

EVALUATION OF ENVIRONMENTAL EDUCATION PROGRAMME IN NIGERIAN UNIVERSITIES

By

¹Okwara, O. K. and ²Ekele, G. E.¹Department of Science Education,
University of Agriculture, Makurdi²Department of Agricultural Education,
University of Agriculture, Makurdi.Email: okwarakalu@gmail.com**ABSTRACT**

The study evaluates the environmental education programme in Nigerian Universities. Four research questions were raised for the study. A population of one thousand two hundred (1200) was used for the study and a sample of 860 comprising 60 Environmental Education lecturers, 15 administrators and 785 Environmental Education students from five (5) Universities in three (3) geo-political zones viz; South-East, South-West, South-South were obtained using purposive sampling technique. The instrument for data collection was the questionnaire titled Evaluation of Environmental Education Questionnaire (EEQ) with forty two (42) items. The instrument was subjected to reliability test. The Cronbach-Alpha (α) coefficient was used and a reliability coefficient of the instrument was determined as 0.93. The data were analyzed using descriptive statistics (percentage (%), mean (\bar{x}), and standard deviation (STD). Findings from the study revealed that environmental education lecturers utilized the identified methods to a high extent, infrastructural facilities for Environmental Education Programme in Nigerian universities are inadequate, the recommended evaluation methods are utilized to a high extent by Environmental Education lecturers in Nigerian universities and that the mean students achievement scores in Environmental Education Programme in Nigerian universities were fairly high but not consistent. Findings from the study revealed that 15 (79%) of teaching methods were highly utilized and 11 (79%) of evaluation methods were used. It was recommended among others that lecturers should be trained in the use of evaluation methods and facilities provided.

Key words: Programme Evaluation, Environmental Education (EE), Nigerian Universities.

INTRODUCTION

Despite several endeavours put in implementing Environmental Education (EE), there is still a gap between what the theory says and what happens in practice (Stevenson, 2007). The issue in EE could be attributed to the absence of evaluation component, which must be a core element in any educational programme. Crohn and Birnbaum (2010) asserted that even though EE has not been a recent field attempting to lead to better environmental behaviours, an evaluation

approach has not been present in those EE programmes. Evaluation of EE programmes have not been either a primary or imperative aspect considered by different kinds of organizations and schools that develop EE. Similarly, the major efforts to develop EE has not been with a quality and systematic evaluation approach which provides to teachers and environmental educators robust knowledge about the EE programme under implementation (Ruiz-Mallen, I; Barraza, L; Bodehorn, B & Reyes-Garcia, V., 2009; Carleton-Hug & Hug, 2010).

Environment connotes the natural, social and the constructed world we live in, we should care for it the same way we care for ourselves. The health of the environment strongly correlates with the human health (Eze, 2008). Environmental quality is defined as an environment with healthy and beautiful attributes to live in (Olawaju, Agusiobo & Vowa, 2006). It is clean and well ventilated, the air and water are not polluted, the temperature is moderate, it is well-lit and the grass around the home is properly maintained. Besides, people are protected from diseases and economic development of the community improved. Environmental Education focuses on strategies for problems and issues like ozone layer depletion, greenhouse effect, global warming, water pollution, desertification and biodiversity (Kola-Olusanya, 2005).

According to Archer (2002) three basic concepts of Environmental Education include education from the environment, education about the environment and education for the environment. He indicated that education from the environment could be regarded as the application of all the human senses to learn from the environment. Education about the environment focuses on the body of knowledge on the environment as reflected in school subjects like Geography, Biology and Agricultural science. Education for the environment is a situation where education is focused on the need to promote personal responsibility of the conditions of the environment.

In order to ensure the achievement of the goals of environmental education, the National Universities Commission (NUC) has approved Minimum Academic Standards for Education for all Nigerian Universities (FRN, 2013). In pursuit of these goals, there is need for lecturers in Environmental Education programme in Nigerian Universities to utilize appropriate teaching methods. Adequacy of infrastructural facilities for Environmental Education programme based on the minimum standard ought to be

considered. Facilities such as seating accommodation for library services, enough classrooms and offices are important. The quality of the EE programme must be based on the adequacy of the facilities and resources for the realization of the goal of EE programme (Ochu, 2008; Monroe, 2010). Indeed the objectives of EE curriculum could be re-examined and modified. There is therefore the need to adopt the recommended evaluation methods by lecturers in Environmental Education programme in Nigerian Universities.

