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Role of Pre-Tertiary Geography Curriculum in Promoting Environmental Awareness and Attitude Among Teachers and Students

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ABSTRACT

The rate of environmental destruction in Ghana is very alarming to the extent that the achievement of the sustainable development goal 15 may be a mirage. In an attempt to explore sustainable ways to combat this menace, we explored the role of geography curriculum in promoting environmental awareness and attitude amongst students and teachers in Senior High Schools in the Cape Coast Metropolis. The convergent parallel design was used for the study. Three hundred and fifty (350) final year geography students were sampled proportionately, and ten (10) geography teachers were purposively sampled. The questionnaire and interview guide were tools used to collect data from the students and teachers, respectively. The study reveals that geography curriculum promotes students' awareness of the environment by increasing their appreciation towards nature and the dangers our country is subjected to as the environment is degraded. The attitudes of students toward the environment were positive as a result of their awareness of the environment. It can be observed that there is a difference between male and female geography students in relation to environmental awareness suggesting that male students exhibit significantly higher levels of environmental awareness compared to female students. Also, there is a difference between male and female geography students in relation to environmental attitude that females' students exhibit significantly higher levels of environmental attitude compared to male students. It is recommended that students and teachers alike are encouraged to convert their awareness of the environment into pro-environmental behaviours.

INTRODUCTION

The United Nations Sustainable Development Goal 15 talks about the protecting, restoring, and promoting sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and reverse land degradation and halt biodiversity (United Nations Office for Outer Space Affairs, 2024). It is the obligation of all member countries including Ghana. One of the lenses to achieve this goal is environmental education. Environmental Education is very pivotal to spatial dimension to development of developing and developed countries. In addition, it enlightens people about associated challenges and develops the necessary skills and expertise to address the challenges. Also, it fosters attitudes, motivations and commitments to make informed decisions and take responsible action. This means environmental education raises citizens' level of consciousness and sensitivity towards the environment and its associated concerns. According to Ma *et al.* (2023), engaging students through environmental knowledge is an essential goal of environmental education that can promote positive attitudes and behavior toward the environment. Hence, knowledge about the environment comes from a mechanism of evidence and collaboration process (involving ideas, techniques, realities, beliefs, morals and behaviours) and the variety of nature's features about the environment surrounding the biosphere.

In Ghanaian context, environmental related issues are embedded in the pre-tertiary curriculum (Senior high school geography curriculum and junior high school social studies). The geography curriculum encapsulates the cognitive, affective and psychomotor domains of learning. The national educational aim of the geography curriculum is to equip learners with the knowledge, skills and competencies to enable them to become informed communicative and responsible global citizens, and to contribute towards improving on and sustaining the environment (MOE, 2023). This corresponds to the effect of geography education on the attitudes and behaviour of learners and instructors. The geography curriculum has been designed not to only impart knowledge about the environment but to affect students' and teachers' attitudes toward the environment. Hence, the Geography Curriculum plays essential role in shaping individuals' attitudes and awareness towards the environment. As people become conscientized about the environment, they become ambassadors of the spatial environment. Environmental awareness and attitude among the students are essential in addressing the alarming degradation of the environment (UNPD, 2023). So, there is a need to engage students' minds beyond the scope of knowledge into a realm of appropriate alertness regarding the environmental issues that surround our society. Hence people's involvement in safeguarding the environment is encouraged. This leads to active participation in the protection of the environment (United Nations Environment Programme (UNEP), 2021).

Review of literature showed that several studies have been

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conducted in relation to environmental education around the world. The present study has distinctive features and contributes by filling a knowledge gap in many ways. Studies have focused on students and pre-service and in-service teachers in general. For instance, studies by Zachariou *et al.* (2017) and Arshad *et al.* (2020) mention but a few looked at exploring the environmental attitude of students and teachers regardless of their discipline. Yet due to its multidisciplinary nature, geography teachers and students are best placed to address environmental education. This current study considers geography due to its nature to effectively spearhead environmental education.

