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Teachers' Experience and Teachers' Competency Needs in the multidisciplinary approach to implementation of environmental education curriculum in Cross River State, Nigeria

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ABSTRACT
The study was undertaken to determine teachers experience and their competence needs of teachers in the multidisciplinary approach to implementation of environmental education curriculum in Cross River State, Nigeria. One research question and one hypothesis were formulated to guide the study. The study adopted the descriptive survey design. The sample consisted of 737 teachers proportionally sampled from 67 public secondary schools in the three education zones of Cross River State. The teacher competence needs questionnaire in the implementation of environmental education curriculum containing competency needs items was used for data collection. The data were analyzed using means, standard deviation and t-test. Teachers' experience ($F=5.292$; $p<.05$) significantly influenced their competence needs. Based on the findings, it was recommended among others under the multidisciplinary approach experience teachers should be well trained and retrain to be able implement EE curriculum.

Background to the Study

The 2002 Decade of Education for sustainable Development (DESD) adopted by the United Nations General Assembly was in recognition that public awareness, education and training are key to moving society toward sustainability (Ogunyemi, 2005). Chapter 36 of Agenda 21 of the Rio summit underscores the importance of education in achieving sustainable living and this is perhaps why the Rio conference specifically called on all countries to develop and implement an education for sustainable development strategy by 2002. The core objective for this type of education is to promote values and ethics through education at different levels in order to make an impact on people's lifestyles and behaviour and help to build a better environment. Newman (1970:34) noted that:

> everywhere the face of the earth is being altered and obscured by staggering amounts of pollutants, so much that the limits of nature's housekeeping efforts could be surpassed. Should this happen, the system we call ecology may breakdown, making life itself impossible.

In the face of these circumstances, the educational process assumes a position of prominence and importance in organized effort towards freeing man from the destruction occasioned by his ignorance of the dynamics of nature and the environment. Essentially, the destruction and devastation inflicted on the environment by man are, in part, due to his misconceptions about nature, his flawed attitudes to matters relating to the environment and his failure to regulate his activities on the planet (Emeh, 1997) Education as an instrument of systematic change becomes a very fundamental tool if we are to successfully modify man's conception about nature, his attitudes to and actions in the environment (Uche, 1995). The educational process is seen as the catalyst for effecting change in the relationship between man and the environment. After all, Rohrs (1979) stated that man is the product of his education and the type of society that would evolve at any period is dependent on the prevailing educational system that has been put in place and the educational goals that guide its operation. According to Inyang-Abia and Umoren (1995), environmental education should form an integral part of formal education at all the levels of schooling as a means of providing the necessary cognitive, affective and psychomotor skills needed by the Nigerian populace for their participation in the resolution of environmental problems.

The objectives of teaching EE include: sensitizing the learners by creating awareness about the environment and its problems; helping individuals acquire knowledge about the environment; changing the destructive attitude of people towards the environment; developing skills to solve environmental problems and encouraging individuals to participate in resolving environmental issues. For teachers to do all these they must

possess relevant competencies. According to Adara (1992) competencies needed for the protection of the environment include knowledge and skills which can only be acquired through education, particularly Environmental Education.

Basically, EE curriculum has been developed by NERDC and the council has appropriately identified the content area to include four broad areas namely, ecological foundation, human environment, environmental change and sustainable development. Ecological foundation consists of abiotic and biotic components, ecosystems as well as energy flow with the systems.The human environment comprises population and human activities in the environment. Environmental change and impact consist of pollution, wildlife management, soil erosion among others. Sustainable development includes methods of conserving bio-diversity and how to use environmental resources without degrading them. Teachers are expected, therefore, to possess the ability to articulate the contents on EE to enable them implement it.

Noibi (1990) reaffirmed that educational system has understandably been looked upon as the viable channel of influencing behaviour of future generation. Carew (1991) declared that man's endless desire and craze for rapid development and technological advancement has brought nothing but destruction and threatened extinction of our resources. He asserted that phenomena like waste, global warming, over grazing, bush burning, solid waste generation, etc, now threaten man's very existence. He noted that it is the conscious desire to resolve these conflicts and its effects on man's survival that makes the call for environmental education a step in the right direction.

