

**TEACHABILITY OF ENVIRONMENTAL EDUCATION IN POST SECONDARY  
SCHOOL IN NIGERIA, A CASE OF CALABAR MUNICIPALITY CROSS  
RIVER STATE**

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**ABSTRACT**

The purpose of this study was to explore how teachability of environmental education relates to students environmental morality in post public senior secondary schools Nigeria, a case study of Calabar Municipal of Cross River State. The need of this study was born out of the situation where conservation and positive environmental behaviour, such as the beautification of residences and establishments through planting of flowers and proper landscaping, is considered by students as a discipline above their level. Students in this level view positive conservation behaviour as a responsibility of government agencies and NGOs, and not as a contributory obligation that involved all persons, including students at the post primary school level of education. This situation is believed to be rooted in the lack of conservation education, which is breeds lack of value for the environment. To achieve the aim of this study, one hypothesis was generated from the research questions to direct the study. Literature review of both theoretical and empirical studies was done based on the study under consideration. Ex-post facto design was used hence the researchers had no control and manipulation over the independent variable at the time of investigation. A total of three hundred (300) sample of respondents (students) from thirteen (13) post public senior secondary schools, comprising one hundred and fifty-seven (157) females and one hundred and forty-four (144) males were used for the study. Questionnaire was administered, containing fifteen (15) items. Data were collected, scored, coded and analysed using Pearson product moment correlation coefficient analysis at 0.05 level of significance. The result of the finding revealed that there is a significant relationship between teachability of environmental education and students' environmental morality in Nigerian post primary schools. Based on this finding, it was recommended among others that there should develop conservation education curriculum as a subject matter in post-secondary schools in Nigeria for effective teaching about the nature of environment.

**Keyword:** Concept of teachability, teachability of environmental education and students' environmental morality.

## Introduction

In every formal and non-formal setting; teaching is very essential; hence it involves an instrument, technique, or tool for motivating, facilitating, promoting, improving and enhancing knowledge acquisition in learning environment. Environment includes the natural and the physical world which encompasses the political, social and economic aspects of our earth (Stevenson, 2007). Based on the nature of the environment it is imperative that students in the post-secondary schools learn how the environment works and operates and how they can play an active role in environmentalism. In addition, it's important that the ministry of education in Nigeria and curriculum development experts should show a more proactive concern for the physical environment and its relationship to the socio-cultural environment through the school system by the inclusion of conservation education as an active teaching and learning area to motivate, enhance and encourage students' appreciation for nature and the physical environment. Individual obligation to environmental and conservation practices through the tending and nurturing of plants and animals contribute to beauty and healthy living for humans, as well as a sustainable environment.

According to UNESCO (2014b) the United Nations has proclaimed 2005-2014 of Education for Sustainable Development (ESD) with the overall goal of integrating the principles, values and practices of sustainable development into all aspects of education and learning. Chawla and Cushing (2007) notes that certain conditions have to be met... conditions that some students maybe lacking in order to foster responsible environmental behaviour. One of these conditions is environmental and conservation education.

Environmental education involves the teaching about the natural and physical environment; how it operates or functions and how humans, including students can contribute to the conservation of the environment (Powers, 2004). This is because environmental education is rooted in all subjects as a multi-disciplinary approach. It therefore, becomes a program intended to lead to environmental suitability by its policies and practices as is fit for life for all people in the global community. In order for students to demonstrate environmentally responsible behaviour, they need a fundamental knowledge-base of environmental issues. Hence education is concerned with morality and change of human behaviour; teachers impart moral values geared towards improving the behaviour of individual students in the post-secondary school about the nature of environment. Some teachers can devote enough time with emphasis on environment and ecological concepts in the classroom, and can afford to devote precious time to field trips. Teachers who are determined to make global education a priority have plenty of opportunities to do so. If teachers believe in a particular pedagogical approach, they will use it, or that those who are motivated and passionate about the environment will take on environmental education as a subject matter. Environmental education aims for behaviour modification and offers disconnected activities in the place of opportunities for autonomy and critical analysis (Ontario Ministry of Education 2007 p.4). Environmental education is to have students be prepared with knowledge, skills, perspectives and practices they need to be environmentally responsible citizens. Students will understand the fundamental connections to each other, and the world around them through relationship to food, water,

energy, air, and land and our interaction to living thing (Ontario Ministry of Education 2007 p.4).