Furthermore, Studies such as Majumder (2017) and Azila *et al.* (2021) were conducted in Bangladesh and Malaysia, respectively, signifying a distinct geographical context. Hence, due to contextuality and uniqueness of Ghana, there is the need to examine the role of geography curriculum in promoting environmental awareness and attitudes among teachers and students. Finally, Zachariou *et al.* (2017) and Arshad *et al.* (2020) explored the environmental education of students and teachers exclusively. In other words, most studies focused on either teachers or students solely in their methodology. A study on environmental attitude, awareness, concern, and behaviour of university students across academic disciplines was investigated by Arshad *et al.* (2020). The purpose of the study was to assess the environmental attitude, awareness, concern, and behaviour across academic disciplines namely; the arts and humanities, social sciences, and physical and biological sciences. From the study, it appears that emphasis appears to be on students at the expense of teachers. This current study considered a two-prong investigation on students and teachers sequentially. Teachers were included in the investigation since they are the ones who implement the curriculum in the classrooms. Hence, their thoughts are important to serve as a reflection to the students.

Research Questions

This investigation was guided by the following research question.

1. To what extent does the geography curriculum promote the environmental awareness among students and teachers?
2. To what extent does the geography curriculum promote the environmental attitudes among students and teachers?

Hypothesis

1. H_0: There is no statistically significant difference in the environmental awareness of students in relation to gender.
2. H_0: There is no statistically significant difference in the environmental attitudes of students in relation to gender.

LITERATURE REVIEW

Environmental Awareness

Environmental awareness is a concept that is encapsulated in many disciplines. At this present time, there has not been a concrete definition of environmental awareness. Some scholars align environmental awareness as a function of environmental literacy, which may be defined as the function of knowledge, skills, and motivation (Kaya & Elster 2019). In this study, environmental awareness may be defined as the consciousness of the various concerns of the environment as a function of knowledge. Also, Gümrükçüoğlu *et al.* (2017), investigated students' levels of environmental awareness and knowledge. The environmental awareness scale used was divided into consciousness and behaviour scales respectively with students often scored highly on environmental behaviour and consciousness scales. Majumder (2017) steered a study on the assessment of environmental awareness amongst university students in Bangladesh. It was revealed that students with a background in the environment tend to have more awareness of the environment whilst the students with no environmental knowledge were less aware of the environment. Ergin (2019) conducted a study to determine the environmental awareness of teacher candidates. The findings revealed that there was a high level of environmental awareness.

Environmental Attitude

An attitude refers to a feeling about something. It tends to provide a pattern of behaviour. It serves as a powerful attribute that can generate consciousness in people to concentrate their efforts towards protecting the environment and thereby reducing pollution in the environment (Hooda, 2016). Environmental attitude denotes a general awareness of the environment in order to contribute to its concerns and development. Zachariou *et al.* (2017) explored on teachers' attitudes toward environmental education. Their findings show that teachers' views toward EE are substantially correlated with their attitudes toward the environment and environmental issues in their local communities, while positive attitudes toward EE are strongly correlated with knowledge and information about environmental issues. Again, the study revealed that knowledge and information may lead to increased teacher sensitivity, as well as student and future citizen participation in actions that will provide them with the means to improve their attitude toward the environment. Furthermore, Barghi *et al.* (2017) sought to evaluate environmental awareness, attitude, and performance in students at the post-graduate level about certain challenges of the environment. The results of their study revealed that a higher awareness led to a higher attitude about the environment. However, the same was not seen about the relationship between environmental attitude and environmental performance. Hence, the analysis revealed that the higher the attitude of students towards the environment increased the lower their performance and behaviour towards the environment. A study on environmental attitude, awareness, concern, and behaviour of university students across academic disciplines was investigated by

Arshad *et al.* (2020). The results generally revealed that students across these academic disciplines had positive and high awareness, concern, and behaviour about the environment. However, it was revealed that their attitudes were quite low.

