

## **Environmental Attitude and Behaviour of the Grade 11 Students**

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### **Abstract**

Environmental education is a individuals process to explore environmental issues, engage in problem solving, and take action to improve the environment. This study determined the Environmental Attitude and Behaviour of the Grade 11 students for school year 2018-2019. It also determined the academic performance of the grade 11 students in Environmental education, the environmental attitudes along the recycling, energy consumption, water consumption, responsible consumption of products and participation in environment action, behaviour of the students, the significant relationship between the academic performance and their environmental attitude and behaviour. The study made use of descriptive-correlational method. The descriptive aspect allowed the researcher to carefully describe and understand the behaviour and attitudes of the students. On the other hand the correlational method determined the relationship between the academic performance and environmental attitude and behaviour. The Chi square was to used test these relationships between categorical variables. The result revealed the academic performance of the grade 11 students with the overall general average of 89.22, of the students obtained an “outstanding”. The students generally “high favourable” on environmental protection and conservation activities such as recycling, energy consumption and responsible consumption of products while the water consumption and participation in environmental actions obtained “favourable”. There was a significant relationship between the academic performance and the environmental attitude of the students. There is significant relationship between the academic performance and their environmental behaviour. The study conclude that The Grade 11 students in the private schools understood and master the competency in environmental education.

**Keywords:** Environmental Education, Environmental Attitudes, Environmental Behaviour, Academic Performance, Recycling, Participation in Environmental Action

## 1. Introduction

The proof is devastating that record-breaking sea level rise temperatures, and humidity, with many other indicators, show that the Earth is warming fast, and that all the heat-trapping emissions we pressure from burning fossil fuels is changing our climate. Scientists worldwide admit that global warming is happening, and that human activity causes it. Based from Panganiban-Lualhati (2016) stated that a positive environmental instruction does not just lie on the analysis of the learning needs of the students and state-of-the-art facilities, but this also lies on the competency of the teacher in delivering such kind of instruction. According to Gifford, R., et.al (2014) point out that the past two decades have seen the proliferation of environmental and sustainability education in higher education institutions.

According to Kweon, B. S., et.al (2017) give justification that trees are an essential part of healthy living, and we are finding this is true in how children perform at school. The higher proportion of proficient or leading in Reading and Math are the number of students enrolled in the free lunch program. According to Matsuoka (2010) and Wu et al. (2014) the relationships with students' school performance were also found by in high school and elementary school respectively. The study looked beyond all grades and all public schools in Washington D.C. Wu et al. studied global greenness, while Matsuoka distinguished between trees, shrubs and lawn. The study also assumed for trees and grass and shrubs separately in addition to buildings and pavement.

According to Young, W., Davis, et.al (2015) refer that there is an increasing focus on improving the pro-environmental attitudes, behaviour and habits of individuals, whether at home, in education, travelling, shopping or in the workplace. According to Arnold, O., Kibbe, A., et.al (2018) express that behavioural measures of ecological lifestyles is called into question by the lack of correspondence between what people choose to do and what they ideally should be doing to reduce their environmental impact. According to Levy, M., Moyano Díaz, et al. (2013) point out that encouraging the adoption of a pro-environmental behaviour is critical in reducing the environmental impacts and in moving toward a more sustainable future. The institute plays an important role in teaching professionals who have an important role in protecting the environment in the future.