Most importantly, it is educational system that provide opportunities for students within the classroom to understand and participate in actions about the nature of environment around them. Good lessons are being taught and conveying messages or information on students about what more can be done and should be done as an individual on what environmental impact is the consequence in the society. This will help students to carry out what they have learned in classroom to places beyond. Chawla and Cushing (2007) explain: "In a much cited article, Hungerford and Volk (1990) that environmental educators (teachers) typically assumed that if they simply impart knowledge to students, responsible action will follow as they will acquire knowledge and skills to participate as responsible citizens of local, national and global level, caring for each other, and all other living things education system will fulfill its critical role in both delivering effective environmental education, and modeling environmentally responsible practices in students".

## **Literature review**

### **Concept of teachability**

According to Erukoha (2010:208) "Teachability is a concept which derives its existence from teaching". Hence teaching is a situation where knowledge, attitude, behaviour, values and skills are imparted on the group of students or learners who have limited knowledge on a particular discipline. It is important to note that the rationale of teaching a group of people is that what they are taught should show evidence in them to a varying degree.

Mullola, Ravaja, Lipsanen, Hirstiosnellman, Alatupe and Keltikangas-Jarvien (2010:214) affirmed that "the concept of teachability which reflects the teacher's view of the attributes of model student, and is affected by certain primary factors consisting of temperamental dimension". However, the reality of good quality education is that we must help all students achieve better learning competence and that can sometimes be a challenge. The teachers' view about students is extremely important, because it contributes both to the instructional decisions and teachers' expectations for students. These views extend well beyond student's cognitive abilities, and they are seen as student's educational competence.

Bell and Osunde (2001) asserts that "teachability" is a speculative concept that has for its form and content the absolute, suggesting that its dialectical movement and speculative significance are misrecognized when the illusionary nature of its constitutive moments is suppressed. Teaching involves learning and learning implies a change of behaviour as a result of teachability. On the contrary a teacher can teach without affecting learning, meaning what teacher taught was not teachable or not learnable.

### **Teachability of environmental education**

According to Erukoha (2010:208) "teachability of environmental education presents both linguistic and concept analysis of problems". Since environmental education is an attempt to teach people about the problems created by man in the environment in his attempt to exploit the scarce resources available in that environment; thus, resulting in deforestation, pollution, desertification, emergency animal species etc. (p.209). Tan and Pedretti (2010)

notes that environmental education refers to organized efforts to teach how natural environments function and particularly, how human beings can manage behaviour and ecosystems to live sustainably. It is a multi-disciplinary field integrating disciplines such as biology, chemistry, physics, ecology, earth science, atmospheric science, mathematics and geography. The term often implies education within the school system, from primary to post-secondary.

Chawla and Cushing (2007) contended that environmental education (EE) is the teaching of individuals, and communities, in transitioning to a society that is knowledgeable of the environment and its associated problems, aware of the solutions to these problems and motivated to solve them. While UNESCO (2014a) states that EE is vital on imparting on inherent respect for nature amongst society and in enhancing public environmental awareness. They emphasize the role of EE in safeguarding future global developments of societal quality of life through the protection of the environment, eradicating of poverty, minimization of inequalities and insurance of sustainable development.

Chawala and Cushing (2007) explained that EE will provide a rich context for learning that engages all students in applying their knowledge and skills to real world situations through integrated approach, based on the environmental and sustainability concepts found in all relevant subject areas. Such a context will combine classroom learning with experiential learning, and provide opportunities to interact with, develop care and concern for, and take action in the places students live, study and play. Schweisfurth (2006) also stressed that EE will provide connections between the curriculum and the world around us, allow students to directly observe impacts and issues, and expose students to the many points of view that must be considered in making choices to preserve the health of our environment. Chawla and Cushing (2007) emphasized that EE will draw on effective learning strategies ... including inquiry, problem solving, critical thinking, and assessing alternatives ... that engage students personally in their own learning, connect them to the world they live in, and give them the systems thinking and future thinking they will need to become discerning, active citizens.