METHODS AND MATERIALS

In this study, quantitative and qualitative methods were mixed for data collection and analysis of the results. Convergent parallel mixed method design was used for the purposes of triangulation. Three hundred and fifty (350) final year Geography students and ten (10) teachers in senior high schools in the Cape Coast Metropolis were respectively sampled proportionately and purposively. The rationale for sampling 350 students was underpinned by Adams (2020), who contends that the minimum returned sample from a population of 1500 is 306. In addition, to increase the external validity of the study, forty-four (44) was added to make 350. A questionnaire and structured interview guide were employed in this study. The questionnaire was adapted from, *et al.* (2019). The instrument was adapted because it has been validated and reliable. In addition, Punch (as cited in Owusu, 2014) suggested that for a complex and multidimensional variable, it is appropriate to use an existing instrument if one exists. Nevertheless, some items were altered to suit the focus of the research. Due to the alteration of some of the items on the questionnaire, it was then subjected to validity and reliability test fit Ghanaian context. Hence, the reliability coefficient of environmental awareness was 0.71 and environmental attitudes was 0.85. Field (2018) asserts that for research purposes, a useful rule of thumb is that reliability should be at .70 and preferably higher. Ethical clearance was obtained from the Head of the Department, Department of Business and Social Sciences Education, University of Cape Coast and Institutional Review Board of the same university to gather data for the study. A total of three hundred and fifty (350) questionnaires were administered to students in June. Approximately three weeks were used to administer the questionnaire. The structured interview guide for geography teachers consisted of twenty-six items that were related to the research questions. Two weeks was used for the interviews with the teachers. The interviews data helped to have a comprehensive and rich responses increase the validity of the results.

The quantitative data was edited and coded before it was fed into the IBM Statistical Product for Service Solution (version 23.0). Descriptive and inferential statistics were used to analyse the data. The descriptive statistics such as means and standard deviations were used to analyze the research questions data. From the decision rule, a mean value of 3.0 and above showed that Geography promote respondent's environment awareness and attitudes and vice versa. Also, standard deviation less than 1.0 showed that the responses from the respondents were homogeneous and heterogeneous when it was 1.0 and above. Independent sample T-test was employed in analysing the hypotheses. Besides, the analysis of the interview data was guided by an interpretative paradigm. The responses were transcribed manually, coded and discussed. The emergent method was used where views were categorized into themes in the course of analysis. The views of the teachers were used to support the analysis of the questionnaire.

RESULTS AND DISCUSSION

Results

Demographic Data of Respondents

Concerning the demographic data of the student respondents, it was revealed that 205(58.6%) of the respondents were male whilst 145(41.4%) were female. This denotes that most of the students involved in the study were male. This difference could be ascribed to the general assumption that the Ghanaian educational system admits more males than females (Ussher, 2022). This would, however, not have any negative impact on the findings of the study as the sampling was based on the representativeness of the gender of the respondents as described in the population. With regards to the teachers' respondents, it was revealed the majority (60%) of the respondents were males whiles females were 40%. This implies that majority of the respondents were males. With regards to the level of qualification, 50% of the teachers hold master's degree whilst 30% had bachelor's degree. In addition, 20% had PhD. In terms of teaching experience, 60% of the respondents had 16 years and above experience.

Geography Curriculum Promoting Environmental Awareness among Students and Teachers

Table 1: Students Environmental Awareness

Statement **Preamble: Geography curriculum……**	**Mean**	**SD**
Teaches me to like nature	3.96	.904
Teaches me to appreciate sea, land, ponds, and other natural features.	3.95	.914
Teaches me to be aware that it is wrong to sell areas that have lost their natural characteristics to bring money to our country.	3.51	1.121
Teaches me to be aware that the construction of hotels for tourism in national parks and forests should not be allowed	2.85	1.384
Teaches me to be aware that for housing, wetlands should not be drained so houses can be built there	3.57	1.224

Teaches me to be aware that the environment cannot clean itself so human waste disposal is a problem	4.34	.998
Teaches me to be aware that the ozone layer has been thinned so there is a danger to our country	4.25	.971
Mean of Means/ Average Standard Deviation	3.78	1.07