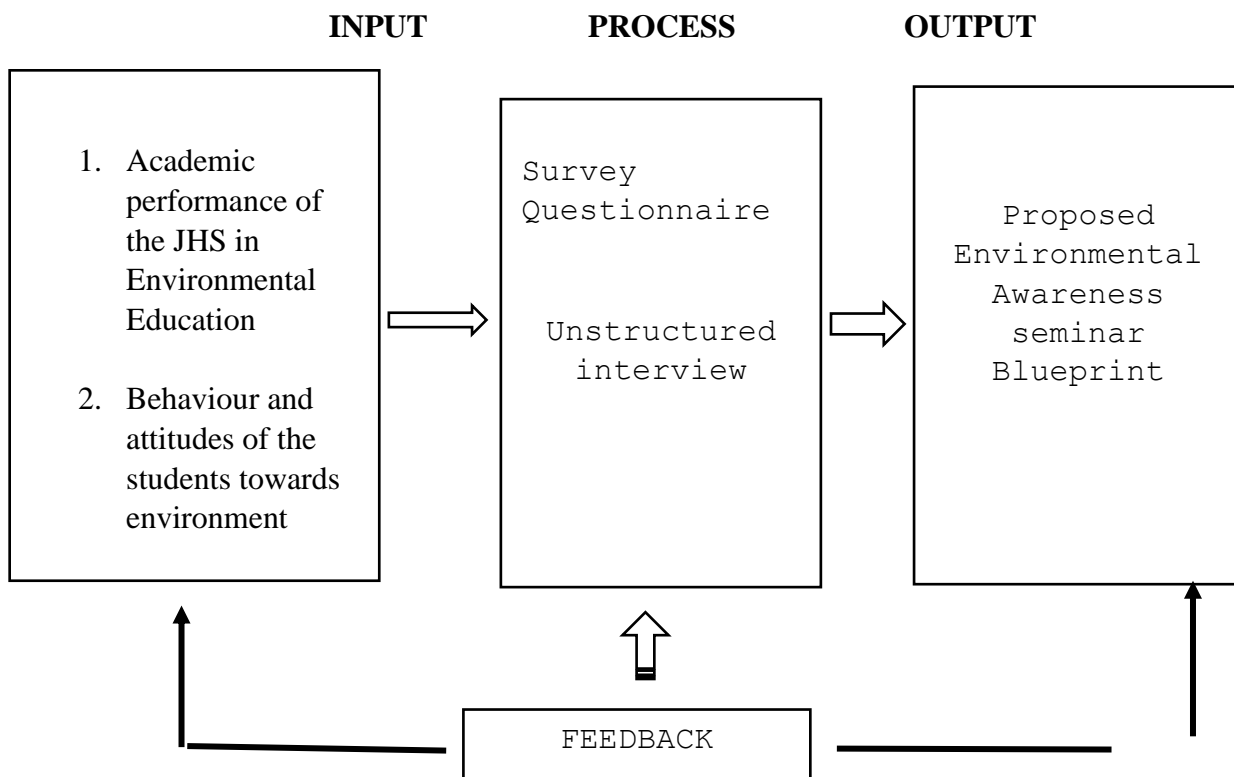
According to De Leeuw, A., Valois, P., et.al (2015) give justification that the theory of planned behaviour (TPB) to identify the beliefs that influence young people's pro-environmental behaviour. According to Durkan, N. (2017) study is to examine the behaviour and thinking levels of secondary school students towards the environment according to grade. Freed, A. (2018) expressed that environmental education scholars have argued for the need to focus on identity as a more predictive factor than attitude of individuals' environmental behaviour. Freed, A. (2018) expressed that environmental education scholars have argued for the need to focus on identity as a more predictive factor than attitude of individuals' environmental behaviour.

Private schools are recognized to provide exceptional and challenging educational experiences through extracurricular activities. This research would like to focus on private

schools of Sorsogon City to find out if the students in private schools also applied the environmental knowledge that they inculcate. It has been observed that the students are aware of the issues about the environment, however, most of them seem unconditional because their priorities are different. Issues about the environment are not given importance. Their family status can be a cause of such behaviour. Nevertheless they are also willing to participate or join the environment awareness if they are exposed to a environmental friendly system. This study also aimed to find out the academic performance of grade 11 students and their attitudes and behaviour toward the environment. The present study is centered on the cognitive and affective bases of environmental attitudes and behaviour to indicate what the students feel and believe about the environment that determines their attitudes and behaviour toward it.

## 2. Framework

The concept of this study is shown in figure I. it reflects the input, process, output and the feedback components of the study as adopted from Fuller (1996). The inputs of this study are the information of a grade 11 students of the private schools in second district of Sorsogon city for SY: 2018-2019. The process involves the administration of the survey questionnaire and unstructured interview. While the output of this study is the proposed Environmental Awareness Seminar blueprint that may enhance the attitude and behaviour of the students towards the environment.



**FIGURE 1. Conceptual Paradigm**

### 3. Objectives of the Study

This study determined the environmental attitude and behaviour of the grade 11 students of private schools in Sorsogon city for school year 2018-2019. Specifically, this study sought answers to the following questions: 1. What is the academic performance of the grade 11 students in environmental Education? 2. What are the environmental attitudes of the students along; A. Recycling B. Energy consumption C. Water consumption D. Responsible consumption of products E. Participation in the Environment Actions? 3. What are the environmental behaviour of the students along the identified variables? 4. Is there a significant relationships between the academic performance and their environmental attitude along the identified variables? 5. Is there a significant relationship between the academic performance and their environmental behaviour?

### 4. Methodology

#### Research Design

This study determined the environmental attitudes and behaviour among the grade 11 students of private schools in Sorsogon City, school year 2018-2019. The study made use of descriptive-correlational method. The descriptive aspect allowed the researcher to carefully describe and understand the behaviour and attitudes of the students. On the other hand the correlational method determined the relationship between the academic performance and environmental attitude and behaviour. The Chi square was to used test these relationships between categorical variables. Informal interview with the respondents was done to validate their response and a survey questionnaire was distributed to 626 Grade 11 students from different private schools. The study used percentage, weighted mean, and chi square as a statistical tool go analyze the data samples of this study.

<b>School</b>	<b>F</b>
St. Louise de Marillac College of Sorsogon	186
The Lewis College	160
Aemillianum College	52
Our Lady of Peñafrancia Seminary	15
Computer College Development Inc.	83
Sorsogon of Our Lady Salvation College Inc.	70
Annunciation College	20
AMA Learning Center	30
Divine Healer Academy of Sorsogon	10
<b>Total</b>	<b>626</b>

### **Participants**

The research was distributed among the 626 grade 11 students from the different private school in the second district of Sorsogon city. The sample size of the respondents is chosen by adopting a sample size calculator which is statistically significant. The table shows the respondents of the study.