According to Ontario Ministry of Education Toronto (2007) how students construct meanings for environmentalism is shaped by the Ministry of Education policy. When policy is weak or lacking, gaps exist that need to be filled as a result of varied policy and curriculum changes and the clear lack of guidance by the ministry regarding Environmental Education (EE). Based on this modification of curriculum over the years, a gap exist, with many students not learning a minimal amount of EE in secondary schools. With a deficiency in the school system, combined with an arguably societal craze in environmentalism, students attempt to fill this gap on their own, often through means outside the formal setting.

In the study of Powers (2014) on the concept of environmental education being taught in the science and Geography Curricular Questionnaires were developed based on guidelines and expectations of the environmental sciences course, and sent to many science and geography teachers around the province of Toronto. The study indicate the failure of the infusion model for environmental education. It was determined that very little time was

spent on the environmental concepts taken from the environmental science curricular and integrated into the science and geography courses. Teachers indicated a lack of time and emphasis on environmental and ecological concepts in the current curriculum guidelines as being a key factor in this lack of education.

Puk and Behum (2003:225) further emphasized that there is very little Environmental Science in the new Ontario secondary science guidelines, and without a strong focus on ecological concepts, teachers most likely feel they must cover the main science concepts like biology, chemistry and physics, and cannot afford to devote precious time to field trips for the small percentage of environmental concepts that exist in the guidelines. They also concluded that there was a lack of teacher training and preparation for teaching of environmental education.

Schweisfurth (2006) found that teachers who are determined to make global education a priority have found that the new Ontario curriculum guidelines gave them plenty of opportunities to do so. His still emphasis on critical engagement with global issues in the curriculum may not be explicit; the curriculum creates the space for teachers to control the process themselves without actually encouraging them to do so (P.14). Without a doubt, the environment is a global issue, and those teachers who took advantage of this space to control processes were unusual among their colleagues; and were highly motivated, and had some sort of support to engage in issues they felt important.

Arguably by Schweisfurth (2007) that the current Ontario curriculum does in fact allow for expansion into realms of education not necessarily stated in the documents such as environmental education. Expectations in the curriculum are in fact, broad enough to allow teachers the freedom to expand on certain topics of interest. This requires that a teacher have an interest in the topic; acquire the expertise and understanding to teach the subject; and have the desire, passion, and means to expand upon it in the classroom. Ontario Ministry of Education (2007) added that environmentally related expectations' in the curriculum are embedded in compulsory courses in grade nine and ten science and geography. After grade ten, schools may or may not offer elective environmentally related courses.

According to Anijah-Obi (2001) environmental education is the systematic process of creating awareness about the associated problems on the environment and developing skills and attitude towards sustainable development for the present without compromising the needs of the future generation. However, it is a teacher who inculcate this attitude, knowledge, skills, values to a group of individuals or students in the classroom or outside classroom learning environment which has to do with motivations, commitment, and participation to work collectively or individually towards the solution of the current problems and the preservation of the new ones.

### **Environmental morality**

Environment is the threatre of all human activities, be they social, economic, political, cultural or religious, or even technological that result to the effect of physical disaster (Ntia, 2010) like biodiversity loss, deforestation, pollution, over population, erosion etc. This

calls for a change of attitude and display of some morality in our daily encounter with the environment.

Falikoski (1998) opined that morality implies behaviour which are either acceptable or non-acceptable in the society. Also, it is a behaviour which has ability to distinguish between right and wrong. Therefore, the success of environmental education revolves around ethical re-orientation, the degree of values and the type of morality displayed in our daily encounter with biosphere (Emorgbe 2002). In addition, Ntia (2010) notes that there are certain environmental problems which are global, and others that are localized, therefore moral values should be capable of encouraging people to be lenient to the environment. He further suggested that it is the effort of environmental educators (teachers) to salvage our planet earth which are predicted on sound moral judgment and values to be transmitted not only to those in to all within the environment (P.122).