Source: Field survey (2024)

Table 1 presents the result of the data collected on environmental awareness of SHS students in the Cape Coast Metropolis. Majority (M = 3.96, SD = 0.90; M =3.95, SD = 0.91) of the respondents agreed that through their studies in geography they like nature, and consequently they also appreciate the sea, land, ponds, and other natural features respectively. In simple terms, this signifies the fact that the study of geography inculcates a liking for nature, and additionally, they value the land, water, ponds, and other natural characteristics. The teachers expressed their views on a similar theme. Teacher 01 for instance said:

"Well, I like nature, I am a lover of nature and as a result there is an innate liking towards nature and therefore any harm done to nature abhors me" (Teacher 01).

In support of Teacher 01, Teacher 02 also said that:

"I like nature. My knowledge has exposed me to the formation of landforms, the earth itself, and how it evolves; this then throws more light about certain unique features on the earth. This alone boosts my interest in nature" (Teacher 02).

Respondents also agree with the statement that geography has brought an awareness that it is wrong thing to sell areas that have lost their natural characteristics to bring money to our country (M = 3.51, SD = 1.21). Subsequently, the majority of the teachers interviewed also added their voices which include some suggestions.

"If the selling of the place is to make sure that its former self is restored, then there is nothing wrong. But if it is sold and leads to a further deterioration of the place, then I object to it and I'm in for restoration" (Teacher 03).

"I'm uncertain about this Some of these areas can be sold. It depends on the demand. For example, landforms like plateaus, as a result of erosion lose their shape. It depends on the owners to sell it or not to sell. With vegetation that has turned into savannah or secondary vegetation, those can be restored if possible" (Teacher 02).

Again, majority (M = 3.57, SD = 1.22) of the respondents also affirmed that the geography curriculum has made them aware of the need not to displace wetlands for housing purposes. The general views of the teachers were not far from the students.

"Yes, I think so, since wetlands serve an important purpose. They serve as regulating water flow. Sometimes they are called Ramsar sites. They stabilize water flow. It is a big yes not to change wetlands to house people. They are crucial in environmental health" (Teacher 03)

A majority (M = 3.571, SD = 0.22; M = 4.25, SD = 0.97) affirmed the statement geography has helped to create the awareness that the environment cannot clean itself so human waste disposal is a problem and how the depletion of the ozone layer poses a danger to the country respectively. Teachers' views supported this trend like:

"It depends on the type of waste. For example, human excreta are important for the fertility of the land but other wastes such as plastics are degradable and hence do not easily decay. They can hinder the growth of root systems, and the infiltration of water and hence can disturb leaching. If the wastes are organic in origin, then, it is good but I disagree with the other way round.

The thickness of the ozone layer is reducing and hence the function of the ozone in trapping ultra violet (UV) rays from the sun will reduce. This will lead to skin cancers when humans absorb more of these rays. It further increases the temperature of the earth" (Teacher 02).

Respondents were in contrast to the statement that the geography curriculum has made them aware that the construction of hotels for tourism in national parks and forests should not be allowed (M = 2.85, SD = 1.384). This opinion of students was given a better framework by their teachers during the interview session. Some of them commented that:

"We cannot do away with the construction of hotels with respect to the natural parks and forest reserves. Most of the time, tourists come to Ghana come for recreational purposes. So, these national parks and forest reserves should be spacious enough so that hotels and guest houses can be built to offer accommodation for the tourists. So, I have no problem with this" (Teacher 01).

Geography Curriculum promoting the Environmental Attitudes among Students and Teachers

The study also sought to find out the extent the geography curriculum has affected the attitude of students and teachers toward environmental issues. In view of this, there was an attempt to determine the overall position of students and teachers regarding their level of environmental attitude. The results are presented in Table 2.

