

**Environmental attitudes and proficiency level in environmental science subject among grade 7 STE students**

Atitudes ambientais e nível de proficiência na disciplina de ciências ambientais entre alunos do 7º ano STE

Actitudes ambientales y nivel de competencia en la materia de ciencias ambientales entre estudiantes STE de séptimo grado

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[egencanoy@gmail.com](mailto:egencanoy@gmail.com)**ABSTRACT**

The study aims to determine and correlate environmental attitudes and proficiency level among STE grade 7 students in environmental science subject at Heracleo Casco Memorial National High School. The study was conducted through a survey method, with consent forms. The findings reveal that the overall level of environmental attitudes of the students is moderate, which implies that the students' attitude towards the environment is sometimes manifested. In addition, their proficiency level in environmental science is classified as "novice", indicates that the students lacked sufficient knowledge and understanding of the fundamental concepts in environmental science subject. It was revealed that there is a significant negative correlation between the Proficiency Level in Environmental Science Subject and the Role of Nature and the Environment, Climate Change and Global Warming, and Lifestyle. However, there is no significant relationship between the Proficiency Level and Human Impact on the Environment.

**Keywords:** environmental attitudes, proficiency level, environmental science.**RESUMO**

O estudo tem como objetivo determinar e correlacionar atitudes ambientais e nível de proficiência entre alunos do 7º ano do STE na disciplina de ciências ambientais da Escola Secundária Nacional Memorial Heracleo Casco. O estudo foi realizado por meio de método de pesquisa, com termo de consentimento. Os resultados revelam que o nível global de atitudes ambientais dos alunos é moderado, o que implica que a atitude dos alunos em relação ao ambiente se manifesta por vezes. Além disso, o seu nível de proficiência em ciências ambientais é classificado como "iniciante", indicando que os alunos não tinham conhecimento e compreensão suficientes dos conceitos fundamentais da disciplina de ciências ambientais. Foi revelado que existe uma correlação negativa significativa entre o Nível de Proficiência na Disciplina de Ciências Ambientais e o Papel da Natureza e do Meio Ambiente, Mudanças Climáticas e Aquecimento Global e Estilo de Vida. No entanto, não existe uma relação significativa entre o Nível de Proficiência e o Impacto Humano no Meio Ambiente.

**Palavras-chave:** atitudes ambientais, nível de proficiência, ciência ambiental.**RESUMEN**

El estudio tiene como objetivo determinar y correlacionar las actitudes ambientales y el nivel de competencia entre los estudiantes de STE grado 7 en la materia de ciencias ambientales en la Escuela Secundaria Nacional Heracleo Casco Memorial. El estudio se realizó mediante el método de encuesta, con formularios de consentimiento. Los hallazgos revelan que el nivel general de actitudes ambientales de los estudiantes es moderado, lo que implica que la actitud de los estudiantes hacia el medio ambiente se manifiesta en ocasiones. Además, su nivel de competencia en ciencias ambientales se clasifica como "principiante", lo que indica que los estudiantes carecían de conocimiento y comprensión suficientes de los conceptos fundamentales de la materia de ciencias ambientales. Se reveló que existe una correlación negativa significativa entre el nivel de competencia en la materia de ciencias ambientales y el papel de la naturaleza y el medio ambiente, el cambio climático y el calentamiento global y el estilo de vida. Sin embargo, no existe una relación significativa entre el nivel de competencia y el impacto humano en el medio ambiente.

**Palabras clave:** actitudes ambientales, nivel de competencia, ciencias ambientales.**ARTICLE HISTORY****Received:** 19-07-2023**Revised Version:** 11-10-2023**Accepted:** 22-10-2023**Published:** 30-10-2023**Copyright:** © 2023 by the authors**License:** CC BY-NC-ND 4.0**Manuscript type:** Article**ARTICLE INFORMATIONS****Science-Metrix Classification (Domain):**

Economic &amp; Social Sciences

**Main topic:**

Environmental attitudes in high school students

**Main practical implications:**

The study imply on the environmental attitudes and proficiency level among STE grade 7 students in environmental science subject and contributions to the environmental practices in the school.

**Originality/value:**

The article is original because it was conducted in the school and all the data was primary source including the proficiency level of the STE grade 7 students.

