

Nigerian Teachers' Attitude Towards Environmental Sustainability Issues in the Curriculum

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Abstract: The purpose of the study was to determine the nature and extent of teachers' attitude towards environmental sustainability issues in the school curriculum and the influence of their gender, teaching experience, educational qualification and type of school where they teach (primary or secondary) on their attitude. A total of 321 teachers selected from 18 primary and secondary schools in Calabar Education Zone of Cross River State, Nigeria participated in the study. Data for the study was collected with a 36-item, modified Likert-type attitude questionnaire. The data collected were analyzed using one-sample t-test and 4-way ANOVA. The results indicate that the teachers have significantly positive attitudes towards environmental sustainability issues and the teaching of the environmental sustainability topics in the school curriculum the main effects of gender, teaching experience, educational qualification and school type and their interactions are not significant ($p < 0.05$) for attitude towards environmental sustainability issues and with attitude towards the teaching of topics in environmental sustainability as the dependent variable, only 4 interactions are significant.

Key words: Attitude, environmental sustainability, curriculum, teachers

INTRODUCTION

The earth is primarily a life support system. It consists essentially of biochemical processes that imbue it with the capacity to sustain life. As an ecosystem, the earth however, has a threshold within which it can effectively absorb or withstand interruptions and radical changes in the biochemical processes that help to sustain life. Unfortunately, development-oriented activities of man over the last century or so have primarily restructured the environment and upset the delicate balance of nature. It has resulted in a number of changes on the planet, earth. These changes are essentially inimical to the continued existence of man and other life forms here on earth. For example, the air we breathe is constantly being overloaded with carbon dioxide and other poisonous materials from vehicular emissions, exhausts of industrial and power plants, etc. The waters are rendered unsafe by a variety of chemical substances. Lands are stripped bare of vegetation or polluted with oil spills and human wastes. Rising sea levels as a result of global warming cause serious and immediate threat to people living in island countries and coastal areas. The use of ozone-depleting substances such as products with chlorofluorocarbons, halons and methyl bromides (from which plastics and foams are made) allow excessive levels of harmful

ultraviolet rays to reach the earth, resulting in increased rates of skin cancer, eye damage and weakened immune systems. There is a higher rate of exploitation and use of natural resources and higher levels of waste generation apparently due to increased human population. Pimentel and others, in Segelken (1998), report that an estimated 40% of world deaths can be attributed to various environmental factors, especially organic and chemical pollutants.

The environmental effects of man's activities are most often not localized. In other words, the environmental problems created by man's activities in many parts of the world are hardly delimited by local or national boundaries. Thus, there is global concern for the increasing incidence of environmental damage. As a result sustainable development has become a global issue.

According to the Council of Ministers of Education (2005) sustainable development is both a goal and a concept. As a goal, it is an idea of a world where people protect the environment as they carry out their daily activities. As a concept, it involves conceptual probing about limits on natural resources, capacities of ecosystems and interactions among social, economic, political and environmental systems. In other words, it works towards a sustainable quality of life, now and in the future. Thus, Noibi and Lawal (1993) sees it as a

development strategy wherein the physical assets, natural and human resources as well as available funds are managed in a manner that ensures increasing health and wealth for both the present and future generations on planet, earth. The essence of sustainable development is to meet the needs and aspirations of the present generations of man and other living creatures, both plants and animals, without compromising the capacity of future generations to meet their own needs and aspirations (NEST, 1991).

Sustainability is the destination of sustainable development (Council Ministers of Education, 2005). Its aim is to make decisions and conduct activities in a manner as to ensure persistence over an apparently indefinite future in the improvement and maintenance of ecosystems, the economy and the health and well-being of people on the earth (Robinson, 1990). The index of the attainment of sustainability is constancy of the natural capital stock. Of primacy in this regard is the avoidance of negative changes in the stock of natural resources and in the quality of the environment.

The United Nations (1992), Uche (1995), UNESCO (1997) and Inyang Abia (1998, 2001) all assert that education is humanity's best hope and most effective means for the quest to achieve sustainable development at national or global levels. This may be due to the fact that sustainable development calls for particular skills, knowledge, values and attitudes regarding the environment, the economy and the well-being of people. Perhaps, in response to the calls by UNESCO and United Nations, education for sustainability has become the norm in most countries of the world in recent years.