Table 2: Environmental attitude of final year geography students

Statement **Preamble: Through the study of geography, ……..**	**Mean**	**SD**
I am satisfied with learning more environmental lessons in the geography curriculum	3.60	1.045
I am willing to take responsibility in protecting the environment.	3.80	.891

I get irritated with people who cause environmental pollution.	3.53	1.123
I worry about global environmental issues.	3.46	1.105
I feel guilty when I do harm to the environment.	3.35	1.134
I am proud of myself because of my sensitivity to the environment.	3.33	1.070
I warn a person who pollutes the environment without hesitation.	2.93	1.149
I voluntarily participate in any activity organized related to the natural environment at school.	2.88	1.171
I share my knowledge about the environment with my friends.	2.96	1.165
I am exposed to read books about environmental issues apart from geography textbooks.	3.09	1.206
I take part in clean-up campaigns.	2.77	1.195
I am a member of an environmental group.	2.27	1.069
I take part in any environmental NGO activities.	2.32	1.111
Mean of Means/ Average Standard Deviation	3.10	1.110

Source: Field Survey, (2024)

Table 2 presents the result of the data collected on environmental attitude of SHS students in the Cape Coast Metropolis. Majority (M = 3.60, SD = 1.045) affirmed the statement that "through the study of geography, I am satisfied with learning more environmental lessons in the geography curriculum". This perceived claim indicates the need for more environmental issues to be covered in the curriculum textbooks. Floods, global climate change, wildfires, soil, water, and air pollution; desertification; the ozone hole; a decline in biodiversity; an increase in extreme weather events; a shift in plant and animal species; and improper waste management remain part of the environmental issues covered in the geography curriculum. Regarding the need for more environmental lessons in the geography curriculum, this was supported by the teachers, with some commenting that:

"There should be more environmental lessons. It should exceed just general knowledge about the earth, and the geomorphological processes of the earth. There should be more education that will create awareness about the human activities that destroy the environment and their negative impact. Attitudes regarding the environment will be guided by the things that we learn" (Teacher 06).

Majority (M =3.80, SD = 0.891) agree with the statement that "through the study of geography, I am willing to take responsibility in protecting the environment". The perceived claim of this statement hinges on an apparent adequate knowledge and awareness of the environment. A teacher's view on his or her willingness to take responsibility in protecting the environment.

"Yes, taking responsibility for the environment is an important trait that has been developed in me. The knowledge acquired about the environment equips me to take good care of the environment. Environmental concerns about the land make me aware of why deforestation affects the balance of the forest, discouragement of bush burning and effective disposal of waste" (Teacher 04).

The statement "Through the study of geography, I get irritated with people who cause environmental pollution" had (M = 3.53, SD = 1.123) which signifies students' agreement with the statement. This perceived aspect of attitude is attributed to an emotional tendency concerning the environment. In other words, the kind of emotion that is expressed as a result of the geography curriculum. This perceived emotional tendency to get irritated by instigators of environmental pollution signifies an important function of what the geography curriculum generates in its learners. This assertion was affirmed by teachers in the following regard:

"Personally, my background in geography has helped me a lot in the sense that it has affected my emotion regarding a clean environment. I don't litter rubbish around and I encourage learners not to litter. I do that with my students a lot. There is a particular class I teach that likes littering. I cause them to sweep the class; if not I don't teach in that class. However, I get pretty angry at people who don't regard the environment" (Teacher 02).

Furthermore, Majority (M = 3.46, SD = 1.105) affirm the statement that "Through the study of geography, I worry about global environmental issues". On the matter of emotional tendencies found in environmental attitude, students' response indicates that a high level of anxiety is generated when they are exposed to environmental concerns. This was further supported by the teachers; which included:

"I get worried when I hear of areas that have faced environmental disasters such as landslides, flooding. My background in geography makes me aware of certain dynamics of nature and how humans can effectively relate to the natural environment without being affected by the environment. For instance, areas built in wetlands are susceptible to disasters like flooding which makes me worried" (Teachers 06).