## INTRODUCTION

Environmental concerns are becoming increasingly palpable and are now one of the most pressing issues of our age. Environmental science is an essential field for understanding the intricacies of these problems and looking for ways to resolve them. Research has revealed that personal attitudes towards the environment and knowledge about environmental science topics play significant roles in how individuals see and react to environmental problems (Kaplowitz, Woldring, & Watt, 2019). Furthermore, UNESCO (2020) states that since environmental difficulties are threatening the planet's sustainability, learners should cultivate a strong environmental awareness. UNESCO (2020) stresses the importance of developing a robust awareness of the environment as well as an expertise in environmental science among students due to the planet's endangered sustainability thanks to various ecological challenges.

Environmental attitudes reflect a person's beliefs, values, and emotional reactions toward their surroundings and its problems, this is according to Schultz (2001). On the other hand, possessing competency in this subject means understanding and deploying scientific principles envisaged by Boone & Korb (2018) concerning nature. This further translates into improving one's comprehension of intricate green issues as highlighted by Sjøberg (2010) alongside creating more viable solutions within scope.

McGraw & Huffman (2020) posit that people who have optimistic views regarding natural environments happen also likely proficient at learning new things about it. However, due limited knowledge on the link between these two factors, it has remained challenging to create effective educational approaches that can foster both positive attitudes and environmental competency among students. Understanding this correlation, however, can provide invaluable insights into ways of improving educational structures towards promoting sustainability goals (Duan, Lin & Chen, 2021). Having undergone higher education, one gains the advantage of being able to perceive convoluted data sets more capably. This is owing to their training in rational analysis and research procedures that are fundamental elements of this domain. Henceforth, their ability to decode, explicate and convey insights becomes markedly enhanced.

In Heracleo Casco Memorial National High School environmental science is taught as a specialization in science in special curricular program in Science, Technology, and Engineering (STE) specifically in Grade 7, it is therefore worth asking: what is the level of proficiency of the grade 7 STE students in environmental science subject? How about their environmental attitudes? Does it influence their proficiency level in the particular subject?

In this context, the researchers are interested in determining the environmental attitudes and proficiency level in environmental science subject among grade 7 STE students.

### Research Questions

The study aims to determine the Environmental Attitudes and Proficiency Level in Environmental Science Subject among Grade 7 STE Students. Specifically, it aims to answer the following questions:

1. What is the level of the environmental attitudes of Grade 7 STE students in terms of:
  - 1.1 role of nature and the environment
  - 1.2 climate change and global warming
  - 1.3 human impact on the environment
  - 1.4 lifestyle
2. What is the overall proficiency level in environmental science subject among grade 7 STE students?
3. Is there a significant relationship between environmental attitudes and proficiency level in environmental science subject among grade 7 STE students in Heracleo Casco Memorial National High School?

### Hypothesis

The following hypothesis was tested at 0.05 level of significance:

*There is no significant relationship between environmental attitudes and proficiency level in environmental science among grade 7 STE students in Heracleo Casco Memorial National High School.*

## METHODS

This portion contains the discussion on the method to be applied in this research study, namely; the research design,

research locale, population and sample, research instruments, data collection, statistical tools, and ethical considerations of the study.

## 2.1 Theoretical-Methodological

The theoretical-methodological is underpinned on Mäkitalo-Siegl & Fischer (2011) theoretical contribution and also anchored on Social Cognitive Theory (SCT) by Albert Bandura Nyarko, Kugbey, Kofi, Cole, & Adentwi, (2018).

## 2.3 Research Design

The study employed a quantitative, non-experimental, descriptive research design. It utilized the descriptive correlational method.

## 2.4 Respondents and Sampling

The study utilized a purposive sampling technique consisting of 46 students from the grade 7 STE who accepted the request to participate in the study, whereas in Heracleo Casco Memorial National High School, only the Grade 7 STE students are being taught of environmental science as their subject.

## 2.5 Research Instrument

Survey Questionnaire were developed by the researchers. The statements used in the questionnaire was adapted from (*Environmental Attitudes Survey*, n.d.). The survey questionnaire contains four parts, which include the name of the student followed by the environmental attitudes in terms of: role of nature and the environment, climate change and global warming, human impact on the environment, and lifestyle; each factor has 5 questions for a total of 20 questions. The questionnaire is patterned on a 5-point Likert scale with designed value to determine the environmental attitudes of the student. The obtained means from the weighted student responses were interpreted as follows:

Range of Means	Level	Descriptive Interpretation
4.20 – 5.00	Very High	The students' attitude towards the role of nature and environment is always manifested.
3.40 – 4.19	High	The students' attitude towards the role of nature and environment is often manifested.
2.60 – 3.39	Moderate	The students' attitude towards the role of nature and environment is sometimes manifested.
1.00 – 1.79	Very Low	The students' attitude towards the role of nature and environment is never manifested.
1.80 – 2.59	Low	The students' attitude towards the role of nature and environment is seldom manifested.