### **Instrumentation**

A survey questionnaire was used to measure the attitudes and behaviour of the Grade 11 students. The said questionnaire has a reliability value of 0.83 which is interpreted as highly reliable. The survey questionnaires are divided into two parts, 1.) The Environmental Attitude and 2.) The Pro-Environmental Behaviour Scale. Both questionnaires have the same categories namely: recycling, energy consumption, water consumption, responsible consumption of products, and participation in environmental actions. The category was measured using a five-point Likert scale. Adopted the study of Heyl, et al. (2013).

### **Data Collection**

The researcher conducted this study at the 9 private schools of Sorsogon City, namely; St. Louise de Marillac College of Sorsogon City, Aemillianum College, The Lewis College, and Our Lady of Peñafrancia Seminary, Computer College Development Incorporated., Sorsogon of Our lady Salvation College Inc., Annunciation College, AMA Learning Center, and Divine Healer Academy of Sorsogon. There were 626 respondents from the said schools.

The researcher asked for the permission from the principals to conduct the study. With the approval of the principal the schedule was set from December 3 to 14, 2018 to distribute the questionnaire to the target respondents. During the collection of the data the respondents were advised to include and stated their grades in science. Informal interview with the respondents was done to validate their responses.

The respondents were assured of the confidentiality of the data provided in the questionnaire. Then the retrieval of the questionnaires from the respondents were done immediately after answering. There was at least 90% retrieval of the questionnaires that were distributed. Results of the survey questionnaire were tabulated and analysed using the appropriate statistical tools.

### **Data Analysis**

The collected data were organized, analysed and tallied. Descriptive statistics, mean, average, and chi square were used to describe the gathered data. Weighted mean on the other hand, was be used in analysing the responses of the students in the questionnaire. The academic performance of the students was measured based on DO#8, s. 2015 with its numerical scale, statistical limits and verbal description:

<b>Scale</b>	<b>Description</b>
Outstanding	90-100
Very Satisfactory	85-89
Satisfactory	80-84
Fairly Satisfactory	75-79
Did not meet the expectation	Below 75

Perception of the respondents was measured using a five-point Likert scale with its numerical scale, statistical limits and verbal description, of environmental attitude and behaviour adopted from the study of Heyl (2003).

**Environmental Attitude:**

<b>Scale</b>	<b>Description</b>
4.50 – 5.00	Very High Favourable
3.50 – 4.49	High Favourable
2.50–3.49	Favourable
1.50-2.49	Moderate Favourable
1.00-1.49	Not Favourable

**Environmental behaviour:**

<b>Scale</b>	<b>Description</b>
4.50 – 5.00	Always
3.50 – 4.49	Very often
2.50–3.49	Rarely
1.50-2.49	Sometimes
1.00-1.49	Never

**5. Results and Discussion**

**Academic Performance of the Grade 11 Students in Environmental Education.**

The academic performance of the students in Environmental Education reflects their knowledge on the competencies indicated in the curriculum guide for Grade 11 science. Such as, describing the human activities affect the natural ecosystem, suggesting ways to minimize human

impact on the environment, and others. Table 2 shows the academic performance of the Grade 11 students in Environmental Education.

**TABLE 2**

**Academic Performance of the Grade 11 Students in Environmental Education.**

It can be gleaned from the table that there were 254 students with grouped average of 90-

<b>Grade</b>	<b>Frequency</b>	<b>Descriptors</b>
90-100	254	Outstanding
85-89	242	Very satisfactory
80-84	130	satisfactory
<b>Total</b>	626	
<b>Gen. Ave</b>	89.22	Very Satisfactory

10 described as “outstanding”. This means that the students understood the lesson in environmental education subject. In addition, it also indicates that they learned the concepts in the subject, in connection to climate change, global warming and waste segregation.

Likewise, it can be observed from the table that there were 130 students with a grouped average of 80-84 are described as “satisfactory”. It implies that students need to develop mastery of the competencies such as describe the principles of the ecosystem, suggest ways to minimize human impact on the environment and others. In order that they will be aware of how the environmental problems and issues be minimized or prevented.

Finally, the table also showed that the overall academic performance of the students with the general average of 89.22 and with a description of “very satisfactory”. This means that they may have the deeper understanding of environmental issues and have the skills to make informed and responsible decisions. This result is verified by the students during the informal interview that the science teacher discuss the topics in environmental education subject that make them easy to understand the importance of taking care the preservation and conservation of the environment.

The result was in consonance with the study of Charatsari, et al. (2018) that revealed the Environmental education in higher education and suggest that introduction in educational curricula can facilitate the development of environmental thinking among students.

**2.A Environmental attitudes of the students along recycling.**

Table 2.A shows the environmental attitude of the students along recycling. The perceptions of the students are presented through the weighted mean with the corresponding descriptors for each indicator.