Evidence is accumulating too, that students are under-achieving in Environmental Education programme (Amoo, 2004). The role of the lecturer in any educational enterprise is that of a facilitator of learning. In education, like any other enterprise, there is need to measure outcome (Nworgu, 2002). Environmental Education is not an exception and in classroom situation, the lecturer carries out tests and assessments to evaluate the outcome of his/her teaching. One of the important reasons for evaluation is that it leads to growth in learning by students. Therefore, it is imperative to determine the achievements of students of EE in Nigerian Universities for a period of five years using secondary data (scores kept by Heads of Departments and Lecturers). On EE achievements, there is no wonder that surveys of students' attitudes towards EE conducted by Eguabor (2004) provide evidence of students' poor attitudes towards EE.

Evaluation of EE is a necessity in which EE aims to lead students, graduates of the programme, and citizens to think in a critical way, make decisions, and learn to be people that acquire worthy environmental ways to act (Adejoh, 2006). Today, the marked growth of studies about EE is producing significant data concerning both learners and learning in this area. However, the effectiveness of EE programmes has not been empirically evaluated. Rickinson (2001) notes that there is considerably less research about the ways in which learners gain knowledge from EE programmes. It is

important to note, however, that EE does not aim at transferring ideological tendencies. Part of its goal is to provide a rich diversity of options, in which learners can choose the most significant alternatives relating to their own realities (Sandler, 2007).

Curriculum development with respect to EE at any level starts with situational analysis. The selection and organization of curriculum content will depend on the goals of education at each level. In Nigeria, the aims and objectives of education at every level are outlined in the National Policy on Education (Federal Republic of Nigeria (FRN), 2013). The approved minimum academic standards for Education for all Nigerian Universities, set up by the National Universities Commission (NUC), constitutes one of the series of efforts made by the government of Nigeria (Federal and State) to lay a solid foundation in Education in the country. The EE programme possess the inherent capacity of supplying human resources for the industrialization and the technological transformation of the country (Asoegwu, 2008). The adequacy and quality of staff are based on the extent to which they meet the provisions of the minimum academic standards of supervisory agencies in terms of staff/student ratio, staff mix by rank, the competence of teaching staff – and the qualification of the teaching staff (Stufflebeam, 2002). The Administrators comprise the Deans, Deputy Deans and Heads of Departments of the Faculty of Education where Environmental Education is domiciled. These are lecturers elected/appointed staff members with specific responsibilities to the University administration. The researchers observed that the inability to run environmental education in most Nigerian universities could be as a result of inadequate staff to run the programme. On further enquiries from students in the various universities as to why they did not choose environmental education as a course of study in their universities, they attributed their reasons to non-availability of facilities, staff and lack of awareness of

existence of the course. The researchers therefore deemed it necessary to evaluate environmental education programme in Nigerian universities in order to unearth the actual facts.

Ekele (2011) indicates that systematic education evaluation consists of a formal assessment of the worth of educational phenomena. Therefore, this study looks at the evaluation or improvement of the programme through evaluation of Environmental Education programme in Nigerian universities.

Objectives of the Study

The objectives of the study included:

- (1) to determine extent to which the lecturers in Environmental Education programme in Nigerian Universities utilize appropriate teaching methods;
- (2) to ascertain the adequacy of infrastructural facilities for Environmental Education programme in Nigerian Universities based on the minimum academic standards;
- (3) to determine the extent to which the recommended evaluation methods are used by the lecturers in Environmental Education programme in Nigerian Universities.
- (4) to determine the mean achievement scores of students in Environmental Education programme in Nigerian universities for a period of five years (2005 – 2009).

The choice of the period 2005 – 2009 of students' mean achievement scores in environmental education programme in Nigerian universities was to enable the researchers have recent records on the performance of students in environmental education.

Research Questions

The following research questions were raised to guide the study:

1. To what extent do the lecturers in Environmental Education programme in Nigerian Universities utilize appropriate teaching methods?
2. What is the adequacy of infrastructural facilities for Environmental Education programme in Nigerian Universities based on the Minimum Academic Standards?
3. To what extent are the recommended evaluation methods being utilized by the lecturers in Environmental Education programme in Nigerian Universities? And
4. What are the mean achievement scores of students in Environmental Education programme in Nigerian universities for the period of five years (2005 – 2009).

