

# ISSUES ARISING FROM ENVIRONMENTAL EDUCATION IN SECONDARY SCHOOLS: THE CASE OF BOGOSO, GHANA

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## Abstract

*This research investigated the nature of environmental education in school and the issues that arise from it. A semi-structured questionnaire was used to collect data from 457 students from a secondary school in Bogoso - a mining community in the Western Region of Ghana. The data were then analyzed using SPSS 12.0 but, was presented using percentages. The results of the study showed that the students were aware of environmental problems in their communities; nevertheless, only the majority agreed that change in attitudes and lifestyles were necessary to preserve the environment. Fortunately, most of the students were willing to tackle environmental problems and indicated that environmental education is essential to the development of the right value systems and cultural practices that will preserve the environment for future generations. It was recommended that environmental education in Ghanaian schools should stress change in attitudes and lifestyles on the part of students so that they will see environmental protection as a responsibility rather than as a burden.*

## Introduction

Environmental education gained recognition when the United Nations' (UN) Conference on Human and the Environment held in Stockholm, Sweden, in 1972 declared environmental education as a tool for addressing global environmental problems (Stockholm Declaration on the Human Environment, 1972). The United Nations' Education Scientific and Cultural Organization (UNESCO) and the United Nations' Environment Programme (UNEP) also created three major declarations which guided Environmental Education (EE). These were the: Stockholm Declaration (1972) which released a document meant to inspire and guide peoples the world over in the preservation and enhancement of the human environment; Belgrade Charter (1975) which added the goals, objectives, and principles that should guide EE programmes; and the Tbilisi Declaration (1977) which noted in unanimous accord the important role played by EE in the preservation and improvement of the world's environment as well as in the sound and balanced development of the world's communities (Wikipedia; Al-Rabaani and Al-Mekhlafi 2009).

Land and water degradation, population growth and its associated problems of high energy consumption and air pollution, water pollution and continuous decline in biodiversity through land clearing, habitat fragmentation and the introduction of pest species to terrestrial and marine ecosystems should be a major concern for all (Australian Department of Environment and Heritage ADEH, 2005). This is because global issues (e.g. global warming, green house effect and ecological footprint calculations which show that our present environment is unsustainable in the long term) call for measures that will ensure that current generations use the earth but do not diminish the quality of it or reduce its capacity for future generations.

Ghana, like many countries across the world is faced with environmental problems. For instance, the country is faced with the challenge of how to use the earth sustainably. The spread of plastic materials on streets, water bodies and in gutters is a common place. People



throw wastes anywhere at anytime without any remorse and this is done by old and the young alike. Many are the natural assets destroyed by the dumping of refuse – wetlands, water bodies, drainages and valleys. Besides, the scene created by such refuse is an eyesore and the pungent smell that emanates from these can be very sickening. Moreover, thousands of Ghana Cedis that could have been gained from the tourism sector are lost; instead, these monies are spent on preventing and controlling environmentally related diseases. Nevertheless, this is not to say nothing is being done about these problems. Indeed, a significant amount of progress has been made in the area of sustainable environmental management. However, individual lifestyle and attitude towards the environment have remained a big challenge.

No wonder, the Government of Ghana, following the above declarations, integrated environmental education into the curricula of schools at the pre-university levels so that upcoming generations can reverse the trend. Indeed, EE has been ongoing in Ghanaian schools for sometime now and pragmatically, there was the need to assess its impact on students; as if weighing it on the scales of action and consequence (Dewey, 1984). The aim of this research therefore, was to examine the nature of EE in schools and its implications. The following areas were examined: students' level of knowledge in local environmental issues, perception of EE and how such knowledge has affected students' actions and attitudes toward the environment.

The study adopted a case study approach and the data collected using structured-questionnaires was analyzed using the Statistical Package for the Social Sciences (SPSS 12.0). The results were presented using descriptive statistics (frequencies & percentages).

The study was guided by the following research questions:

1. What do students know about local environmental issues in the study area?
2. What is the nature of environmental education in the school?
3. What has been the effect of environmental education on students?

This research is important because it hopes to find out how the appropriate understanding, attitudes, skills, values and the willingness to applying environmental knowledge can be developed in students so that they will become informed and active participants in addressing environmental problems in Ghana. Also, since the effect of environmental problems affects all, there is the need to develop in students appropriate commitments so that all can work collaboratively with others to improve the wellbeing of the human race and the environment for future generations.