**Table 2.A**  
**Environmental Attitudes of the Students along Recycling**

<b>Environmental Attitude</b>	<b>Weighted</b>	<b>Descriptors</b>
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	Mean	
1. When I recycle I feel good	3.94	High Favourable
2. I am not willing to throw residues into different bins depending on its type (i.e. organic, paper, plastic or glass)	3.69	High Favourable
3. I am willing to use recycled paper because fewer trees will be cut.	3.55	High Favourable
4. I would like to know more about recycling.	3.48	Favourable
<b>General Weighted Average</b>	<b>3.67</b>	<b>High Favourable</b>

It is reflected in the table that the student obtained “favourable” environmental attitude on “*I would like to know more about recycling*”, with computed overall weighted mean of 3.48. This indicates the willingness of the students to learn more about recycling as they may intend to practice such process. This also implies that the students may have perceived the importance of recycling as one of the measures to protect and conserve the environment. Likewise, this can be explained by the fact that the students have “high favourable” attitude towards practicing recycling as they feel good about it. Moreover, the students believed in particular that the use of recycled paper would save more trees. Such belief may have been the result of their lesson on global warming as their teachers made a great emphasis on the role of trees in reducing the carbon dioxide emission.

On the other hand, the students’ have “high favourable” environmental attitude on “*I am not willing to throw residues into different bins depending on its type (i.e. Organic, paper, plastic or glass)*”. This result implies that despite the students may have the willingness to acquire knowledge, do and practice recycling, they may not have been bothered on proper waste segregation as initial step in recycling. One possible reason which may be attributed to this perception is the absence of adequate knowledge on the different types of waste. Another is that the schools may not have provided the separate bins for waste segregation. It can be noted from the science curriculum that waste segregation is not given more emphasis. Thus, it is imperative that teachers should widen the scope of the discussion in order to cover the necessary areas where students may develop favourable attitude towards environment.

It is worth emphasizing that throwing residues into different bins depending on its type requires particular attention since waste segregation is important to promote the 3R’s of waste management viz. reduce, reuse and recycle as mandated by Republic Act 9003 or the Ecological Solid Waste Management Act of 2000. Based on the law of the state in accepting a systematic, comprehensive and ecological solid waste management program that establish the protection of the environment and the proper waste segregation, collection, transport, storage, treatment and disposal of solid waste and public health through the formulation and adoption of best



environmental practices. The schools should have strictly implemented this law at their level such that the students will be able to develop positive environmental attitude.

Ultimately the table shows the computed general average were 3.67 and are described as “high favourable”. This implies that the teaching of the students about the consequences of human action may be further strengthened to develop a strong environmental attitude. As further observed in the curriculum of environmental education, the teaching methods in the said subject are more focused on class discussions. Students are given a limited opportunity to be involved actively in waste management. As verified by the students during the informal interview, it revealed that they have a short discussion and a limited activity about recycling. Thus, it may be one of the reasons why the students show interests to learn more information about recycling so that they can practically apply the knowledge.

The teachers also need to strategize so that the learning may be more meaningful such as incorporating field trip or visit to recycling facilities where students can acquire first-hand information. As a corollary, it may help them fully understand the importance of segregation and recycling method.

The results above is supported by Kattoua, et al. (2019), which revealed that lack of awareness and information on the process of waste separation and storage are the basic recycling barriers of the local population. Hence, the success of any recycling program depends mostly on the active and sustained participation of citizens.

## 2.B Environmental Attitudes of the Students along energy consumption.

Table 2.B shows the environmental attitude of the students along energy consumption, with the presented weighted mean and descriptors in determining the environmental attitudes of the students were also included.

**Table 2.B**  
**Environmental Attitudes of the Students along energy consumption**

<b>Environmental Attitude</b>	<b>Weighted Mean</b>	<b>Descriptors</b>
1. I am not willing to save energy if I must restrict the use of appliances such as TV or air conditioning.	3.44	Favourable
2. I am willing to turn off the lights that I am not using to save energy.	3.60	High Favourable
3. I feel good when I save energy	3.60	High Favourable
<b>General Weighted Average</b>	<b>3.55</b>	<b>High Favourable</b>

It can be gleaned from the table above that all the environmental attitude along with energy consumption have a descriptor of “High Favourable”. The results imply that the respondents find satisfaction in saving energy such that the lights are turned off when not in use.

This also indicates that the students understand their lesson when in Grade 10 about the electrical energy consumed that the science teacher discussed in which students learned to compute the electrical consumption that each appliances consumed energy on given time they used. This may be the reason that the students feel good when they save energy.

Moreover, the table shows the computed general average were 3.55 and are described as “High Favourable”. It implies that they may show willingness to save energy consumption. Since they understood that the household appliances has a specific consumption rate of energy. The result is verified by the students during the informal interview, students explain that during their junior high school year they are expose in the different hand-out activity regarding on the said topic.

The study above results is supported by Ponmozhi (2017), which revealed that it is the duty of the students develop positive attitude towards environment. The knowledge facilitates development of positive better attitude towards environment where they are living. The students should develop such attitude and practice during their lifetime.