According to Peters (1966) in Ntia (2010) for “a process to be educational, it must be morally acceptable, and can adduce that education implies that something worth-while is being or has been intentionally transmitted in a morally acceptable manner” (P.122). Erukoha (2010) sees behaviour control model or modification in teaching as primarily classroom management. Teaching is a process of controlling the behaviour of students as well as the conditions of learning environment to determine whether the activities have been learnt. “The teacher of environmental education must always ensure that whenever a change occurs in the beliefs and behaviour of students, the change is purely out of conviction based on reason” (Erukoha, 2010. P.214) for instance, a student who is convinced about the necessity of conserving some plant and animal species will not destroy them if he is living in an environment where they are conserved. The student’s conviction drives him to value those species without being forced by laws to value them.

Ontario Ministry of Education (2007) contended that effective way of teaching environmental education is through rational model because it involves reasoning in value classification where a teacher uses environmental issues for the students to decide what is right or wrong. The teacher may never be in a position to enforce compliance, rather the students’ attitudes and behaviour toward environmental problems may be more positive if the students perceive the teacher as being strongly committed and participating in solving environmental issues. This method places both teachers and students in the better position to appreciate environmental problems and develop positive attitude towards solving such problems.

Based on the literature review, it is apparent that teaching involves a gradual process or situation where group of individuals or students are imparted with knowledge, skills and attitude by the teacher presumably lacking in such an area. Hence environmental education is also part of teaching people the right values, attitude, skills, motivation, participation and commitment to work individually or collectively towards solving the current environmental problems and presentation of the new ones.

It is observed that teachability of environmental education reflects the teachers view of the attributes of teaching models of behaviour control and nationality. These involve resolving in moral values classification of students deciding what is right or wrong towards environmental resources.

## **Methodology**

This study adopted ex post facto design in order to get information from the target population through administration of questionnaires. Hence the researcher has no control over the independent variables. The accessible population which the researchers believes typified and reasonably represented the target population consisted of all the public senior secondary school students in Calabar Municipality of Cross River State, Nigeria. A simple random sampling technique was adopted with a total of thirteen (13) secondary schools. A sample size of hundred (300) respondents from senior secondary school was used disregarding one hundred and fifty seven (157) females and one hundred and forty four (144) males for the study.

The research instrument which was the questionnaire comprised fifteen (15) items of question with a four-point Likert scale option was used for data collection.

The questionnaire items were validated by two experts in test and measurement and evaluation as well as educational administration in the faculty of education. They both certified that the entire instrument was suitable for measuring what it was supposed to measure and then be used for the study. To establish the reliability of the instrument, a trial testing was done using forty (40) students from public senior secondary which Calabar Municipality in Cross River State. Questionnaire was administered and analysed using Cronbach Alpha coefficient to obtained the appropriate indices of test reliability of 0.71 respectively. This indicated that the research instrument was highly reliable.

However, through a very rigorous approach, the full copies of three hundred (300) questionnaires were administered and retrieved all, giving 100% of returned rate. This was done to analyse the following hypothesis at 0.05 level of significance.

1. There is no significant relationship between teachability of environmental education and environmental moral in post-secondary schools. Pearson product moment correlation coefficient analysis was employed in testing the hypothesis.

## **Results**

The presentation is done as per the hypothesis

### **Hypothesis one**

There is no significant relationship between teachability of environmental education and environmental morality in post-secondary schools. The independent variable here is teachability of environmental education while the dependent variable is environmental morality. To determine the level of teaching of environmental education in post-secondary schools Pearson product moment correlation coefficient analysis was adopted to analysed the result which produced the summary in table 1.