In Nigeria, there have been some activities aimed at creating awareness and educating the masses on environmental issues. Initially the mass media, various Non-Governmental Organizations (NGOs) and Government Agencies were used to create awareness of the nature of the environment and the need for its sustainability. As Uche (1995) observed.

The birth of the Nigerian Conservation Foundation (NCF) in the 1980's, the rising interest among policy makers on the need for a sound environmental base for development, the launching of the National Conservation Strategy (NCS) in 1986, the Natural Resources Conservation Council (NRCC) in 1988 and the ultimate launching of the National Policy on the Environment in 1989 were all critical steps in the national drive towards environmental awareness and resources conservation.

In order to facilitate the education of the citizenry for sustainability, the Nigeria Government has infused environmental sustainability topics into the 2003 version of the National Curriculum for Primary Schools (NERDC,

2003). The topics infused include population, pollution, soil management, waste and waste disposal, drugs and drug abuse, etc. The idea is to start education for sustainability from the foundation. While arrangements are made to do the same in higher levels of education, teachers are encouraged to incorporate environmental sustainability issues in their instruction.

Teacher characteristics (Knowledge, attitude, values, etc) are critical factors in the successful implementation of any curriculum (Kalu and Ali, 2004). Unfortunately, the content of teacher education curricula in Nigerian Teacher Training Colleges, Colleges of Education and even University Faculties of Education, until recently, has little or nothing on environmental sustainability. This means that the serving teachers may not have the background knowledge needed for effective teaching of topics related to environmental sustainability. Consequently, they may not be positively disposed to teaching the infused sustainability topics or to incorporate sustainability issues in their instruction. It, therefore, becomes opposite to ask the question, what is the nature and extent of Nigerian teachers' attitude towards environmental sustainability topics and issues in the school curriculum?

Attempts have been made to assess attitude of people towards environmental sustainability issues. For example, Lindstrom (2003) interviewed 160 people in four municipalities in the South east of Sweden regarding their attitude towards sustainable development and found that they considered sustainable development as being more important to the world than the municipality or family. The responsibility for sustainable development was mostly allocated to governments and global organizations. Dennis (2005) also found that though majority of small farmers in Tennessee described sustainable agriculture as environmentally sound practices, only 10% described it as socially acceptable. There is no study, known to the authors that have been conducted on teachers' attitude towards environmental issues and the teaching of environmental sustainability. The present study is meant to fill this yawning gap.

Purpose of the study: The purpose of the study was to determine:

- The nature and extent of teachers' attitude towards environmental sustainability issues in the school curriculum.
- The extent to which their gender, teaching experience, type of school where teacher is teaching (Primary or Secondary) and educational qualification influence teachers' attitude towards environmental sustainability topics and issues in the curriculum.

Hypothesis:

- Teachers’ attitude towards environmental sustainability issues in the school curriculum is not significantly positive.
- Teacher gender, teaching experience, educational qualification and school type where she/he is teaching (Primary or secondary) and their interaction do not significantly influence their attitude towards environmental sustainability issues in the school curriculum.

MATERIALS AND METHODS

Sample: The sample consisted of 321 teachers (129 male and 192 female) selected from 18 schools (10 primary and 8 secondary schools) in Calabar Education Zone of Cross River State, Nigeria. The sample is made up of 160 primary school teachers and 161 secondary school teachers. Though there are 3 Education Zones in Cross River State only schools in Calabar Education Zone were used because of proximity to researchers. Out of the five Local Government Areas (LGAs) in Calabar Education Zone, schools in four LGAs were used for the study. Questionnaires sent to the fifth LGA were not returned.

The schools used in each LGA were randomly selected. Three schools were selected from each of the two LGAs while 6 schools were selected from each of the remaining two LGAs. Accidental sampling technique was used in selecting respondents in each school. Only teachers who were available and willing to fill the Questionnaire were used for the study.