Additionally, the statement "Through the study of geography, I feel guilty when I do harm to the environment" recorded (M = 3.35, SD = 1.134). This implies a high or positive attitude towards the environment. In as much as this corresponds to an emotional tendency in humans in general. It can be seen to be evidence in ensuring that we regard the environment as it should and try various means to make compensation for the degrading

environment by choosing to act positively towards the environment. It affirms the feeling that you should be saving the world and helping the environment more. Students' agreement showed how they feel guilty when they harm the environment was further affirmed by the teachers. Teacher 03 commented that:

"Personally, I feel guilty of myself anytime I could have walked to the restaurant instead of driving ten blocks to the place. I do feel the fumes sent through the car to the atmosphere could be reduced if I managed my use of my car. I think walking should be preferred to driving a car to short distances" (Teacher 03).

The statement "Through the study of geography, I voluntarily participate in any activity organized related to the natural environment at school had a (M = 2.88, SD = 1.171). This indicated that the majority of the students disagreed with the statement. This reveals that students perceived behaviour or action to participate in activities organized related to the natural environment was low. Perhaps, they only did that at the compulsion of the student leaders and school authorities. Teachers were asked how much voluntarily participated in any activity related to the natural environment. Teacher 02 said:

"In my school, we have a club called Youth for environment and sanitation. We use to plant trees and also do some picking of litter on Saturdays. I normally do this often" (Teacher 02).

Teacher 03 also contrasted by saying that:

"I rarely do that. I wish to do it but when the EPA comes to plant trees, I work hand in hand with them in the school. The EPA doesn't engage the teachers. I choose to involve myself to help. They should involve the geography and Agric teachers and the students so that they would share their expertise and knowledge" (Teacher 03).

The statement "Through the study of geography, I share my knowledge about the environment with my friends" had a (M =2.96, SD = 1.165). This indicated a disagreement with the statement which reveals that students' commitment to spreading the mandate of environmental education is low. The views of teachers rather indicated a contrast as they were asked how often or rarely, they share their knowledge about the environment to their friends.

"I don't normally share my knowledge apart from the classes I teach geography" (Teacher 06).

Furthermore, the statement "Through the study of geography, I am exposed to read books about environmental issues apart from geography textbooks" a (M = 3.09, SD = 1.206). This finding shows that a high number of students are exposed to environmental issues apart from the geography textbooks. The views of teachers support this claim. Teachers' responses indicated that they are exposed to newspapers, and the media, in general, to be updated about the environment. Teacher 01 indicates that:

"Yes. I go beyond what I teach in the classroom. I watch National Geographic on TV. The Bible exposes me to environmental issues and apart from the bible. news and magazines throw more light about environmental issues" (Teacher 01)

Again, the statement "Through the study of geography, I take part in clean-up campaigns" recorded a (M = 2.77, SD = 1.195). This represented a low turnout of students taking part in clean-up campaigns. This further indicates the concentration on the accumulation of knowledge for examination purposes instead an added need to participate in clean-up campaigns. The teachers were asked how frequently they took part in clean-up campaigns. The responses were not far away from the perceived claim of the students.

Teacher 01 said that:

"Almost every weekend, as a housemaster, I'm environmentally conscious of the school as I engage in clean-up campaigns in the school" (Teacher 01)

Lastly, the statements "Through the study of geography, I am a member of an environmental group" and "Through the study of geography, I take part in any environmental NGO activities" yielded a (M = 2.27, SD =1.069; M = 2.32, SD = 1.111) respectively. This indicates that small number of students happened to be part of any environmental groups in their schools and hence participated in environmental group activities. Regarding geography teachers' association to any environmental group and activities, some happened to be part of the GGTA (Ghana Geography Teachers Association) where they go for conferences and seminars about the environment. Others were just part of the tourism group and Ghana Wildlife Society. Some comments are as follows:

Teacher 07 said:

"I happen to part of the GGTA and GGA societies. We attend conferences where teachers are imparted with knowledge about environmental protection. Though these groups and societies have made impacts, a lot needs to be done. In my school, there is a geographical association" (Teacher 07).