Range of Means	Level	Descriptive Interpretation
4.20 – 5.00	Very High	The students' attitude towards the climate change and global warming is always manifested.
3.40 – 4.19	High	The students' attitude towards the climate change and global warming is often manifested.
2.60 – 3.39	Moderate	The students' attitude towards the climate change and global warming is sometimes manifested.
1.80 – 2.59	Low	The students' attitude towards the climate change and global warming is seldom manifested.
1.00 – 1.79	Very Low	The students' attitude towards the climate change and global warming is never manifested.

Range of Means	Level	Descriptive Interpretation
4.20 – 5.00	Very High	The students' attitude towards human impact on the environment is always manifested.
3.40 – 4.19	High	The students' attitude towards human impact on the environment is often manifested.
2.60 – 3.39	Moderate	The students' attitude towards human impact on the environment is sometimes manifested.
1.80 – 2.59	Low	The students' attitude towards human impact on the environment is seldom manifested.
1.00 – 1.79	Very Low	The students' attitude towards human impact on the environment is never manifested.

Range of Means	Level	Descriptive Interpretation
4.20 – 5.00	Very High	The students' attitude towards the environment is always manifested in/through their lifestyle.
3.40 – 4.19	High	The students' attitude towards the environment is often manifested in/through their lifestyle.
2.60 – 3.39	Moderate	The students' attitude towards the environment is sometimes manifested in/through their lifestyle.
1.80 – 2.59	Low	The students' attitude towards the environment is seldom manifested in/through their lifestyle.
1.00 – 1.79	Very Low	The students' attitude towards the environment is never manifested in/through their lifestyle.

## 2.6 Data Gathering Procedure

To collect the data for this study, the researchers adhere to a set of processes. Prior to the distribution of the survey, a letter requesting permission to conduct the study was fully signed by the advisor and approved by the junior high school faculty's ethics review committee.

Following that, the researcher wrote to the principal of Heracleo Casco Memorial National High School to ask for permission to use grade 7 STE students as the study's subjects. After receiving approval from the principal to conduct the study, the researcher personally gave the survey forms to the participants in order to guarantee 100% instrument return.

As further evidence of accurate data collection, the researcher requests certificates of appearance from the schools participating in the study. The information was acquired, totaled, tabulated, evaluated, and discreetly interpreted.

## 2.7 Data Analysis

The data was analyzed and interpreted using the appropriate statistical tools below:

**Mean.** Mean were used to determine the environmental attitudes of the grade 7 STE students as it correlates to their proficiency level in environmental science subject.

**Pearson correlation coefficient.** This was used to determine if there exists a significant relationship between the environmental attitudes and proficiency level in environmental science subject among grade 7 STE students. It is a correlation measure used to determine the degree of relatedness and how extensive are the variables.

## 2.8 Ethical Considerations

This quantitative study raises important ethical considerations related to the methods used, particularly concerning the right to conduct the study and maintaining confidentiality and anonymity.

The researcher followed ethical standards, adhering to study protocols and criteria for managing the population and data to ensure the integrity and ethical conduct of the research. These ethical considerations were addressed as follows:

*Voluntary participations.* Engagement in this research was completely optional, and individuals were provided with information regarding the goals of the study. They were given the opportunity to seek clarification from the researcher regarding the survey or the processes involved. If participants feel uneasy about answering certain questions, they have the freedom to withdraw from the survey at any time.

*Privacy and confidentiality.* The researcher noticed the hostility among the participants. The names of the respondents were not mentioned anywhere, and only the researcher was aware of their individual answers. Each response was assigned a number, and the researcher held the only key to identify which number corresponded to each respondent.

*Informed consent process.* The participants were requested to give their consent to participate in the study. This ensured that their personal autonomy was respected by allowing them to make an informed decision to voluntarily take part, which is an essential aspect of any research undertaking.

*Recruitment.* Only suitable participants were permitted to take part in the study. Thus, only grade 7 STE students were allowed to participate in the study.

*Risks.* Throughout the entire duration of the study, data were collected and stored in a responsible manner. Measures have been established to protect the data and foster trust among the participants. Physical measures have been implemented to securely store the data, and mechanical support, such as computers, has been utilized to safeguard sensitive information.