Instrument: A 36-item, four-point Likert-type attitude questionnaire was used in collecting data for the study. In designing the instrument, the researchers differentiated between attitude towards the teaching of environmental sustainability topics in the school curriculum and attitude towards environmental sustainability issues generally. The authors believe that the 2, though related, can impact differentially on how teachers implement the curriculum on environmental sustainability. Thus, 16 items measured teacher’s attitude towards teaching of environmental sustainability topics while 20 items measured their attitude towards environmental sustainability issues. Sample item statements are as follows:

Environmental quality issues should be taught in every class in schools, teaching environmental sustainability issues should be concern of all teachers, environmental education should be the responsibility of parents at home and not the school, government should

leave environmental education to workshops and seminars and not as a curriculum content, it is irresponsible to have more than four children, the tax system should be redesigned to encourage small families, all product containers should be made recyclable, commuters should not be allowed to drive to work alone so as to save fuel that will be used by each person having a car, the use of pesticides should be banned, etc. The respondents were expected to tick Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) as it reflects their level of agreement or disagreement with the statements.

By administering the questionnaire to 20 teachers in a school the reliability of the two parts of the instrument was estimated to be 0.75 and 0.72, respectively, using the Cronbach alpha technique.

Data collection procedure: Four research assistants were deployed to administer the printed questionnaires to the teachers in their respective schools. In some cases the filled questionnaires were returned on the spot while in other cases the research assistants went back on a different day to collect the completed questionnaires.

RESULTS

For positively stated items, the responses of the subjects were scored as follows: SA-4points, A-3 points, D-2 points and SD-1 point. Negatively stated items were scored in reverse order. The total scores for each respondent were obtained separately for attitude towards the teaching of environmental sustainability topics and attitude towards environmental sustainability issues. Subsequent analyses were done separately for the two types of attitude. The data collected were analyzed to test the hypotheses using one-sample t-test and 4-way (gender×school type×teaching experience×educational qualification) Analysis of Variance (ANOVA). The results are shown in Table 1 and 2.

The results in Table 1 indicate that mean scores for the two variables are respectively significantly ($p < 0.01$) greater than the expected or population mean (μ). This means that on the average the teachers’ attitude towards the teaching of environmental sustainability topics in the school curriculum and attitude towards environmental issues are encouragingly positive.

Table 1: One-sample t-test of teachers’ attitude towards the teaching of environmental sustainability topics in the school curriculum (TEACHATT) and attitude towards environmental sustainability issues (ISSUESATT)

Variable	N	X	S	μ	t
TEACHATT	321	44.875	5.351	40	16.323*
ISSUESATT	321	55.642	7.132	50	14.173*

* $p < 0.01$

Table 2: Four-way ANOVA of the influence of school type (school), gender (sex), teaching experience (exp) and educational qualification (qualific) on environmental sustainability topics (TEACHATT) and attitude towards environmental sustainability issues (ISSUESATT)

Source of variation	Teachatt			Issuesatt				
	Sum of squares	df	Mean squares	F	Sum of squares	df	Mean squares	F
Model	648075.653	49	13226.034	478.557	996705.552	49	20340.930	413.278
School	19.658	1	19.658	0.711	15.622	1	15.622	0.317
Sex	26.403	1	26.403	0.955	47.310	1	47.310	0.961
Teachexp	108.956	4	27.239	0.986	52.271	4	13.068	0.266
Qualific	175.497	3	58.499	2.117	139.729	3	46.576	0.946
School * Sex	102.882	1	102.882	3.723	175.230	1	175.230	3.560
School * Teachexp	224.146	4	56.037	2.028	67.852	4	16.963	0.345
Sex * Teachexp	102.974	4	25.744	0.931	214.489	4	53.622	1.089
School * Sex * Teachexp	288.160	2	144.080	5.213**	42.051	2	21.025	0.427
School * Qualific	32.069	3	10.690	0.387	193.041	3	64.347	1.307
Sex * Qualific	223.569	3	74.523	2.696*	128.825	3	42.942	0.872
School * Sex * Qualific	10.699	1	10.699	0.387	90.310	1	90.310	1.835
Teachexp * Qualific	560.967	12	46.747	1.691	162.531	12	13.544	0.275
School * Teachexp * Qualific	222.135	2	111.068	4.019*	55.010	2	27.505	0.559
Sex * Teachexp * Qualific	364.460	3	121.487	4.396**	142.869	3	47.623	0.968
Error	7517.347	272	27.637		13387.448	272	49.219	
Total	655593.000	321			1010093.000	321		