## **Literature Review**

Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and bio-physical surroundings. It also entails practices in decision making and self-formulation of the code of behaviour about issues for the conservation of natural resources (The International Union for the conservation of nature and natural resources, IUCN, 1970). Environmental education has also been used to describe the learning process that: increases people's knowledge and awareness about the environment and the associated challenges; develops in people the necessary skills and expertise needed to address environmental challenges; and fosters the development of attitudes, motivations, and commitments in people who make informed decisions and take responsible action about the environment (UNESCO, Tbilisi Declaration, 1978). Even though the term is often used to imply education within the school system, it is sometimes used more broadly to include all efforts to educate the public and other audiences, including print materials, websites, media campaigns etc.



The objective of EE is to increase public awareness of environmental problems and their possible solutions so as to lay the foundation for individuals to be fully informed and actively involved in the protection of the environment through prudent and rational use of the earth. According to the Australian Department of Environment and Heritage, ADEH (2005), EE is guided by the following general principles:

- the earth is a common inheritance of mankind,
- it is a common duty of mankind to protect and improve the quality of the environment as a way of protecting human health and maintaining the ecological balance,
- The behaviour of each individual contributes to the protection of the environment.

Environmental education should be a continuous, lifelong process beginning at the pre-school level and continuing through all stages and should be inter-disciplinary; examining major environmental issues from local, national and international perspective. According to ADEH, (2005), the objective of integrating EE into the curricula of schools is to instill in students the willingness:

- to examine and change personal lifestyles to secure a sustainable future;
- to challenge preconceived ideas, accept change and acknowledge uncertainty;
- and the ability to identify, investigate, evaluate and undertake appropriate action to maintain, protect and enhance local and global environments;
- and the ability to work cooperatively and in partnership with others on environmental issues.

Practical activities and first-hand experience are stressed. One of the current trends within EE is that it seeks to move from an approach of ideology and activism to one that allows students to make informed decisions and take action based on experience as well as on data. Within this process, environmental curricula have progressively been integrated into governmental education standards. Others have argued for outdoor education which means learning "in" and "for" the outdoors. This involves curriculum extension and enrichment through outdoor experiences (Hammerman, 1980). Thus, EE is often taught or enhanced through outdoor experiences. The out of doors experience, while not strictly environmental in nature, often contains elements of teaching about the environment. Silberstein (1981) found that education has a positive effect on student attitudes, though other studies showed no such relationship exists (Al-Najede, 1990; Lyons and Breakwell, 1994). Other studies (Dunlap, Gallup and Gallup, 1993 & Dunlap, and Van Liere, 1978) have found that 50% of their participants wanted the environment to be given priority, even if it led to a slowdown of economic growth. Additionally, over 50% expressed their willingness to pay more to improve the quality of the environment. Hines, Hugerford and Tomera, (1986) concluded that environmental behaviour was affected by many factors including knowledge, attitudes, verbal commitment and a sense of personal responsibility. In another study, Al-Rabaani and Al-Mekhlafi (2009) concluded that, despite the high level of concern expressed by students over environmental problems, their willingness to act towards the alleviation of those problems varied.

## Methodology

The population accessed for the research was all students at different year groups studying at Bogoso Secondary School – the only secondary school in the study area. Secondary school students were preferred because, they are quite mature to understand, appreciate and influence decisions geared towards solving environmental problems present in the community. The students were selected using stratified random sampling techniques. The



entire population of the student body was divided into three strata: first, second and third year students. Ratios were then used to determine the number of students to be selected from each year group so that the total number of students selected would represent 50% of the entire student population. The determined number of students from each year group was randomly selected in proportion to the number of males and females in each year group so as to form the total number of participants for the research.

The study used a case study approach. Case studies are especially, useful in understanding the dynamics present within a single setting (Yin, 1994; Eisenhardt, 1989). The study used of a five-point Likert scale; ranging from strongly agree to strongly disagree to collect data from the students based on the following themes: environmental problems in the area, EE in schools, and its influence on students' attitude and action toward environmental issues. The main reason for choosing the Likert-type scale was its ease of use and straightforward quality check. Besides, the construct attitude is considered a latent dimension i.e. it is not directly and immediately observable. Hence the scale proved more appropriate because it allowed the responses to be put in a continuum ranging from strongly agree to strongly disagree. In fact, a single response approach would not have been appropriate because it would have assumed that all responses are unequivocally the same (Spooren, 2007). The instrument was piloted to ensure its validity.

