wastes.	3.49	Seldom
6. Keep a good food ethics and avoid eating with leftovers and wasting drinking water.	3.34	Seldom
7. Lessen the use of detergents for they tend to create foam in gutters and in sewage-disposal plants and even appeared in naturally occurring ground andsurface waters.	2.98	Seldom
8. Practice the science of composting which produces partially decomposed organic material used in gardening to improve soil and enhance plantgrowth.	3.26	Seldom
9. Recycle and reuse non-biodegradable materials to lessen solid wastes	3.42	Seldom
10. Use reusable water bottles or tumblers instead of buying bottled water in the canteen or stores.	3.49	Seldom
11. Discuss with friends and relatives about environmental issues and concernsthat confront the community and the country as a whole.	3.16	Seldom
12. Lobby for relevant laws on environmental conservation with the support of your political leaders especially the congressmen.	2.86	Seldom
13. Write articles in the newspaper which encourage people to take part inresponding to the different environmental problems.	2.13	Sometimes
14. Organize an environmental forum or symposium with your fellow youth and the community people.	2.36	Sometimes
15. Write an appeal to your political leaders regarding environmental concernsof your community.	2.19	Sometimes
16. Ask the support of the media in exposing anomalies and irregularities which led to the destruction of the environment.	2.27	Sometimes
17. Deliver a talk or discourse about environmental literacy to heighten theawareness of the people.	2.37	Sometimes
18. Volunteer to organizational groups which help for the preservation and conservation of the environment.	2.83	Seldom
19. Encourage everyone to be ambassadors of the environment in their respective communities specifically your fellow youth.	2.67	Seldom
20. Support initiatives and programs on environmental conservation like the National Greening Program of the present administration.	2.95	Seldom
Grand Mean	**2.92**	**Seldom**

Improper Waste Segregation. The students observed this problem in schools and in their community. It includes observed wastes thrown in canals and mixed trashes in the waste bins. They had observed that garbage at burnt in open dumps even with plastics mixed with other wastes. This also brought up their agreement that this improper practices in

disposal of waste greatly contributes to water and air pollution. However, they have suggestions as young minds to correct these problems. They initiate recycling habits to encourage people to lessen the waste generated in the school and in their communities. They wanted to promote ecological stewardship starting with promoting a zero waste challenge. They join clean-ups in their communities; plant trees that could help provide clean air. They even extended their concern to promote stewardship by avoiding harming their environment and even minimized meat consumption and follow healthy lifestyle to help promote conservation of the natural resources.

Possible environmental programs and projects could be implemented in schools if students show their commitment towards conservation and preservation of nature in which
students can turn their innovative ideas into practical programs and projects for their schools or communities (Rogayan, 2019).

Relationship between Environmental Awareness, Attitude and Practices

This study hypothesized that a relationship exist between the environmental protection practices of the students and their awareness and attitude towards the environment. These claims signalled the researcher to test the null hypothesis of non- significant relationship between the variables involved.

Environmental Awareness and Practices. Table 5 presents the correlation between the environmental awareness and practices of the student respondents.

Table 5. Correlation between Environmental Awarenessand Practices

Environmental Awareness	Coefficients	Environmental Practices
EnvironmentalProtection	Pearson Correlation	.583**
	Sig. (2-tailed)	.000
	N	150
EnvironmentalPromotion of Stewardship	Pearson Correlation	.489**
	Sig. (2-tailed)	.000
	N	150

**Correlation significant at .01 level*

It can be seen that students' level of awareness on environmental protection (r=.583, p=.000) and environmental promotion of stewardship (r=.489, p=.000) had a moderate positive correlation with environmental practices that is significant at .01 level. This indicates a positive relationship between the students' environmental awareness and practices of students. This implies that as their awareness on environmental protection and promotion of environmental stewardship increase to a higher level, their practices becomes more focused on protecting the natural resources and their environment. The discovery reinforces Ibañez et al.'s (2017) conclusion that when young people gain more knowledge and awareness about the environment, they become more introspective and able to enhance the quality of life and environmental conditions. As a result, they are more inclined to take actions that benefit the environment.

Environmental Attitude and Practices. Table 6 presents the correlation between the environmental attitude and practices of the student respondents.

Table 6. Correlation between Environmental Attitudeand Practices

Environmental Attitude	Coefficients	Environmental Practices
Community	Pearson Correlation	.563**
	Sig. (2-tailed)	.000
	N	150

Environmental Attitude	Coefficients	Environmental Practices
School	Pearson Correlation	.410**
	Sig. (2-tailed)	.014
	N	150

**Correlation significant at .01 level*

Environmental attitude in the community (r=.563, p=.000) and in school (r=.410, p=.000) had a moderate positive correlation with the environmental protection practices of the students, significant at .01 level. This indicates positive relationship between the variables. It implies that when students support on the activities to protect the environment increases, they develop best practices to promote conservation of the natural resources and their environment. It is in line with Esa's (2010) research that a significant number of students do not possess adequate environmental knowledge, yet have a positive outlook towards the environment. This deficiency in knowledge is thought to be a factor in their limited pro-environmental actions. Nonetheless, their optimistic attitude motivates them to engage in activities aimed at promoting environmental care.

Conclusions and Recommendations

The Grade 10 students level of awareness on environmental protection and promotion of environmental stewardship lead them to be more anxious of conserving energy and the natural resources. They are supportive of the activities pertaining to protecting their community and school environment. They were keen observant to the environmental problems in their communities and schools. With these traits, they become more vigilant in protecting the environment and promoting environmental stewardship. The students level of awareness and their attitude towards environmental protection and promotion of environmental stewardship in the schools and community has a positive relationship with their practices to protect and conserve the environment.

From an Aware level, the community and the schools may improve the students' awareness on environmental laws to higher level by conducting environmental education with the use of social media and the internet to adhere with the safety protocols during this pandemic. Alongside with increasing their level of awareness, the community and schools may come up with a drive to involve the students on environmental protection activities to develop their full support in conserving energy and natural resources. The community and the schools may inculcate best practices to the students to promote environmental concern and environmental stewardship by welcoming their initiatives to conduct environmental protection campaign. Further study on the environmental behavior of students, extending to younger levels may be conducted support the results of this research project.

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