Teachers' teaching experiences can be said to be those attitudes of skills acquired by the teacher through his perception and participation in instructional programmes. Experience, according to Glathorn (1997), is that "professional growth that takes in the educator as a result of continued stay, study on the job and other related processes. Examining the difference between novice and experienced teachers, Davies (2005) observed that experienced teachers operate from a deeper and more sophisticated knowledge base. Experienced teachers have often noted that their years of teaching have given them extensive repertoires of effective explanations, demonstrations, illustrations, examples, diagrams and anecdotes for the myriads of concepts and principles that they teach and the many understandings and skills that they help their students acquire (Gage, 1979). They can use evaluation to pass an informed value judgement on the adequacy or otherwise of the contents of the lesson or unit of work, in terms of the contents being below, above, or within the range of intellectual development of the students.

A person's teaching credential is a license for him to exercise positive influence, control and have authority over the behaviour of his students. It is a symbol of his intellectual maturity and experience not only in his teaching subject but also in his knowledge of how students learn, develop, and vary in the kinds of assistance they need for most effective learning (Kosemani & Kpolovie, 2003). Ntino (2002) observes that experienced teachers operate from a deeper and more sophisticated knowledge base than teachers who are novice. Ezewu (1987) noted that like in any other walk of life, there is a positive relationship between experience, productivity and efficiency. From both experience and research, there is abundant evidence not only to suggest but also to confirm that experienced teachers would show more effective teaching. This experiential knowledge is very essential for teaching effectiveness and is obtained through years of repeated contacts and experimentation with students.

The experiences of the teacher will help him or her to be able to cope and adapt to mild changes in the educational programme. He is in a better position to understand and pilot students towards the desired goals. According to Davies (2005) experienced teachers make many management and control decision in every lesson with an ease which a novice or less experienced one can only envy'. One of the reasons is that experienced teachers have probably gone through similar events many times in the past. However it is important to point out that teaching is a cycle which is repeated across groups of students every year. Thus, a teacher through the use of evaluation results is able to improve his teaching year by year. Glathorn (1997) emphasized that teachers have a unique role to play in the academic performance of students. They noted that the best experience that will give rise to effective teaching is the number of years of teaching experience in the classroom. Good teaching, they asserted, is mastered by practice. Buttressing the idea of experience in teaching Domike (2002) pointed out that when a teacher is experienced, he/she is in a better position to handle contingencies in the classroom. In essence, students who received instructions from skilled teachers record more apparent and encouraging accomplishments than those who receive instruction from ineffective and inexperienced teachers.

METHODOLOGY

Research design: The research design adopted for this study was the descriptive survey. A descriptive study seeks the views and opinions of a part or all of a population and describes the findings. This design is also

concerned with gathering of data at a particular point in time with the intention of knowing the nature of already existing conditions or identifying standards against which these conditions can be compared or determined (Isangedighi, Joshua, Asim, & Ekuri,2004). The survey descriptive design was considered appropriate for this study because it sought the opinion and the views of teachers vis-à-vis their competency needs in the implementation of EE curriculum.

Area of the Study: This study was conducted in Cross River State (CRS). The state consists of eighteen (18) local government areas. Cross River State is rich in biodiversity and has one of the richest parks in Nigeria. CRS is situated in the rainforest zone and houses 95% of Nigeria's rainforest.

Sample and Sampling Technique

The sample for the study included 737 teachers selected from 67 public secondary schools in Cross River State using a multi-stage proportionate sampling technique. First, the schools in the state were stratified along three educational zones. Calabar zone has 72 public secondary schools, Ikom has 86 and Ogoja has 70 public secondary schools giving a total of 228 public secondary schools across the three zones.

To ensure a representative sample from the population, the proportionate sampling technique was adopted. For each zone, 30% of the schools were randomly selected for the study. This gave 21, 25 and 21 schools from Calabar, Ikom and Ogoja zones respectively making a total of 67 schools. Ali (2006:129) prescribed that "a sample size should be at least 30% of the population depending on the population size".

From the 67 schools sampled, all the JSS3 teachers of subjects recommended by the National Policy on Education (2004) to be offered at the Junior Secondary School (JSS): English, Mathematics, Integrated Science, Social studies, Introductory Technology, Religious Knowledge, Agricultural science, Business studies, Music/Fine Arts, French, Home Economics, Physical and Health Education. The sample size for the study was 737 teachers.