**p<0.01, *p<0.05

The results in Table 2 indicate that none of the main effects and interactions for teachers' attitudes towards environmental sustainability issues is significant ($p>0.05$). However, for teachers attitude towards the teaching of environmental sustainability topics in the school curriculum, whereas none of the main effects is significant ($p>0.05$), the following interactions are significant: school type \times gender \times teaching experience ($p<0.01$), gender \times educational qualification ($p<0.05$), school type \times teaching experience \times educational qualification ($p<0.05$) and gender \times teaching experience \times educational qualification ($p<0.01$).

A post hoc comparison using Fisher's least significant difference (not shown) indicates that: male teachers with masters degree have a significantly ($p<0.05$) more positive attitude towards the teaching of environmental sustainability issues than male teachers with NCE/OND and female teachers with grade II certificate, NCE/OND and first degree, Female secondary school teachers with 16-20 years experience have significantly ($p<0.05$) more positive attitude than their counterparts with 6-10years experience, secondary school teachers with masters degree, 16-21 years and above 21years experience respectively have significantly more positive attitudes than their counterparts with first degree and 11-15years and above 21years experience, NCE/OND holders with 6-10 years experience as well as primary school teachers with first degree and 11-15 years experience and male teachers with masters degree and 6-10 years, 16-20 years and above 21years experience, respectively have significantly ($p<0.05$) more positive attitudes than male and females teachers with lower qualifications even when the teaching experience is the same in some cases.

DISCUSSION

The results of data analysis indicate that teachers attitude towards the teaching of environmental sustainability topics in the curriculum and their attitude towards environmental issue are significantly ($p<0.01$) positive. In other words, they are favourably disposed to the environmental sustainability issues and its teaching. This means that the teachers are not only predisposed to teaching the environment sustainability topics in the curriculum, but they will teach the correct thing, motivate and persuade the learners to be conscious of the environment in whatever they do. With such a positive attitude they are likely to teach with enthusiasm. The positive attitude of the teachers may be an indication that the attempts made to sensitize the Nigerian populace on environmental problems were fairly successful.

The results in Table 2 indicate that, that the main effects for school type, gender, teaching experience and educational qualification and their interactions are not significant with regard to attitude towards environmental sustainability issues. This means that the teacher's attitude towards environmental sustainability issues does not depend on the type of school where they teach (primary or secondary), their gender, teaching experience and educational qualification. Given the fact that the curricula content of Teachers Education is very low on environmental sustainability, the observed homogeneity of the teachers' attitude towards environmental sustainability issues only shows that they were sensitized to the same degree, may be due to the commonality of the means of sensitization, viz, mass media, workshops and seminars. Howbeit formal education on sustainable development and environmental

sustainability is very necessary. The infusion of various subject matter curricula with environmental sustainability topics at the primary school level is laudable. The same should be done for secondary school subjects. Already one of the general studies courses in tertiary institutions, citizenship education, is loaded with topics on environmental sustainability. It is still necessary to do the same in some other courses that students take before graduation in tertiary institutions.

With regards to teachers' attitude towards the teaching of environmental sustainability topics in the school curriculum, the results have shown that only 4 of the interactions are significant. A close study of the results of the post hoc analyses indicate that male teachers with masters degree or masters degree holders with high teaching experience recurrently have significantly more positive attitude than other categories of teachers. This may be as a result of the fact that the masters degree programme extended the scope (both breadth and depth) of the teachers' experience in sustain-able development and environmental sustainability. Perhaps masters degree holders who are males or highly experienced may have embraced the idea of teaching environmental sustainability to youths much more than others. The implications of this finding for the implementation of the curricula infused with topics on environmental sustainability are far reaching. Incorporation of environmental sustainability issues into the teaching of subject matter which has not been so infused is necessary so as to facilitate and increase the awareness of female teachers. Such female teachers who may have lower educational qualification and teaching experience, need more access to information and education in environmental sustainability and sustainable development. Appropriate options to fill this gap include in-service education, workshops and seminars.