METHODOLOGY

Descriptive survey design was adopted for the study. It deals with gathering of information about a large population of people by examining a representative sample of the entire population (Emaikwu, 2011). The study was carried out in Nigerian Universities offering Environmental Education programme such as University of Calabar, Calabar; University of Ibadan, Ibadan, University of Nigeria Nsukka; University of Port Harcourt, Port Harcourt and the Lagos State University, Ojo. The population of the study was 1200 which comprises 120 lecturers, 30 administrators and 1050 students (Field survey, 2013). Through purposive sampling, 860 was sampled for the study because this sampling technique deliberately choose respondents who are either lecturers or students of environmental education. The instruments for data collection were the questionnaire titled "Evaluation of Environmental Education Questionnaire (EEQ) and Environmental

Education Programme Schedule Questionnaire (EEPSQ) by three raters and Environmental Education Teaching Resources Checklist (EETREC) (Pallant, 2004).

Research questions 1 and 3 had four point response options of very highly utilized (VHU); highly utilized (HU), lowly utilized (LU) and very lowly utilized (VLU). Research question 2 had response options of Very Adequate (VAD), Adequate (AD), Inadequate (IAD) and very inadequate (VIAD). These options weighted 4, 3, 2 and 1 respectively.

The instruments were subjected to face content validation by three experts in areas of Environmental Education, Curriculum Studies, Measurement and Evaluation from University of Nigeria, Nsukka, University of Calabar, Calabar and University of Agriculture, Makurdi. The sample for the study was 860, made up of 60 Environmental Education lecturers, 15 administrators and 785 students from five (5) universities in three (3) geo-political zones (South-East, South-West and South-South). The reliability of EEPSQ was established using Cronbach-Alfa (α) coefficient. Based on the data collected, a reliability index of 0.93 was established. The researchers administered the EEPSQ (Observation Schedule) and EETREC in the process of data collection. The data were analyzed using mean (\bar{x}), percentage, standard deviation and t-test. The benchmark for decision making for mean (\bar{x}) was 2.50. Mean response option greater than 2.50 was accepted and less than 2.50 was rejected.

RESULTS

Research Question 1

To what extent do the lecturers in Environmental Education programme in Nigerian universities utilize appropriate teaching methods?

Table 1: Mean and standard deviation of the respondents on the extent of utilization of appropriate teaching methods by environmental education lecturers

S/N	EE Teaching Methods	Mean (\bar{x})	Standard deviation (STD)	Remarks
1.	Field trips/excursions	2.94	0.62	Highly utilized
2.	Concept mapping	2.58	0.78	Highly utilized
3.	Case studies	2.44	0.57	Lowly utilized
4.	Use of resource persons	2.73	0.58	Highly utilized
5.	Use of analogies	2.70	0.80	Highly utilized
6.	Dramatization	1.71	0.56	Lowly utilized
7.	Pictorial presentation	2.68	0.57	Highly utilized
8.	Practice and drill	1.79	0.41	Lowly utilized
9.	Project method	2.55	1.07	Highly utilized
10.	Simulation and games	2.53	0.79	Highly utilized
11.	Inquiry method	2.55	0.89	Highly utilized
12.	Role playing	2.98	1.15	Highly utilized
13.	Laboratory (experimental) method	2.70	0.81	Highly utilized
14.	Demonstration method	2.95	1.07	Highly utilized
15.	Lecture method	2.97	1.15	Highly utilized
16.	Programmed instruction	1.78	0.86	Lowly utilized
17.	Lecture method (expository)	3.16	1.13	Highly utilized
18.	Supervised study	2.80	0.91	Highly utilized
19.	Discussion method	2.95	1.18	Highly utilized

Table 1 analysis revealed that 15(79%) of the appropriate teaching methods in EE programme were highly utilized by lecturers in Nigerian Universities. The mean (\bar{x}) of extent of utilization ranged between 2.53 and 3.16. The study further revealed that 4(21%) of the appropriate teaching methods in EE programme were lowly utilized by lecturers in Nigerian Universities. The

mean responses of these four teaching methods ranged between 1.71 and 2.44.

Research Question 2

What is the adequacy of infrastructural facilities for Environmental Education programme in Nigerian Universities based on the minimum Academic standard?