Results

The research involved a total of 457 respondents. The males constituted 73.4% while the females formed 26.6%. A total of 171 first year students constituting 38%, 175 second year students forming 34% and 129 final year students constituting 28% participated in the research (Table 1).

Table 1: Demography of Respondents

Respondent	Males	Females	Total	%
First years	125	46	171	37.4
Second years	117	41	157	34.4
Third years	94	35	129	28.2
Total	335	122	457	100.00

Source: Field survey

Students' Perceptions of Environmental Problems in the Community

The research first of all sought to find out from students the extent to which they were conscious of environmental problems in the study area. Interestingly, almost all the students (96%) agreed that mining in the study area had damaged the environment. In fact, the students were aware that the destruction of vegetation because of mining activities had: led to loss of soil fertility (77%), destroyed wildlife habitat (84%) and affected plants and animals (77%). Many of them (89%) also shared the view that mining activities adversely affected the health of people living in mining communities. the majority (50%) further indicated that mining results in poverty. However, 31% disagreed with the statement and 15% were undecided. Of course, livelihoods (farming, hunting, fishing etc.) had been destroyed as the productive land had been used for mining and water sources had been polluted.

Table 2: Students' Perceptions of Environmental Problems in the Community

Item	SA	A	U	D	SD
Mining activities have damaged the environment	81	15	0	4	0
Destruction of vegetation has led to loss of soil fertility	58	19	0	12	11
Wildlife habitat has been destroyed because of mining	73	11	4	8	4
Destruction of vegetation has affected plants and animals	35	42	0	8	15



The impact of mining on human health has been devastating	58	31	4	7	0
Environmental degradation has resulted in poverty	31	19	15	31	4
Environmental problems are politically oriented	31	8	23	15	23
Environmental problems are solved by creating political awareness	19	11	46	23	0

**Source:** Field survey

Even though 39% indicated that environmental problems are politically oriented, a similar number constituting 38% did not agree with them. What is more, 23% were undecided about the issue. Similarly, views on whether environmental problems should be solved politically were quite varied. For instance, while 46% could not categorically state that the solution lies with politicians; 23% specifically stated that the solution did not lie with politicians. In contrast, 21% of them were of the view that environmental problems could be solved politically (Table 2).

### Students' Perception of Environmental Education at School

The research further sought from students their perception of EE at school and the results are presented on Table 3. Many of the students constituting 88% indicated that environmental issues evident in a particular area should form the content of the environmental programme taught at the school. For instance, in the study area the impact of mining activities on the environment was glaring and hence 79% of the students agreed that the environmental impact of mining should be part of the EE programme taught at their school. Since environmental problems and their solution affected and involved all respectively, almost all the students (96%) mentioned that EE should be given at all educational levels in Ghana (from nursery to university) so that individuals would be well informed even in their formative years.

Majority of the students (61%) were also of the view that apart from the local environmental knowledge given to students, there was the need to engage students in environmental improvement and maintenance activities in their immediate communities in order to develop in them the relevant skills and attitudes needed to preserve the environment for future generations. On the issue of how EE should impact on locally environmentally unfriendly cultural practices and value systems, the majority of the students mentioned that EE should help students to modify cultural practices (54%) and value systems (42%) that impact negatively on the environment. Unfortunately, 31% and 46% of the students respectively remained indifferent about the issue (Table 3).

**Table 3: Students' Perception of Environmental Education in Schools**

Item	SA	A	U	D	SD
I should be educated on local environmental problems	54	34	4	4	4
I should be educated on problems caused by mining	46	23	15	12	4
EE should be taught at all educational levels	31	65	0	0	4
EE should involve environmental maintenance/improvement activities	50	11	27	8	4
EE should help modify environmentally unfriendly cultural practices	35	19	31	11	4
EE should enhance our value systems to be environmentally friendly	0	42	46	8	0

**Source:** Field survey

### The Effect of EE on Students' Attitude towards Environmental Education

The research finally sought the effect of EE on the students. The study showed that 50% of the respondents were of the view that attitudinal change was necessary to preserve the environment; however, 35% of them thought otherwise and 15% could not decide on the issue. Also, while 44% agreed that a positive change in human attitude today towards the environment would improve the environment for future generations, others (42%) indicated



that was not necessary though 4% were indifferent about it. Similarly, 54% agreed that change in behaviour and lifestyle were necessary for sustaining the earth.