Generally, the mean of means (M = 3.10) suggests that students' level of attitude about the environment through the geography curriculum is closer to neutral as it exceeded the 3.0 mark by just a point. This therefore signify that students' level of attitude about the environment through the geography curriculum is positive yet not strong enough.

Research Hypothesis: H0: There is No Statistically Significant Difference in the Environmental Awareness of Students in Relation to Gender

The research hypothesis sought to establish whether there was a significant difference in the environmental awareness of students in relation to gender. To test the research hypothesis, an independent t-test was performed on the collected data at a significance level of 0.05. Table 3 provides a summary of the results, addressing the hypothesis that there is no statistically significant difference in students' environmental awareness based on gender.

Table 3: Difference in the environmental awareness of students in relation to gender

Gender	M	SD	t	df	ϱ
Male	2.86	.57	3.558	336	p < .001
Female	2.64	.51			

****p <.001*

The data in Table 3 shows a difference in the mean scores between male and female students, with the mean score of the male students exceeding the mean score of the female students by 0.22. To determine if this difference was statistically significant, an independent t-test was performed. Levene's test for equality of variances confirmed that the variances between the two groups were equal (F = 0.669, p = 0.414), fulfilling the assumption of equal variances. The results showed that male students had a significantly higher level of environmental awareness (M = 2.86, SD = .57) than female students (M = 2.64, SD = .51), as indicated by the t-test (t = 3.558, df = 336, p < .001). Hence, the null hypothesis was not supported. The results suggest that male students exhibit significantly higher levels of environmental awareness compared to female students. This indicates a statistically significant difference in environmental awareness between genders.

Research Hypothesis: H0: There is No Statistically Significant Difference in the Environmental Attitudes of Students in Relation to Gender

The research hypothesis sought to establish whether there was a significant difference in the environmental attitude of students in relation to gender. In order to address this hypothesis, an independent sample t-test was conducted. The result of the independent sample t-test is presented in Table 4.

Table 4: Difference in the environmental attitude of students in relation to gender

Gender	M	SD	t	df	ϱ
Male	2.94	.65	-5.091	336	p < .001
Female	3.30	.63			

****p <.001*

The data in Table 4 shows a difference in the mean scores between male and female students, with the mean score of the female students exceeding the mean score of the male students by 0.36. To determine if this difference was statistically significant, an independent t-test was performed. Levene's test for equality of variances confirmed that the variances between the two groups were equal (F = 0.166, p = 0.684), fulfilling the assumption of equal variances. The results showed that female students had a significantly higher level of environmental attitude (M = 3.30, SD = .63) than male students (M = 2.94, SD = .65), as indicated by the t-test (t = -5.091, df = 336, p < .001). Therefore, the null hypothesis was not supported. The results suggest that female students exhibit significantly higher levels of environmental attitude compared to male students. This indicates a statistically significant difference in environmental attitude between genders.

Discussion

Research question one sought to investigate the extent the geography curriculum promotes the environmental awareness among students and teachers. The key findings revealed that geography curriculum promotes students' awareness about the environment by increasing their appreciation towards nature and the dangers our country is subjected to when the environment is degraded. This finding is corroborated by the findings of the findings Gümrükçüoğlu *et al.* (2017) who reported that students in Karadeniz Technical University in Turkey totally agree on the environmental awareness scale. In support, the study of Majumder (2017) testified that students with a background in the environment tend to have more awareness of the environment whilst the students with no environmental knowledge were less aware of the environment.

Research question two also sought to the extent the geography curriculum promotes the environmental attitude among students and teachers. The key findings revealed that geography curriculum promote students' awareness of the environment leading to a positive attitude concerning the environment. This finding is confirmed by Barghi *et al.* (2017) where higher awareness about the environment led to a higher attitude to the environment. Zachariou *et al.* (2017) also affirm to this finding. Their study revealed that knowledge and information may lead to increased teacher sensitivity, as well as student and future citizen participation in actions that will provide them with the means to improve their attitude toward the environment. However, the study of Arshad *et al.* (2020) revealed otherwise. Their findings revealed that their attitudes were quite low. On the subject of environmental attitude, a mean of 2.95 was reported which was not encouraging and hence it demonstrated a negative effect on environmental behaviour.