Instrument for data collection

The instrument for data collection was a structured Teacher Competence Needs Questionnaire for the implementation of Environmental Education Curriculum (TCNQIEEC). The questionnaire was developed by the researcher from the Environmental Education Curriculum for Junior Secondary Schools developed by NERDC. The instrument consisted of two sections. Section A seeks the personal data of the respondents. The variable included the educational qualification of teachers. Section B containing 37 items measured the competency needs of teachers in environment education.

Validation and Reliability of the Instrument

The researcher developed the TCNQIEEC with the supervision and guidance of the supervisor. The items were then validated by 3 experts from curriculum and educational measurement and evaluation. They were required to use their expertise to determine the suitability of the items in the instrument for the data collection. For further vetting and to ensure that the items are appropriately structured in terms of clarity of expression, and adequacy, the instrument was also examined by a language expert. Their observations were used to improve the quality of the instrument. These items were then approved for face validity as well as their relevance and appropriateness for the study.

The TCNQIEEC was trial tested in selected schools in Akwa Ibom State. Fifty copies of the questionnaire were administered to 50 teachers in 3 schools in Akwa Ibom State. The internal consistency reliability of the instrument was determined using the Cronbach Alpha (alpha) formula. The trial test result for the instrument yielded an alpha co-efficient of 0.89. This procedure is preferred because alpha is often based on parts of a test especially where the parts of the test are individual items (Wiersma and Jurs, 1985).

Method of data collection

The TCNQIEEC constituted the source of data collection for the study. A total of 737 copies of the questionnaire were administered to teachers in 67 public secondary schools in three education zones of Cross River State. The researcher visited and consulted the various principals whose schools were to be used for the study to obtain permission to be allowed to administer the instrument to the teachers. The questionnaire was administered to the teachers by the researcher and two trained research assistants. The research assistants were Science Education post graduate students. They were briefed on the purpose of the research and their responsibilities in ensuring that valid and reliable data is obtained from the respondents. A total number of 737 copies of the questionnaire were administered and collected.

Method of data analysis

Teachers' responses were recorded on a four point rating scale. The resposes from Section B were scored as follows: Very High Extent (VHE)- 4points; High Extent (HE)-3points; Some Extent (SE)-2points and Not at All (NA)-1point. The cut-off point for Section B was 1.5 the lower limit of the least expected score (SE)-2

points. Answers to the research question was provided through the use of frequency counts and means while the was tested using the independent t-test .

Results and Discussion

Research Question

What influence does teachers' experience have on competency needs in the implementation environmental education curriculum? Data for answering the above research question were obtained from sections A and B of the instrument

Results of analysis of data are shown on Table 1

Table 1

Means and standard deviations of teachers' score in competency needs by experience.

S/No	Teaching experience	N	Mean	SD
1 (Group 1)	Below 6years	196	94.03	23.08
2 (Group 2)	6 – 15 years	380	102.1	23.89
3 (Group 3)	Above 15 years	161	98.31	23.91
	Total	737	99.08	23.89

Table 1 indicates that teachers' with below six years of teaching experience had a mean score of 94.03 and standard deviation of 23.08 as against the mean scores and SD of 102.1 and 23.89, and 98.31 and 23.96 for 6-15 years and above 15 years teaching experience respectively. The result shows that there is influence of teachers' experience on competency needs in environmental education.

HYPOTHESIS

The null hypothesis states that there is no significant influence of teacher's experience on their mean rating of competency needs in implementing the EE.

To test this hypothesis, the one-way analysis of variance (ANOVA) was employed to compare the competency needs of teachers with different teaching experience. The result is presented in Table 2.

Table 2

Summary data of one-way ANOVA of the influence of years of teaching experience on competency needs of teachers in implementing
the EE curriculum.

Source of Variance	SS	Df	Ms	F	p-level
Between group	8903.939	2	2967.980	5.292	.001*
Within group	411107.05	734	560.856		
Total	420011.44	736			

* = p< 0.05 level

The result in Table 2 shows that the analysis of variance produced an F-ratio of 5.292, which was statistically significant at 0.05 probability level (p<0.05). This result suggests that teachers of varying years of teaching experience differ significantly in their competency needs in implementing the EE Curriculum (F= 5.292; p= 0.05). Hence, the null hypothesis is rejected. To find out the direction and source of difference, Scheffe test was further utilized. The result is presented in table 3.