### 2.C Environmental Attitudes of the Students along water consumption.

Table 2.C shows the environmental attitude of the students along water consumption, with the presented weighted mean and descriptors in determining the environmental attitude of the students were also included. As reflected on the table there are only selective environmental attitude on the conservation of water that the students concern. In such a way that the students may seem care and willing to take shorter showers and use washing machines and dishwasher with full load to save water were computed weighted mean of 3.42 and 3.32 and described as “favourable”.

**Table 2.C**  
**Environmental Attitudes of the Students along water consumption**

Environmental Attitude	Weighted Mean	Descriptors
1. I do not care to leave open a water tap unnecessarily, for example to brush my teeth or leave it running after use.	3.56	High Favourable
2. I am willing to take shorter showers in order to save water.	3.42	Favourable
3. I am willing to use the washing machine or dishwasher with full load to save water	3.32	Favourable
<b>General Weighted Average</b>	<b>3.44</b>	<b>Favourable</b>

On the other hand students may seem do not care of using running water during brushing of their teeth. The results may imply a negative attitude of the respondents that may not clearly understood the importance of water. Students may not realized that leaving an open water tap during brushing their teeth consumed 4 gallons of water.

In general, the table shows the computed general weighted average were 3.44 and described as “Favourable”. This results may show that the students may not clearly learned and understood on how to save and conserve water. This may be attributed to the teacher instructions on teaching of principles in ecosystem and threats to environment.

The study above results is supported by Benninghaus, et.al (2018), which revealed that improved learning and teaching on sustainable water consumption are derived, to achieve more comprehensive students' conceptions.

### 2.D Environmental Attitudes of the Students along responsible consumption of products

Table 2.D, shows the environmental attitudes of the student’s along responsible consumption of products. As shown the computed weighted mean for the students willing to reduce the consumption of unnecessary products and packaging of difficult degradation were 3.51 and are described as “High Favourable”.

**Table 2.D**  
**Environmental Attitudes of the Students along Responsible consumption of products**

<b>Environmental Attitude</b>	<b>Weighted Mean</b>	<b>Descriptors</b>
1. When I needed to decide between buying two similar products, I tend to choose the one where results are less damaging for people or the environment.	3.47	Favourable
2. I am willing to reduce the consumption of unnecessary products and packaging of difficult degradation.	3.51	High Favourable
3. I do not like to buy organic food (without fertilizers and pesticides) because they are more expensive or harder to find	3.65	High Favourable
<b>General Weighted Average</b>	<b>3.54</b>	<b>High Favourable</b>

On the other hand students seems interested in buying the inorganic, artificial and unnatural food were computed mean is 3.65 and are described as “High favourable”. Students may not realized that buying such food may not only harm the environment but also the state of being healthy. The may not understood the benefits of eating organic foods. There some studies that showing the benefits of eating organic foods, like the study of Ditlevsen (2019) revealed that organic foods are regarded as healthy to the extent that they are uncontaminated and purer than conventional foods – i.e. not altered or polluted by artificial additives or by excessive human interference. As observed in the science curriculum it may seems that there is no topic or

concepts that teachers may discussed about the benefits of eating organic foods. This may be the reason that the students may not seem interested in buying organic food.

Moreover, the table shows the computed general weighted average were 4.02 and are described as “High favourable”. This shows that students may have the willingness to learn the different products that may results in less damaging for the environment. the results may also imply that students may affirm to reduce the consumption of unnecessary products and packaging of difficult degeneration.

The study of Azzurra, et.al (2019) revealed that industry practitioners and policy makers that to increase organic consumption efforts should be made, to communicate health, as well as environmental and social benefits related to the production and consumption of food.

**2. E Environmental Attitudes of the Students along participation in the environment actions.**

Table 2.E shows the environmental attitude of the students along participation in the environment actions, with the presented weighted mean and descriptors in determining the environmental attitudes of the students were also included.

**Table 2.E  
Environmental Attitudes of the Students along Participation in the Environment Actions**

<b>Environmental Attitude</b>	<b>Weighted Mean</b>	<b>Descriptors</b>
1. I like to inform people about pollution and environmental problems.	3.49	Favourable
1. I would like to take on an active role in finding solutions to problems originating pollution.	3.40	Favourable
2. If I could I will give money, time or both to an organization that works to improve environmental quality.	3.53	High Favourable
<b>General Weighted Average</b>	<b>3.47</b>	<b>High Favourable</b>

It can be reflected in the table above, were computed weighted mean 3.39 and are described as “favourable”. This implies that students are aware of pollution and environmental problems caused by human. It also indicates that students are exposed and actively joining the different activities that may help in minimizing or preventing the environmental problems.

Moreover, the computed general weighted average were 3.47 and are described as “Favourable”. This shows that the students may have the mastery of the competencies in suggesting ways to minimize human impact on the environment and others.

The result was in consonance with the study of Panganiban(2016) revealed that a positive environmental instruction does not just lie on the analysis of the learning needs of the students and state-of-the art facilities, but this also lies on the competency of the teacher in delivering such kind of instruction.

### 3.A Environmental behaviour of the students along the recycling

Table 3.A below shows the environmental behaviour of the students along recycling. The computed weighted mean of the Grade 11 students were 3.60 which was described as “Very often”.