The research hypothesis sought to establish whether there was a significant difference in the environmental awareness of students in relation to gender. The findings

revealed that there is a difference between male and female geography students in relation to environmental awareness (M = 2.86, SD = .57) than female students (M = 2.64, SD = .51), as indicated by the t-test (t = 3.558, df = 336, p < .001). The study results were not similar to those of some studies by Bozoglu, *et al.* (2016) which concluded that gender had very high impacts on the environmental awareness and behaviors of the students in question. It was revealed that female students were more interested in environmental issues and their likelihood of high environmental awareness and behaviors were higher by 16.8% and 9.4% than male students, respectively. Additionally, the study by Ramesh and Barithi (2016) revealed that though the population studied is just moderate, the gender difference is explicit with male securing moderate level of environmental awareness, while the females recording higher level which is convincingly confirmed in the differential analysis (M = 18.40, SD = 3.82) than male students (M = 17.30, SD = 3.51), as indicated by the t-test (t = 2.80, df = 348, p < .000).

The research hypothesis again sought to establish whether there was a significant difference in the environmental attitude of students in relation to gender. The findings revealed that there is difference between male and female geography students in relation to environmental attitude (M = 3.30, SD = .63) than male students (M = 2.94, SD = .65), as indicated by the t-test (t = -5.091, df = 336, p < .001). This finding is corroborated by Zachariou, *et al.* (2020) who steered a study to explore the attitudes of secondary education students towards environmental problems and environmental education. There were also gender and educational background-related differences in the views and attitudes of students towards environmental education: the girls had a more positive attitude towards environmental education than the boys. In contrast of this, Varoglu *et al.* (2018) also corroborate studies about the influence of gender on the environmental knowledge, attitude and behavior. Similar with our result, gender neither effective variable on the environmental knowledge, attitude nor behaviour. Seid (2017), however, the independent T-test showed that, there was no significant difference in score of environmental attitudes among respondents who had and didn't have access of environmental information (t(328) =1.736,P>0.05).

CONCLUSION

The findings of the study and the reflections from literature reveals that geography curriculum promote students' awareness about the environment by increasing their appreciation towards nature and also the environment. It can be concluded that knowledge of the geography curriculum leads to heightened environmental awareness and further proves that geography education in SHS continues to serve as a crucial fulcrum where many environmental system dynamics are conveyed, appropriate skills are imparted, and attitudes and beliefs are shaped in the appropriate frameworks required to bring about change in human attitude and behaviour. Moreover, the findings and literature also suggest that the geography curriculum promotes students' awareness of the environment, leading to a positive attitude toward it. This particular trend of the response suggests that the knowledge of the geography curriculum leads to high environmental awareness, leading to a high attitude toward the environment.

Again, the findings revealed that there is no difference between male and female geography students in relation to environmental awareness. The fact that there are no differences in the environmental awareness of students' scores signify that both male and female exhibit equal consciousness of the environmental sensitivities.

Nevertheless, the findings revealed that there is difference between male and female geography students in relation to environmental attitude. This signifies that there was differences in the environmental attitude of students' scores. With the female attitude higher than the males; it signifies with literature about the empathy of females toward the environment. whiles males exhibit strong knowledge and awareness toward the environment, females' actions and reaction towards the environment exceeds that of the males.

Recommendations for Policy Direction and Practice

In view of the above conclusions, the following recommendations could be considered. It is recommended that students and teachers alike are encouraged to convert their awareness of the environment into pro environmental behaviours. Through the services of the Ghana Education Service (GES) and the National Council for Curriculum and Assessment (NaCCA), an experiential learning component in the curriculum is encouraged. Geography teachers should be well equipped to place less emphasis on theoretical information and more on practical and connected activities based on the natural environment. Hence, field excursions, projects, cooperative learning, forums, case studies, audio and visual simulations, brainstorming are encouraged in teaching and learning process.

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