Table 2: Mean and standard deviation of the respondents on the adequacy of infrastructural facilities for environmental education

S/N	EE Infrastructural facilities	Mean (\bar{x})	Standard deviation (STD)	Remarks
1	Laboratories	2.77	0.49	Adequate
2	Clinics	3.48	1.01	Adequate
3	Studios	1.68	0.52	Inadequate
4	Classroom/lecture theatres	2.80	0.53	Adequate
5	Equipment/furniture	2.05	0.82	inadequate
6	Office accommodation for staff	3.40	0.91	Adequate
7	Availability of safety and instructional facilities	2.00	2.01	inadequate
8	Adequate funding of departments/colleges/faculties.	1.86	0.66	inadequate
9	Availability of information sourcing facilities and materials.	1.97	0.90	Inadequate

Table 2 analysis revealed that 4 (44%) of the infrastructural facilities for Environmental Education programme in Nigerian Universities based on the minimum Academic standards were adequate. The mean responses ranged between 2.77 to 3.48.5 while (56%) of the infrastructural facilities for EE programme in Nigerian Universities were inadequate based on the

minimum Academic standards. The mean (\bar{x}) of these infrastructural facilities ranged between 1.68 and 2.05.

Research Question 3

To what extent do lecturers utilize/apply the recommended Evaluation methods for enriching Environmental Education Programme in Nigerian Universities?

Table 3: Mean and standard deviation of the respondents on the extent of utilization of recommended evaluation technique by environmental education lecturers

S/N	EE Evaluation Techniques	Mean (\bar{x})	Standard deviation (STD)	Remarks
1	Essay writing	3.32	0.92	Highly utilized
2	Objective question type of evaluation	2.81	0.92	Highly utilized
3	Observation techniques	3.10	1.00	Highly utilized
4	Interview and questionnaire	2.99	1.00	Highly utilized
5	Quizzes	1.59	0.60	Lowly utilized
6	Skill test	3.13	1.06	Highly utilized
7	Laboratory work	2.70	0.92	Highly utilized
8	Assignments	2.97	1.00	Highly utilized
9	Seminar presentation	2.72	0.76	Highly utilized

10	Continuous assessment	1.73	0.44	Lowly utilized
11	Project	3.11	1.02	Highly utilized
12	Teaching practice assessment	2.83	0.73	Highly utilized
13	Checklist	1.79	0.41	Lowly utilized
14	Psychological tests	3.46	0.92	Highly utilized

Table 3 analysis reveals that 11(79%) of the recommended evaluation methods used by the lecturers in Environmental Education programme in Nigerian Universities were highly utilized. The mean responses on the extent of utilization ranged from 2.70 and 3.46. Whereas, 3(21%) of these recommended evaluation methods were lowly utilized. Their means of utilization ranged between 1.59 and 1.79.

Research question 4

What are the mean achievement scores of students in Environmental Education Programme in Nigerian Universities for the period of five years (2005 – 2009)?

To answer the research question, the mean achievement scores of students in Environmental Education Programme in Nigerian Universities for the period of five years (2005 – 2009) were computed and expressed in percentages to capture students' perception.

Table 4: Percentage distribution of students' mean achievement scores in Environmental Education programme in Nigerian Universities

S/N	Universities	N	Year %				
			2005	2006	2007	2008	2009
1	University of Nigeria, Nsukka	126	13	12	13	12	13
2	University of Calabar, Calabar	180	15	14	17	16	12
3	Lagos State University, Ojo	195	17	16	18	19	15
4	University of Ibadan, Ibadan	120	11	10	12	13	10
5	University of Port Harcourt, Port Harcourt	164	14	13	15	16	11
Total		78%	70%	65%	73%	76%	61%

Based on Table 4, the study reveals that mean achievement scores of students in Environmental Education programme in Nigerian Universities were fairly high but not consistent. The percentages were as follows 2005 – 70%; 2006 – 65%; 2007 – 75%; 2008 – 76%; and 2009 – 61%.

The represented percentages which were fairly high but not consistent were based on students' examination scores kept by Heads of Departments and Lecturers on EE courses taught and evaluated for the specified period.

FINDINGS OF THE STUDY

1. Environmental Education Lecturers utilized the expected or identified teaching methods to a high extent.
2. Therefore infrastructural facilities for EEP in Nigerian Universities are inadequate.
3. The recommended evaluation methods are utilized to a high extent by EE Lecturers in Nigerian Universities.

4. The mean students' achievements scores in EE programme in Nigerian Universities for the period of five years (2005 – 2009) were fairly high but not consistent.

DISCUSSION OF FINDINGS

The teaching methods employed by EE lecturers were to a high extent as 15(79%) were highly utilized and 4(21%) were lowly utilized (Table 1). The findings agrees with the findings of Eguabor, 2000; Madumere, 2008 and Osinem 2008 who emphasized that the teaching of EE calls for selection and bringing together a meaningful way, of relevant information from different knowledge. Thus a viable approach for teaching the programme is the integrated approach involving a multi-disciplinary study. Madumere (2008) asserted that in this approach, topics or themes from different disciplines that are relevant to the curriculum/course objectives are selected and organized to form a coherent structure. This is in line with UNESCO/UNEP, 1989; UNESCO, 2007, which outlined some of the guiding principles which can help achieve EE goals and objectives thus: that EE should be interdisciplinary in approach, using specific content of each discipline to make a holistic and balanced perspective.