*Benefits.* The researcher understood and addressed public concerns, assuring the protection of ethical principles. They implemented measures to minimize risks and preserve the intrinsic worth of participants, resulting in a study that maximized benefits and societal relevance while reducing harm and concerns for all involved.

*Plagiarism.* All sources used in the study were accurately referenced. The author's ideas were paraphrased and synthesized appropriately to prevent any form of plagiarism. The paper was subjected to the Turnitin process, ensuring that it was free from any instances of plagiarism.

*Fabrication.* The study collected results in a straightforward manner, without any inconsistencies. The manuscript incorporated relevant existing literature. No data, observations, or characterizations were fabricated or added during the data

collection process. The conclusions drawn were solely based on the gathered data and were made by the researcher.

*Falsification.* The survey questions were designed in a neutral way, without any bias or intent to influence the results or manipulate responses towards a specific outcome or answer.

*Deceit.* Complete transparency was maintained regarding all crucial elements relevant to the participants' involvement. This was done to prevent any misguidance or dissemination of incorrect information about various aspects of the research, including the procedures and the purpose of the study.

*Authorship.* The author's contributions to the study and its reporting were clearly indicated, demonstrating their substantial involvement. They also took public accountability for the relevant sections of the content.

## RESULTS AND DISCUSSION

Presented in this chapter are the results, interpretation, analysis, and discussions of findings. The order of findings and discussions are arranged under the following headings: Level of Environmental Attitudes of Students in terms of: role of nature and the environment, climate change and global warming, human impact on the environment, and lifestyle, Proficiency Level in Environmental Science Subject, Significance of the Relationship Between Variables.

### 3.1 Level of Environmental Attitudes of Students

The level of environmental attitudes of grade 7 STE students was measured in terms of role of nature and the environment, climate change and global warming, human impact on the environment, and lifestyle. The presentation and analysis of the data on these factors are as follows:

**Table 1** Level of Environmental Attitude in Terms of Role of Nature and the Environment

Role of Nature and the Environment	Mean	SD	Level	Descriptive Interpretation
1. It is important that school children go on field trips to experience nature first hand.	4.12	0.554	high	The students' attitude towards the role of nature and the environment is often manifested.
2. Humans are meant to rule over all of nature.	2.97	0.987	moderate	The students' attitude towards the role of nature and the environment is sometimes manifested.
3. We can afford to lose some of the world's biodiversity.	2.72	1.153	moderate	The students' attitude towards the role of nature and the environment is sometimes manifested.
4. The Earth has very limited room and resources.	3.42	0.722	high	The students' attitude towards the role of nature and the environment is often manifested.
5. The environment is a low priority for me compared with a lot of other things.	2.42	1.168	low	The students' attitude towards the role of nature and the environment is seldom manifested.
<b>Overall</b>	<b>3.13</b>	<b>0.711</b>	<b>moderate</b>	<b>The students' attitude towards the role of nature and the environment is sometimes manifested.</b>

Source: own author elaboration (2023)

Presented in table 1 is the average level of the students' attitude towards the role of nature and environment.

From the results shown in the table, *it is important that school children go on field trips to experience nature first hand* got the highest mean of 4.12 with a standard deviation of 0.554, which is described as high. Similarly, *the earth has very limited room and resources* got a mean of 3.42 with a standard deviation of 0.722, which is also described as high.

*Humans are meant to rule over all of nature* got a mean of 2.97 with a standard deviation of 0.987, while *we can afford to lose some of the world's biodiversity* got 2.72 with a standard deviation of 1.153. Both got the same description as moderate. Meanwhile, *the environment is a low priority for me compared with a lot of other things* got the lowest mean of 2.42 with a standard deviation of 1.168, which is described as low.

Based on the above-mentioned results, both *it is important that school children go on field trips to experience nature first hand* and *the earth has very limited room and resources* got a description as high, which means that the students' attitude towards the role of nature and environment is often manifested.

In addition, both *humans are meant to rule over all of nature* and *we can afford to lose some of the world's biodiversity* got a description as moderate. This means that the students' attitude towards the role of nature and environment is sometimes manifested. Lastly, *the environment is a low priority for me compared with a lot of other things* got a description as low, which means that the students' attitude towards the role of nature and environment is seldom manifested.

Overall, the role of nature and environment got an overall mean of 3.13 with a standard deviation of 0.711, which is described as moderate. This implies that the students' attitude towards the role of nature and environment is sometimes manifested.