Table 3
Post-Hoc Pair wise comparison of the competency needs in implementing EE based on teaching experience.

Teaching Experience	N	Mean	SD	p-v
Below 6years	196	94.03	23.08	.001*
6 – 15 years	380	102.08	23.89	
Below 6 years	196	94.03	23.03	.237ns
Above 15 years	161	98.31	23.91	
6 – 15 years	380	102.08	23.89	.253ns
Above 15 years	161	98.31	23.91	

**- Significant at 0.05 level*
ns- not significant

Table 3 shows that significant difference existed between teachers that have below 6years of teaching experience and those with between 6-15 years. There was however no significant difference between those that have below 6years and those above 15 years and between those with between 6-15 years of teaching experience and those with 15years of teaching experience. This result reveals that the source of difference is group 2. This means that teachers with 6years to 15years of teaching experience indicated the highest competency among the three groups. In other words, teachers with below 6years and those with above 15 years of teaching experience required more competency needs than those with teaching experience of 6-15 years.

The findings of the study indicate that the number of years a teacher spends in teaching is a very significant factor in the teacher's wealth of experience. At the beginning of teaching, for instance, within the first few years, the novice teacher learns the art and science of teaching and gets familiar with the content. As the years progress, the teacher becomes very acquainted with the content and its general applications. As the years progress, the teacher perfects his or her pedagogical skills with more experience in classroom dynamics. However, many teachers showed downward performance after several years both due to diminishing return and largely due to lack of a commensurate reward for the progressive yearly performance. In other words, the lack of significant improvement in the working conditions of teachers can lead a teacher to become less interested in what goes on around him/her. This is perhaps why teachers with six to fifteen years of experience indicated higher competency than those that have spent over fifteen years and those that have spent less than six years.

The more years a teacher puts into teaching, the more she\he becomes more conversant with the pedagogy of teaching as well as the mastery of the subject matter content. The mastery of subject content enables the teacher to go into other subject areas and in doing so she\he gains additional knowledge. Experienced teachers are also more likely to venture into new areas in teaching. Environmental issues are becoming the concern of everyone and the development of EE curriculum is to help address environmental problems. Before NERDC developed the EE curriculum in 1998 environmental issues and the introduction of EE into the school curriculum dominated discussions among curriculum experts across the country. Many teachers that have taught from the late nineties are likely to be more conversant with EE content than the ones that came in recently The finding draws support from the findings of Ogwo (2005), Odetoyinbo (2004), Okonkwo (2000) and Ogundele (1995), all of which recognized experience as an influential factor in determining perception and action of the teacher.

Besides, Agbor (2005) has opined that experience of the teacher is associated with exposure on teaching job. The more the cognate experience of the teacher, the older his exposure on the job and the more he tends to perceive events and actions differently. On the other side of the coin, teachers with less experience have little exposure on the job and this could affect their knowledge of the curriculum content and their overall competency needs. Generally, the more years one practices a task, the more one gets to know the task better. Teachers who have taught for many years have acquired not only more in the subject area but also from what goes on around him or her within the environment

Davies (2005) observed that experienced teachers operate from a deeper and a more sophisticated knowledge base. The teachers' previous experiences could be the pattern of teaching which they acquired overtime. Teachers are well aware that their status and credibility stem from their effectiveness. However, it is often difficult to establish patterns of experiences on teachers' life cycle. For some teachers, the process might be linear, while for others there were stages, regressions, dead ends and unpredictable changes of direction that are often occasioned by new realization. Generally, however, experience remains one key determinant of effective teaching and learning.

Conclusion and Recommendations

The results of the study have some implications for stakeholders in education – curriculum developers, teacher trainers, teachers, students and the government. If teachers of different teaching subjects have knowledge of Environmental Education content they can therefore promote Environmental Education through the various teaching subjects.. Teachers' experience is very important determinants of teachers competency needs as the findings reveal. Depending teachers' experience teachers' competency needs in Environmental Education varies. This requires that a deliberate policy be put in place to enable all teachers take more courses in different disciplines during training. They also need to undergo adequate preparation in integrative classroom interactive skills especially the multidisciplinary approach of teaching. Great emphasis should be placed on the selection and retention of teachers with appropriate experience.

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