Some teaching methods which have been found to be useful in teaching EE include field trips/excursions, lecturer/discussion, project, concept mapping, use of analogies and guided discovery (Adejoh, 2006). According to Eguabor (2004) role playing is a method of human interaction which encourages acquisition of human relation skills, sensitivity to people and situations, initiative and self-reliance stimulate discussions and training in group problem solving. This study revealed role playing with a mean of 2.98 and standard deviation 1.15 (Table 1). Besides, the reliability of Environmental Education Programme Schedule Questionnaires (EEPSQ – Observation Schedule) using Kendall coefficient of Concordance (0.75) by three raters on relationship of EE

activities confirmed that utilization of these innovative teaching methods to enhanced critical and technological thinking in EE between lecturers and administrators on the extent to which lecturers of EE programme in Nigerian Universities utilize appropriate teaching methods.

On the basis of Table 2, the study revealed that 4(44%) were adequate and 5(56%) were inadequate. This finding was in line with the findings of Madumere (2003), Nzewi & Ngwagu (2004), Osinem (2008) and Eguabor, 2009. The authors pointed out that few of the Universities implementing Environmental Education programme fall slightly below the set standards. The four (4) EE infrastructural facilities namely: laboratories, clinics, classroom/lecture theatres and office accommodation for staff had means above 2.50 as in methodology. Whereas five (5) of the EE infrastructural facilities had means below 2.50. Indeed, these were studios, availability of safety and instructional facilities, equipment/furniture, adequate funding of Colleges/Faculties/Departments and availability of information sourcing facilities and materials. This could be the reason why the goal of the National Policy on Environment (1989) to achieve sustainable development and in particular, to secure for all Nigerians a quality of environment adequate for their health and wellbeing, and conserve and use the environment and natural resources for the benefit of present and future generations have not been fully realized (Okebukola & Akpan, 2004). Therefore, tackling the issue of inadequate infrastructural facilities must be as it is essential for a good technological take-off (Amoo, 2004; Nwafor, 2006).

The findings in Table 3 revealed that 11 (79%) highly utilized recommended evaluation methods and techniques while 3(21%) were lowly utilized. This was in line with the study by Asoegwu (2008) and Madumere (2003). In support of the findings from Table 3, Nworgu (2002) added that these methods could be employed to assess EE in industrial and technical use of continuous

assessment. Also, these EE evaluation techniques would be used for the achievement of EE objectives.

Research question four sought to find out the achievements of students in Environmental Education programme in Nigerian Universities for the period of five years (2005 – 2009). The results of this study as shown in Table 4 were good but not consistently high from year to year. This finding is consistent with Carleton-Hug and Hug (2010) who found out that the good achievement was in a way related to students' attitude towards EE, but contrary to the findings of (Kola-Olusanya, 2000 & Eguabor, 2004) who reported poor achievements in Environmental Education based on cultural beliefs.

Achievement in modern English Dictionary is defined as accomplishing something successfully with effort and skill (Hornby, 2006). Therefore, one could say that the good achievement though not consistently high, was because these students had gotten the EE skills necessary to enable them apply the knowledge inherent in EE to other areas of life. This assertion is supported by a statement made by Eguabor (2009) that students were mastering concepts and principles outlined in the National Policy of Environment (1989).

CONCLUSION

The curriculum of EE must focus on students learning to investigate, evaluate and help resolve environmental issues. In order to improve communication with audience, responsive evaluators use issues rather than objectives or hypotheses as advance organizers. These issues are identified by the evaluators after talking with students, teachers, parents and administrators. The evaluator here is perceived as processing judgments more than local community. Therefore, curriculum must develop knowledge of environmental issues on schools, colleges of education, universities and community levels.

RECOMMENDATIONS

1. Lecturers should be trained by professionals on the job in collaboration with resource persons in workshop on different teaching methodologies.
2. More infrastructural facilities should be provided by stakeholders (Ministry of Education), in collaboration with the Federal Government for effective teaching of environmental education programme.
3. Lecturers should be encouraged by University administrators through regular supervision on the need to adopt different teaching strategies

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