**Table 2** Level of Environmental Attitude in Terms of Climate Change and Global Warming

Climate Change and Global Warming	Mean	SD	Level	Descriptive Interpretation
1. The effects of climate change are too far in the future to really worry me.	2.78	1.094	moderate	The students' attitudes towards the climate change and global warming is sometimes manifested.
2. Climate change is beyond our control—it's too late to do anything about it.	2.80	1.00	moderate	The students' attitudes towards human impact on the environment is sometimes manifested.
3. I don't believe my behavior and everyday lifestyle contribute to climate change.	2.91	0.954	moderate	The students' attitudes towards human impact on the environment is sometimes manifested.
4. I believe climate change poses a serious threat for people around the world.	3.59	0.920	high	The students' attitudes towards human impact on the environment is often manifested.
5. Scientists will find a solution to global warming without people having to make big changes to their lifestyle.	3.51	1.239	high	The students' attitudes towards human impact on the environment is often manifested.
<b>Overall</b>	<b>3.12</b>	<b>0.650</b>	<b>moderate</b>	<b>The students' attitudes towards human impact on the environment is sometimes manifested.</b>

Source: own author elaboration (2023)

Presented in the table 2 is the average level of students' attitudes towards the climate change and global warming.

Based on the results shown in the table, *I believe climate change poses a serious threat for people around the world* got the highest mean of 3.59 with a standard deviation of 0.920, which is described as high. Likewise, *scientists will find a solution to global warming without people having to make big changes to their lifestyles* got a mean of 3.51 with a standard deviation of 1.239, which is also described as high.

*I don't believe my behavior and everyday lifestyle contribute to climate change* got a mean of 2.91 with a standard deviation of 0.954, which is described as moderate. Similarly, *climate change is beyond our control--- it's too late to do anything about it* got a mean of 2.80 with a standard deviation of 1.00, which is described as moderate.

Furthermore, *the effect of climate change is too far in the future to really worry me* got a mean of 2.78 with a standard deviation of 1.094, which is also described as moderate.

Based on the above-mentioned results, both *I believe climate change poses a serious threat for people around the world* and *scientists will find a solution to global warming without people having to make big changes to their lifestyles* got a description as high, which means that the students' attitude towards the climate change and global warming is often manifested. Meanwhile, *I don't believe my behavior and everyday lifestyle contribute to climate change*, *climate change is beyond our control--- it's too late to do anything about it*, and *the effect of climate change are too far in the future to really worry me* got the same description as moderate, which means that the students' attitude towards the climate change and global warming is sometimes manifested.

Overall, climate change and global warming got an overall mean of 3.12 with a standard deviation of 0.650, which is described as moderate. This shows that the students' attitude towards the climate change and global warming is sometimes manifested.

**Table 3** Level of Environmental Attitude in Terms of Human Impact on the Environment



Human Impact on the Environment	Mean	SD	Level	Descriptive Interpretation
1. If things continue on their current course, we will soon experience a major environmental disaster.	3.68	0.928	high	The students' attitudes towards human impact on the environment is often manifested.
2. The so-called 'environmental crisis' facing humanity has been greatly exaggerated.	2.93	0.887	moderate	The students' attitudes towards human impact on the environment is sometimes manifested.
3. We are so close to the limit of the number of people the Earth can support.	3.25	0.983	moderate	The students' attitudes towards human impact on the environment is sometimes manifested.
4. Humans are severely abusing the environment.	3.44	1.232	high	The students' attitudes towards human impact on the environment is often manifested.
5. I sometimes feel guilty about doing things that harms the environment.	3.82	0.977	high	The students' attitudes towards human impact on the environment is often manifested.
<b>Overall</b>	<b>3.42</b>	<b>0.960</b>	<b>high</b>	<b>The students' attitudes towards human impact on the environment is often manifested.</b>

Source: own author elaboration (2023)

Presented in the table 3 is the average level of students' attitudes towards the human impact on the environment.

Based from the results given on the table presented, *I sometimes feel guilty about doing things that harms the environment* got a mean of 3.82 with a standard deviation of 0.977, which is described as high. Similarly, *if things continue on their current course, we will soon experience a major environmental disaster* got a mean of 3.68 with a standard deviation of 0.928, which is described as high. In addition, *humans are severely abusing the environment* got a mean of 3.44 with a standard deviation of 1.232, which is also described as high.

*We are so close to the limit of the number of people the Earth can support* has a mean score of 3.25 with a standard deviation of 0.983, which got a description as moderate. While *the so called 'environmental crisis' facing humanity has been greatly exaggerated* got a mean of 2.93 with a standard deviation of 0.887, which is also described as moderate.