**Table 1: Pearson product moment correlation analysis of the relationship between teachability of environmental education and environmental moral in post-secondary schools**

Variables	N	X	SD	r-cal
Teachability of environmental education	170	13.18	10.31	0.69
Environmental moral	130	35.76	14.07	

\*Significant at 0.05 level, critical r-0.098, df = 298

The analysed result gave a calculated r-value of 0.69 which was higher than the critical r-value of 0.098 at 0.05 level of significance with 298 degrees of freedom. Based on this result, the null hypothesis was rejected; thus, accepting the alternate. This implies that there is a significant relationship between teachability of environmental education and environmental morality of students in post-secondary schools. A further observation of the result show that the mean score for respondents with teachable teachers (X=13.18) was lower than the mean score of respondents with environmental moral (X=35.76). This means that students with environmental morality will not easily exhibit negative attitude and behaviour towards environmental resources without necessary being taught by teachers. Hence, they have the moral value, skills, commitment and participatory role for environmental sustainability as inherent in them before being taught.

**Discussion and conclusion**

It was found out in this study that teachability of environmental education significantly relate to environmental morality of students in post-secondary schools, hence the r-value of 0.69 was greater than r-critical of 0.098. This implies that teaching environmental education involves modifying people’s views, perceptions, attitudes and behaviour in such a way that they think and behave in a manner which contribute to healthy environment and sustainability. Again, it was found that the mean score value of (x=35.76 with S.D 14.67) students’ environmental morality significantly exhibit more values, care and commitment towards environmental protection, conservation and management without necessary being taught by teachers with a mean score value of (x=13.18 and S.D 10.31) teachability of environmental education.

This result infers that, for students to demonstrate environmentally responsible behaviour, they need a fundamental knowledge base of environmental issues. Hence, education is concerned with morality and change of attitudes and human behaviour through teachers who value the environment and impart since geared towards improving individual knowledge of students about the nature of the environment. In agreement to these findings Erukoha (2010:208) “Teachability of environmental education presents both linguistic and concept analysis of problems”. While Chawla and Cushing (2007) contended that EE is the teaching of individuals, and communities, in transitioning to a society that is

knowledgeable of the environment and its associated problems, aware of the solutions to these problems and motivated to solve them.

Furthermore, Chawla and Cushing (2007) explained that EE will provide a rich context for learning that engages all students in applying their knowledge and skills to real world situations through an integrated approach, based on the environmental and sustainability concepts found in all relevant subject areas. Such a context will combine. Classroom learning with experiential learning, and provide opportunities to interact with, develop learning and concern for, and take action in the places students live, study and play. Erukoha (2010:214) emphasized that “the teacher of environmental education must always ensure that whenever a change occurs in the beliefs and behaviour of students, the change is purely out of the conviction based on reasoning.

A student who is convinced about the necessity of conserving the environment will not destroy it if he/she is living in an environment where they are conserved. It is the student conviction that drives him to value species without being taught or forced by law to value the environment. This is in agreement with Ontario Ministry of Education (2007) that effective way of teaching environmental education is through rational model, because it involves reasoning in value classification where a teacher uses environmental issues for the students to decide what is right or wrong. The teacher may never be in position to enforce compliance rather the students’ attitudes and behaviour towards environmental problems maybe more positive if the student perceives the teacher as being strongly committed and participating in solving environmental issues. This method places both teachers and students on a behaviour which has ability to discern between acceptable and non-acceptable behaviour towards the environment.

Based on the findings of the study, it was concluded that the environment that provides most of our needs, must in turn be protected, preserved, conserved and managed for sustainability. This could only be done through teachability of environmental education which is capable of drawing effective learning strategies including inquiry, problem solving, critical thinking and assessing alternatives that engage students personally in their own learning and connect them to the world to be active citizens towards advocate of environmental sustainability. Teaching of EE have students prepared with skill, perspective, knowledge and practices they need to be environmentally responsible citizens.

This is the reasons why EE becomes a program intended to lead to the development of the society by its policies and practices to maintain an environment fit for all people in the global environment; this EE should be included in our post-secondary schools’ curriculum as a subject matter for effective teaching in the Nigerian secondary schools.

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