**Table 3.A**  
**Environmental Behaviour of the Students along Recycling**

<b>Environmental Behaviour</b>	<b>Weighted Mean</b>	<b>Descriptors</b>
1. I contribute to the recycling campaigns at school.	3.60	Very often
1. I recycle paper, glass and cans.	3.43	Rarely
2. I use recycled or certified paper.	3.61	Very often
<b>General Weighted Average</b>	<b>3.55</b>	<b>Very often</b>

This means that respondents often applied what they learned and understand in recycling. As observed in Table 2.A students environmental attitude along recycling were “High Favourable”. The students hold a positive attitude to learn more about recycling. In this regard, it implies that the students may applied what they learned in recycling. Such as they tend to use not only recycled paper but also they are using glass and cans.

Ultimately, the table shows the general weighted average were 3.55 and are described as “Very Often”. It implies that the students are willing to apply what they learn in recycling. Such as they are willing to use recycled or back use paper and actively joining campaigns toward recycle. It may be attributed to the teacher instructions on teaching different approaches in waste management, biodegradable and non- biodegradedable and the impact of increasing population that may lead to the volume of waste produced by humans.

This result is verified by the students during the informal interview, students explain that they are aware or have the idea of recycling or about the environmental problems, issues and concern but because of limited timeframe given or limited opportunity they may often applied what they learned and understand.

The study of Freed, et. al (2018), revealed that environmental structures such as presence of recycling bins surfaced as a powerful influence on pro-environment behaviour.

### 3.B Environmental behaviour of the students along the energy consumption

Table 3.B shows the environmental behaviour of the students along energy consumption, with the presented weighted mean and descriptors in determining the environmental behaviour of the students were also included.

**Table 3.B**  
**Environmental Behaviour of the Students along Energy Consumption**

<b>Environmental Behaviour</b>	<b>Weighted Mean</b>	<b>Descriptors</b>
1. I turn off the TV when nobody is watching it or I am doing other things.	3.59	Very often
2. I turn off the lights when I leave a room or there is enough natural light.	3.54	Very often
<b>General Weighted Average</b>	<b>3.57</b>	<b>Very often</b>

It can be gleaned from the table above that all the environmental behaviour along with energy consumption have a descriptor of “Very Often” were computed weighted mean of 3.59. The result implies that the students may apply what they learned in saving of energy. Such as turning off the TV and lights when not in use.

On the other hand, the table shows the general weighted average were 3.57 and are described as “Very Often”. This results implies that when the students understood or learned the concepts on the said subject, this may reflects on their attitude and behaviour in which they may show some care and concern in preservation and conservation of energy. This may be attributed to the teacher’s instructions and teachings in science curriculum, regarding the electrical energy consumption in physics in Grade 10. As observed on table 2.B, the students attitude along the energy consumption. The students understood that different household appliances has different rate of consumption of energy.

The result was in consonance with the study of Gill, et.al (2018) revealed that environmental education for school students, including lessons on recycling, water conservation, and energy reduction, is a popular measure aimed at increasing environmental knowledge, promoting environmental attitudes, and increasing pro-environmental behaviours. It also indicates that energy education could be a potentially valuable tool for policy regarding energy conservation and efficiency.

### 3.C Environmental behaviour of the students along the water consumption.

Table 3.C shows the environmental behaviour of the students along water consumption, with the presented weighted mean and descriptors in determining the environmental behaviour of the students were also included.

**Table 3.C**  
**Environmental Behaviour of the Students along Water Consumption**

<b>Environmental Behaviour</b>	<b>Weighted Mean</b>	<b>Descriptors</b>
1. I close the taps if the water is running.	3.63	Very often
1. Save water whenever I can	3.60	Very often
<b>General Weighted Average</b>	<b>3.61</b>	<b>Very often</b>

Table 3.C shows the environmental behaviour of the students along with water consumption. It can be reflected in the table that all environmental behaviour obtained “very Often” with computed weighted mean of 3.61. These indicate a positive behaviour of the students. The result also imply that students may applied their learning and understanding in saving and conserving water, such as closing the water taps when not in use. This also reflects that when the students inculcate their knowledge it would result on their actions. This also implies that the students applied their learning in conserving and efficiency use of water.

The study of Benninghaus, et.al (2018) revealed that that the students' conceptions are similar to scientific concepts, but learners also have their own conceptions. According to these improved for learning and teaching on sustainable water consumption are derived, to achieve more comprehensive students' conceptions.

### 3.D Environmental behaviour of the students along responsible consumption of products.

**Table 3.D**  
**Environmental Behaviour of the Students along Responsible consumption of products**

Environmental Behaviour	Weighted Mean	Descriptors
1. I prefer to consume drinks that come in returnable bottle.	3.61	Very often
1. I buy organic products	3.49	Very often
2. I avoid using products that are made by a company that is polluting the environment.	3.64	Very often
<b>General Weighted Average</b>	<b>3.58</b>	Very often

Table 3.D shows the environmental behaviour of the students along with responsible consumption of products. It can be reflected in the table that all indicators of environmental behaviour along responsible consumption of products obtained “Very Often” were overall computed weighted mean of 3.58. The result implies that the students applied at all times what they learned in recycling and on avoiding the products made by the company that may add up on polluting the environment.