**Table 4: The Effect of EE on Students Attitude towards Environmental Education**

Item	SA	A	U	D	SD
Attitudinal change is necessary to preserve the environment	31	19	15	31	4
A change in human attitude affects future generations	39	15	4	39	3
Sustainability requires changes in behaviour and lifestyles	39	15	42	0	4
EE has positively affected my attitude towards environment	50	27	12	4	7
EE has helped me not to destroy the environment	69	19	4	8	0
I will develop an environmentally responsible behaviour	46	31	11	8	4

**Source:** Field survey

As much as 42% of the students remained indecisive about this issue. Interestingly, however, many (77%) of the students shared the view that EE had helped them to develop a positive attitude towards the environment and not to engage in activities that may destroy the earth. It was important to note that many (77%) were willing to develop a responsible behaviour toward the environment and issues associated with it (Table 4)

### Discussion

The purpose of this research was to examine the nature of environmental education in the selected secondary school, its impact on students’ attitudes and actions toward the environment and the issues that would arise from the research. The following three areas were specifically investigated: students’ level of awareness about local environmental issues, their perception of EE and its impact on them. From the findings, two major issues cropped up: what should constitute EE in schools and how EE should be used to influence students’ attitudes and actions towards the earth.

Indeed, one of the most significant findings of this study was the fact that environmental issues in a particular area should form the basis of EE programmes in school. This is an important issue that needs immediate redress because; environmental problems in Ghana vary in extent and nature from area to area and may require different attitudes and actions from individuals. Unfortunately most Ghanaian schools tend to follow a rigid national curriculum irrespective of the peculiar environmental issues in their respective areas. Consequently, the need to localize EE can not be over emphasized. When this is done, it would positively affect students’ attitudes and actions toward their immediate environment and by extension the earth (Silberstein, 1981) so that little by little national and international environmental problems would be addressed and improved.

Worth considering also is the effect of EE on students’ attitudes and actions towards the environment. Fortunately, majority of the students indicated that change in attitudes and lifestyles were necessary to preserve the environment for future generations. Also as many as 77% of the students were willing to develop environmentally responsible behaviours. These findings give gleams of hope for the earth and are quite significant especially the latter. Additionally, the findings are consistent with earlier findings of Dunlap, Gallup and Gallup, (1993) and Dunlap, and Van Liere, (1978) who found that half of their participants were willing to even pay more in order to improve environmental quality. Similarly, Al-Rabaani and Al-Mekhlafi (2009) argue that despite the high level of concern expressed by the students over environmental problems, their willingness to act towards the alleviation of those problems varied. These notwithstanding, the concern that readily comes to mind is how such willingness could be guided into actions that would improve and maintain the earth for future generations.

This brings us to the next issue of how to positively influence students’ attitudes towards the earth through EE. Two of the aims of EE in schools, according to ADEH (2005)



are: to develop in students the ability to identify, investigate, evaluate and undertake appropriate action to maintain, protect and enhance local and global environments; and to be able to work cooperatively and in partnership with others on environmental issues. This brings to bear the argument of Hammerman (1980) who supports 'outdoor education' which involves curriculum extension and enrichment through outdoor experiences. It is sad to say that EE in schools is often theoretical and students are not helped to see the practical value of what they are learning. Indeed, when students are made to engage in physical activities geared towards sustaining the earth such as clean up exercises, touring of damaged earth parts and personal environmental projects; their knowledge and awareness about the environmental problems would be increased and they would be able to develop the necessary skills, expertise, attitudes, motivations, and commitments needed to address environmental challenges (UNESCO, Tbilisi Declaration, 1978). This will go a long way to assist students to see protecting the earth more as responsibility than an optional exercise.

## Conclusion

From the research findings and the discussions it can be concluded that EE is perceived as a useful tool in solving local environmental issues at all levels of pre-university education. Also EE should build on the willingness of students to change in order to protect the earth for future generations by engaging them in practically oriented environmental improvement activities that will help them to appreciate practical value of EE in schools.

## Implications for Teaching

Based on the findings of the study, the following recommendations are made:

- Local environmental issues should form part of the EE programme in local schools.
- Students should regularly be engaged in environmental improvement and maintenance initiatives in their schools and communities.
- Students should be encouraged to solve environmental problems in their immediate communities rather than expect politicians to do so.

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