Based on the above-mentioned results, *I sometimes feel guilty about doing things that harms the environment*, *if things continue on their current course, we will soon experience a major environmental disaster*, and *humans are severely abusing the environment* got the same description as high, which means that the students' attitude towards the human impact on the environment is sometimes manifested. Meanwhile, both *we are so close to the limit of the number of people the Earth can support* and *the so called 'environmental crisis' facing humanity has been greatly exaggerated* got the same description as moderate, which means that the students' attitude towards human impact on the environment is often manifested.

Overall, human impact on the environment got an overall mean of 3.42 with a standard deviation of 0.960, which is described as high. This implies that the students' attitude towards the human impact on the environment is often manifested.

**Table 4** Level of Environmental Attitude in Terms of Lifestyle

Lifestyle	Mean	SD	Level	Descriptive Interpretation
1. It's only worth doing environmentally-friendly things if they save you money.	2.93	1.103	moderate	The students' attitudes towards the environment is sometimes manifested in/through their lifestyle.
2. It is not worth me doing things to help the environment if others don't do the same.	2.70	1.111	moderate	The students' attitudes towards the environment is sometimes manifested in/through their lifestyle.
3. Any changes I make to help the environment need to fit with my lifestyle.	3.42	0.891	high	The students' attitudes towards the environment is often manifested in/through their lifestyle.
4. I don't pay much attention to the amount of water I use at home.	2.72	1.106	moderate	The students' attitudes towards the environment is sometimes manifested in/through their lifestyle.
5. Being green is an alternative lifestyle; it's not for the majority.	3.42	0.839	high	The students' attitudes towards the environment is often manifested in/through their lifestyle.
<b>Overall</b>	<b>3.04</b>	<b>0.912</b>	<b>moderate</b>	<b>The students' attitudes towards the environment is sometimes manifested in/through their lifestyle.</b>

Source: own author elaboration (2023)

Presented in the table 4 is the average level of students' attitudes towards their environment through their lifestyles.

Based on the results shown in the table presented, *any changes I make to help the environment need to fit with my lifestyle* got a mean of 3.42 with a standard deviation of 0.891. Likewise, *being green is an alternative lifestyle; it's not for the majority* also got a mean of 3.42 but with a standard deviation of 0.839. Both got the same description as high.

*It's only worth doing environmentally-friendly things if they save you money* got a mean of 2.93 with a standard deviation of 1.103, which has a description as moderate. Similarly, *I don't pay much attention to the amount of water I use at home* got a mean of 2.72 with a standard deviation of 1.106, which is described as moderate. In addition, *it is not worth me doing things to help the environment if others don't do the same* got a mean of 2.70 with a standard deviation of 1.111, which is also described as moderate.

Based on the above-mentioned results, both *any changes I make to help the environment need to fit with my lifestyle* and *being green is an alternative lifestyle; it's not for the majority* got the same description as high, which means that the students' attitude towards their environment is often manifested in/through their lifestyles. Meanwhile, *it's only worth doing environmentally-friendly things if they save you money*, *I don't pay much attention to the amount of water I use at home*, and *it is not worth me doing things to help the environment if others don't do the same* got the same description as moderate which means that the students' attitude towards their environment is sometimes manifested in/through their lifestyles.

Overall, lifestyle got an overall mean of 3.04 with a standard deviation of 0.912, which is described as moderate. This implies the students' attitude towards their environment is sometimes manifested in/through their lifestyles.

**Table 5** Overall Level of Environmental Attitude

Factors	Mean	SD	Level	Descriptive Interpretation
Role of nature and the environment	3.13	0.711	moderate	The students' attitudes towards the role of nature and the environment are sometimes manifested.
Climate change and global warming	3.12	0.650	moderate	The students' attitudes towards the climate change and global warming are sometimes manifested.
Human impact on the environment	3.42	0.960	high	The students' attitudes towards human impact on the environment is often manifested.
Lifestyle	3.04	0.912	moderate	The students' attitude towards the environment is sometimes manifested in/through their lifestyle.
<b>Overall</b>	<b>3.18</b>	<b>0.808</b>	<b>moderate</b>	<b>The students' attitudes towards the environment are sometimes manifested.</b>

Source: own author elaboration (2023)

Presented in the table 5 is the overall average level of students' environmental attitudes in terms of: role of nature and the environment, climate change and global warming, human impact on the environment, lifestyle.