As reflected on table 2.D, the environmental attitude along the responsible consumption of products were “High Favourable”. This implies that students are wise in choosing products that are less damaging to people in the environment. Likewise they are willing to reduce the consumption of unnecessary products, probably this behaviour can be such action of the student’s preventive in nature, since it avoids waste generation. This may be attributed to the science teacher give instruction and teaching biodegradable and non-biodegradable.

The study of Freed (2018) it revealed that environmental education have argued the need to focus in identity as a more predictive factor than attitude of individual’s environmental behaviour.

### 3.E Environmental behaviour of the students along participation in the environment action.

Table 3.E shows the environmental behaviour of the students along participation in the environment actions, with the presented weighted mean and descriptors in determining the environmental behaviour of the students were also included.

**Table 3.E**  
**Environmental Behaviour of the Students along Participation in the environment actions**

<b>Environmental Behaviour</b>	<b>Weighted Mean</b>	<b>Descriptors</b>
1. I take part in activities that care for the environment.	3.66	Very often
1. I talk about the importance of the environment with others.	3.65	Very often
<b>General Weighted Average</b>	<b>3.66</b>	<b>Very often</b>

It can be reflected from the table that all environmental behaviour along with participation in the environment have a descriptor of “Very Often” were computed general weighted mean of 3.66. This result may imply that the respondents may show concern and aware on the environmental problems and issues. It also shows that the students are oftentimes, actively participate in the activities that show care for the environment.

As observed in table 2.E students are willing to take an active role in the activities that shows care for the environment. The result in table 3.E indicate that the behaviour of the students implies that the students may participate in activities toward preservation and conservation toward environment. Such as joining the Yes-O camp, tree planting and other activities that may help in preservation and conservation of the environment. This may be attributed to the teachers instruction and teaching of the principle in ecosystem and different ways to minimize the human impact in the environment.

The result was in consonance with the study of Arnold, et.al (2015) revealed that behavioural measures of ecological lifestyles is called into question by the lack of correspondence between what people choose to do and what they ideally should be doing to reduce their environment impact.

**4. Relationships between the academic performance and their environmental attitude along the identified variables.**

Table 4 presents the statistical bases and analysis in determining the relationship between the academic performance and their environmental attitude along the identified variables. It can be observed from the computed Chi square values in the relationship between the academic performance and their environmental attitude on the recycling, energy consumption, water consumption, responsible consumption of products and participation in environment action, were greater than the critical values of 12.592. The hypothesis of significance was tested at .05 level of significance when the degrees of freedom were 6. The result is to reject the hypotheses, therefore there is significant relationship between the academic performance and their environmental attitude on the identified variables.



**TABLE 4**

**Relationships between the Academic Performance and their Environmental Attitude.**

Statistical bases	Statistical Analysis				
	A	B	C	D	E
df	6	6	6	6	6
Level of Significance	.05	.05	.05	.05	.05
Critical Value	12.592	12.592	12.592	12.592	12.592
Computed Chi Square	162.69	388.76	175.42	44.89	23.81
Decision on Ho	Reject	Reject	Reject	Reject	Reject
Interpretation	Sig.	Sig.	Sig.	Sig.	Sig.

**Legend: A. Recycling B. Energy Consumption C. Water Consumption D. Responsible Consumption of Products E. Participation in Environment Action**

This suggests that a strong environmental attitude allows the students to perform better in the environmental education subject. It may also indicate that the students can relate very well to the topics being discussed by their teachers. The instructions given may be localized and contextualized that they may have developed appreciation of the subject to create positive impact on their academic performance. As revealed by the students during the informal interview, the students revealed that because they understand the topics/ the discussions they may have change their point of view towards the environment.

According to the study of Cheung, et.al (2016) revealed that students' environmental attitudes were positively correlated with the environmental course on the academic performance, suggesting that students with better environmental attitudes performed better in the environmental studies course. The result was in consonance with the study of Levy, et.al (2013) points out that the higher education plays an important role in training professionals who have an important role in protecting the environment in the future.

**5. Relationship between the academic performance and their environmental behaviour.**

Table 5, presents the statistical bases and analysis in determining the relationship between the academic performance and their environmental behaviour as to the identified variables.