CONCLUSION

Sustainable development and environmental sustainability have become global issues. It is generally believed that they can be achieved through education. In response the Nigerian government infused topics on environmental sustainability into the primary school curriculum. But most of the teachers have little or no background education in environmental sustainability. The purpose of the study was therefore to determine the attitude of Nigerian teachers to environmental sustainability issues in the school curriculum.

A 36-item, modified Likert-type attitude questionnaire was administered to 321 primary and secondary school teachers in Calabar Education Zone of Cross River State,

Nigeria. The data collected was analyzed using one-sample t-test and four-way ANOVA. The results indicate that:

- Teacher's attitude towards the teaching of environmental sustainability topics in the school curriculum and their attitude towards environmental sustainability issues are respectively significantly greater than expectation. These imply that they have more positive attitudes.
- The main effects for school type, gender, teaching experience and educational qualification and their interactions are not significant with regards to attitude towards environmental sustainability issues.
- With attitude towards the teaching of environmental sustainability topics in the school curriculum as dependent variable, only the following interactions are significant: Gender × Educational Qualification, school type × gender × teaching experience, school type × teaching experience × educational qualification and gender × teaching experience × educational qualification.

The implications of the findings were discussed and the following recommendations seem pertinent:

- The existing curriculum at all levels of education should reviewed to richly include environmental sustainability and sustainable development concepts.
- Such curricula should be backed up with culturally relevant educational inputs such as motivated personnel who are inputs such as motivated personnel who are committed to sustainability and relevant resources (equipment materials, space and funds).
- The need to create awareness in environmental sustainability should be translated into action through sustained environmental education through both formal and informal education.

REFERENCES

- Council Of Ministers of Education (2005). Educating for Sustainability: The Status of Sustainable Development Education in Canada. <http://www.cmec.ca/Else/Environment.en.pdf>.
- Dennis, S., E. Ekanem, S.P. Singh and F. Tegene, 2005. Perceptions and attitudes of small farmers in tennessee towards sustainable agriculture and some survival strategies. www.nal.usda.gov/afsic/323a.htm.

- Inyang-Abia, M.E., 1998. Agenda 21-Based Curriculum Paradigm of R Environmental Education and Sustainable Development in Nigeria. *Ife J. Edu. Studies*, 5: 252-259.
- Inyang-Abia, M.E., 2001. Greening the Science, Technology, Mathematics (STM) Curricula: A Synthesis for Sustainable Development in Nigeria. *West Afr. J. Edu. Res.*, 4: 81-86.
- Kalu, I. and A.N. Ali, 2004. Classroom Interaction Patterns, Teacher and Student Characteristics and Students' Learning Outcomes in Physics. *J. Classroom Interactions*, 39: 24-31.
- Lindstrom, M., 2003. Attitudes towards Sustainable Development. Priorities, Responsibility, Empowerment. Unpublished Doctoral Dissertation, Lund University, http://www.lub.lu.se/cgi-bin/show_diss.pl/tec_644.html.
- Nigerian Educational Research and Development Council, (NERDC), 2003. National Curriculum For primary Schools. Abuja: NERDC.
- Nigerian Environmental Study/Action Team, 1991. Nigeria's threatened environment: A National Profile. Ibadan: NEST.
- Noibi, Y. and T. Lawal, 1993. Training and Education for Conservation and Sustainable Development. In Y. Noibi (Ed.). *Proceedings of the First National Conference on Environmental Education*, Lekki Conservation Centre, Lagos, pp: 26-37.
- Segelken, R., 1998. Study: 40% of world deaths due to environmental factors. *The Cornell Chronicle*, <http://www.news.cornell.edu/chronicle/98/10.15.98/env-death.html>, 30: 15.
- Uche, S.C., 1995. Education and Sustainable Development: An Introduction. In: M.B. Lawal, E.J. Aniah, S.C. Uche and I.A. Animashun (Eds.). *Education For Sustainable Development*. Lagos: Macmillan Nigeria Publishers, pp: 1.
- United Nations Education Scientific and Cultural Organization (UNESCO), 1997. *Educating For a Sustainable Future: A Transdisciplinary Vision for Concerted Action*. International Conference in Thessaloniki.
- United Nations, 1992. *Earth Summit: The United Nations Conference on Environment and Development*, Rio De Janeiro, London: UN.