*Role of nature and the environment* got a mean of 3.13 with a standard deviation of 0.711, indicating a moderate level, which means that the students' attitude towards the role of nature and the environment is sometimes manifested.

Similarly, *climate change and global warming* got a mean of 3.12 with a standard deviation of 0.650, indicating a moderate level, which means that the students' attitudes towards the climate change and global warming is sometimes manifested.

Moreover, *human impact on the environment* got a mean of 3.42 with a standard deviation of 0.960, indicating a high level, which means that the students' attitudes towards human impact on the environment.

Meanwhile, *lifestyle* got a mean of 3.04 with a standard deviation of 0.912, indicating a moderate level, which means that the students' attitudes towards the environment is sometimes manifested.

Overall, the students' environmental attitudes in terms of: role of nature and the environment, climate change and global warming, human impact on the environment, lifestyle got an overall mean of 3.18 with a standard deviation of 0.808, indicating a moderate level, which means that the students' attitudes towards the environment are sometimes manifested.

### 3.2 Proficiency Level in Environmental Science Subject

The proficiency level of grade 7 STE students in environmental science subject is measured using their score on their 2<sup>nd</sup> quarter examination in the said subject. The assessment of their proficiency level is based on Bloom's Taxonomy levels.



**Table 6** Proficiency Level in Environmental Science Subject

Obtained Mean Score	Total Score	%	Proficiency Level	Descriptive Interpretation
23.5	40	59%	Novice	The students have limited knowledge and understanding of fundamental concepts in environmental science.

Source: own author elaboration (2023)

Presented in table 6 is the overall average level of proficiency in environmental science subject among grade 7 STE students. The obtained mean score is 23.5 out of a total possible score of 40. This means that, on average, the students scored 23.5 marks out of 40. The percentage achieved by the students is 59%. This indicates that they have achieved approximately 59% of the total possible score. The proficiency level of the students based on their performance is classified as "Novice." This suggests that the students have limited knowledge and understanding of fundamental concepts in environmental science.

In summary, the interpretation of the data indicates that the students' performance in environmental science is at a novice level, implying that they have a limited understanding of the fundamental concepts in this field.

### 3.3 Significance of the Relationship Between Environmental Attitudes and Proficiency Level in Environmental Science among Grade 7 STE Students

This section is composed of the discussion of relationship between the two variables: environmental attitudes and proficiency level in environmental science subject.

**Table 7** Significant Relationship Between Environmental Attitudes and Proficiency Level in Environmental Science Subject

Environmental Attitudes	Proficiency Level in Environmental Science Subject	r value	P-Value	Remarks	Decision
Role of Nature and the Environment	Proficiency Level in Environmental Science Subject	0.302	0.041	Low negative correlation	Reject null hypothesis
Climate Change and Global Warming	Proficiency Level in Environmental Science Subject	0.359	0.014	Low negative correlation	Reject null hypothesis
Human Impact on the Environment	Proficiency Level in Environmental Science Subject	0.110	0.467	Very low positive correlation	Accept null hypothesis
Lifestyle	Proficiency Level in Environmental Science Subject	0.341	0.020	Low negative correlation	Reject null hypothesis

\*\*Correlation is significant at  $p < .05$

Presented in table 7 is the pearson-r testing of the significance relationship between environmental attitudes and proficiency level in environmental science subject.

*Role of Nature and the Environment and Proficiency Level in Environmental Science Subject* has a -0.302 r value. This indicates a low negative correlation between the Role of Nature and the Environment and the Proficiency Level in Environmental Science Subject. The p-value associated with this correlation is 0.041. Therefore, the decision is to reject the null hypothesis, suggesting that there is a significant relationship between the two variables.

*Climate Change and Global Warming and Proficiency Level in Environmental Science Subject* has a -0.359 r value. This indicates a low negative correlation between Climate Change and Global Warming and the Proficiency Level in Environmental Science Subject. The p-value associated with this correlation is 0.014. Therefore, the decision is to reject the null hypothesis, suggesting that there is a significant relationship between the two variables.

*Human Impact on the Environment and Proficiency Level in Environmental Science Subject* has a 0.110 r value, which indicates a very low positive correlation between Human Impact on the Environment and the Proficiency Level in Environmental Science Subject. The p-value associated with this correlation is 0.467. Hence, the decision is to accept the null hypothesis, suggesting that there is no significant relationship between the two variables.