**Table 5**

**Relationships between the Academic Performance of the Students and their Environmental Behaviour.**

Statistical bases	Statistical Analysis				
	A	B	C	D	E

<b>df</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>6</b>
<b>Level of Significance</b>	<b>.05</b>	<b>.05</b>	<b>.05</b>	<b>.05</b>	<b>.05</b>
<b>Critical Value</b>	<b>15.07</b>	<b>15.07</b>	<b>15.07</b>	<b>15.07</b>	<b>12.592</b>
<b>Computed Chi Square</b>	<b>12.96</b>	<b>41.70</b>	<b>19.61</b>	<b>20.16</b>	<b>13.66</b>
<b>Decision on Ho</b>	<b>Do not Reject</b>	<b>Reject</b>	<b>Reject</b>	<b>Reject</b>	<b>Reject</b>
<b>Interpretation</b>	<b>Not Sig.</b>	<b>Sig.</b>	<b>Sig.</b>	<b>Sig.</b>	<b>Sig.</b>

**Legend: A. Recycling B. Energy Consumption C. Water Consumption D. Participation on Environment Action E. Responsible Consumption of Products**

It can be observed that the computed Chi square values in the relationship between the academic performance and their environmental behaviour along recycling were 12.96 which are less than the critical values of 15.07. The hypothesis of significance was tested at .05 level of significance when the degrees of freedom were 8. The result is not to reject the hypotheses, therefore there is no significant relationship between the academic performance and their environmental behaviour in recycling and participation in environment action on the identified variables.

This implies that the academic performance toward the environmental behaviour in recycling that there may be a need to inculcate the importance of environmental preservation and conservation. The result also shows that they have the knowledge in environmental awareness and recycling but may not have applied to actual situations. As verified by the students, during the informal interview, the students revealed that their center of attention are more on classroom discussion, that they have a limited activities/ opportunities towards recycling and participation in environmental activity, students also revealed that sometimes they do some school activities or projects for a mere compliance in a subject, but may not understand the importance of environmental conservation and preservation.

This study further indicates that environmental problems, issues and concern may be prevented if the students have enough knowledge in recycling and participation in environmental action. This also implies that the students may not fully understand the importance of recycling as stated in the Republic Act (RA) 9003 or the Ecological Solid Waste Management Act of 2000.

It can be mentioned that the science curriculum does not give much focus on recycling much less the provision of hands-on activities that the students to strengthen their learnings. The topics in recycling are very limited that the teacher may do in haste the discussion about recycling which often results to insufficient knowledge of the students. The students may not be fully aware of the advocacy of Zero Waste Management which is annually commemorated by January as stated in the law promoting the proper management of discarded waste to avoid and eliminate the volume and toxicity of waste and materials, and to conserve and recover all resources, and not indiscriminately dispose or burn them. Likewise, the 10 ways to minimize use of plastic such as choose paper containers instead of Styrofoam or plastics, recycle plastic materials, and avoid products with plastic packaging and the like are important to guide the students in minimizing the waste generation.

This may find support in study of Diaz (2013), which revealed that encouraging the adaptation of a pro-environmental behaviour is critical to reduce the environmental impacts and to move toward a more sustainable future. Furthermore, applying the knowledge that they inculcate affects their behaviour. Human harm the environment, therefore human can also provide solutions to conserve and protect the environment.

On the other hand, it is reflected that the computed Chi square values in the relationship between the academic performance and their environmental behaviour along with energy consumption, water consumption, responsible consumption of products, and participation in environment action are greater than the critical values of 15.07. The hypothesis of significance was tested at .05 level of significance when the degrees of freedom were 8. The result is to reject the hypotheses, therefore there is significant relationship between the academic performance and their environmental behaviour along energy consumption, water consumption, responsible consumption of products and participation in environment action.

It can be noted in the curriculum guide for grade 10 that there is a topic or lesson about energy that provides opportunity for hands-on activity. This provision may be one of the attributing factors why the students practiced consumption of energy. Meanwhile, it may show that there is a strong inculcation of the knowledge on water consumption among the students during the environmental education instruction of the teachers such that they do conserve water. Also, it indicates that the students are aware that water is essential in life, more than just essential to quench thirst or protect health, vital for creating jobs and supporting economic, social, and human development.

This may find support in the study of Ottu, I.F (2017) which revealed that engendering self-determination of educational practitioners and learners based on education as a need; feeling of renewed and sumptuous connection with the educational environment, which goes beyond the physical environment and creating opportunities for people to cultivate new sets of passionate behaviours towards educational activities.

## **6. Conclusion**

The Grade 11 students in the private schools understood and master the competency in environmental education. The students generally “high favourable” on environmental protection and conservation activities such as recycling, energy consumption and responsible consumption of products while the water consumption and participation in environmental actions obtained “favourable”. The environmental protection and conservation activities on recycling, energy consumption, water consumption, responsible consumption of products and participation in environmental actions are “very often” done by the grade 11 students. There is a significant relationship between the academic performance and the environmental attitude of the students. There is significant relationship between the academic performance and their environmental behaviour.

## **7. Translational Research**

Science teachers may continue to provide the students with the opportunities to maintain their academic performance in environmental education by actively involving them in lessons designed to cater their individual needs as learners. The students’ environmental attitude may be further strengthened through constant exposure to activities that highlight the importance of environmental protection and conservation. The students’ environmental behaviour may be

sustained by guiding and promoting student's active participation in pro-environmental activities. Science teachers may continue to provide environmental instruction that are relevant to the learners in order to maintain their academic performance. Teachers may constantly follow-up the involvement of the students in environmental activities to ensure that the acquired knowledge are properly applied in the context of protection and conservation of environment.

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