*Lifestyle and Proficiency Level in Environmental Science Subject* has a -0.341 r value, which indicates a low negative

correlation between Lifestyle and the Proficiency Level in Environmental Science Subject. The p-value associated with this correlation is 0.020. Hence, the decision is to reject the null hypothesis, suggesting that there is a significant relationship between the two variables.

In summary, there is a significant negative correlation between the Proficiency Level in Environmental Science Subject and the Role of Nature and the Environment, Climate Change and Global Warming, and Lifestyle. However, there is no significant relationship between the Proficiency Level and Human Impact on the Environment.

## FINAL CONSIDERATIONS AND RECOMENDATIONS

Based on the aforementioned findings of the study, the following conclusions are drawn:

The overall level of Environmental Attitude among the grade 7 STE students-respondents of Heracleo Casco Memorial National High School is moderate. This implies that the students' attitude towards the environment is sometimes manifested.

The level of proficiency in environmental science subject among the grade 7 STE students, based on their performance is classified as "Novice". This implies that the students lacked sufficient knowledge and understanding of the fundamental concepts in environmental science subject.

There is a significant negative correlation between the Proficiency Level in Environmental Science Subject and the Role of Nature and the Environment, Climate Change and Global Warming, and Lifestyle. However, there is no significant relationship between the Proficiency Level and Human Impact on the Environment.

After a thorough review of the findings and pertinent conclusions of the study, the following recommendations are drawn:

Develop and implement intervention programs aimed at improving the Environmental Attitude among grade 7 STE students. These programs should focus on increasing awareness and promoting positive behaviors towards the environment.

Develop educational strategies to improve students' proficiency level in environmental science subject and to address the identified gaps in knowledge and understanding. Emphasize the fundamental concepts and provide engaging and interactive learning experiences.

Design educational initiatives specifically targeting the Role of Nature and the Environment, Climate Change and Global Warming, and Lifestyle, as these aspects show a significant negative correlation with the Proficiency Level in Environmental Science Subject. These initiatives can help bridge the knowledge gap and foster a deeper understanding in these areas.

Conduct additional research to explore the factors that may contribute to the lack of significant relationship between the Proficiency Level and Human Impact on the Environment. This could involve examining other variables or factors that may influence students' understanding and perception of human impact on the environment.

Consider conducting a longitudinal study to track the changes in Environmental Attitude and Proficiency Level in Environmental Science Subject among grade 7 STE students over an extended period. This would provide valuable insights into the effectiveness of intervention programs and curriculum enhancements over time. A replica of this study should be done to different educational levels, subject, and larger number of respondents.

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### Contribution of each author to the manuscript:

Task	% of contribution of each author		
	A1	A2	A3
A. theoretical and conceptual foundations and problematization:	50%	30%	20%
B. data research and statistical analysis:	50%	30%	20%
C. elaboration of figures and tables:	35%	40%	25%
D. drafting, reviewing and writing of the text:	40%	40%	20%
E. selection of bibliographical references	35%	40%	25%
F. Other (please indicate)	-	-	-

### Indication of conflict of interest:

There is no conflict of interest

### Source of funding

There is no source of funding

### Acknowledgments

The researchers would like to express their gratitude to the following persons who made the completion of this paper possible:

To **Dr. Nerwyn Z. Samoro**, Research (AGILA) Coordinator of Heracleo Casco Memorial National High School, for the technical assistance he gave to the researchers. His guidance was one of the reasons that the researchers strived hard to accomplish this paper.

To **Mr. Jason M. Delos Reyes**, Principal II (AGILA) of Heracleo Casco Memorial National High School, for his untiring support and encouragement given to the researchers. This served as the pushing power of the researcher to continue this research despite the inconveniences and problems encountered in every step of the way.

To **Dr. Edward F. Dizon**, **Mr. Jayson Balila**, and Dr. Samoro, the adjudicators during the proposal and research presentation, for the comments, suggestions, and recommendations they presented to the researchers. Their advices shed light on the loose ends of this paper, which served as a basis for the improvement of this paper.

To **Ms. Eden Casco**, Research Coordinator of Sta. Maria – West District, for her unending inspiration to the researchers to finish this paper. Her constant reminders and follow-ups made this paper to be finished on time.

To **Mr. Christian Myles T. Pascua**, Project STARCH (Stem Alumni Research Collaboration and Techniques) owner for the assistance in data gathering and technical assistance.

To **Ms. Guia Marie Meneses-Cubol**, for the technical assistance in writing and clerical expertise and assistance to the interpretation.

Lastly but most importantly, to **The Almighty God**, for without Him we can do nothing (John 15:5).