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The Status of Basic Technology in Cross River State Junior Secondary Schools, Nigeria

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Abstract

The purpose of the study was to ascertain the status of basic technology in Cross River State junior secondary schools. Descriptive survey design was adopted for the study. The study was guided by three (3) research questions. The population for the study comprised of one hundred and twelve (112) basic technology teachers employed by the state school board Calabar. The sample for the study consisted of sixty (60) basic technology teachers from the three zones. Proportionate stratified random sampling technique was used to select the sample. The instrument for data collection was a researcher's structured questionnaire titled. "Status of Basic Technology Inventory (SOBTI). The data collected were analysed using mean and standard deviation to answer the research questions. The study revealed that there was inadequacy in instructional materials for teaching basic technology in junior secondary school in Cross River State and even when materials are made available for teaching the students some teachers seem to lack experience in handling the equipment for teaching of practical class. It was further recommended that adequate instructional materials should be provided for the teaching of basic technology in junior secondary schools in Cross River State and in-service or on the job training should be given to teachers in this subject area for professional growth among others.

Key Words: Technology, Basic Technology, Junior Secondary School.

Introduction

Under the new national policy on Education, introduced in 1982 there is a six-year primary school programme, followed by six-year secondary education, (divided into three year junior and senior secondary schools), and four years (on the average), post – secondary education (6-3-3-4). Junior Secondary school is an intermediate school for students older than elementary/primary school, but not yet in senior secondary school. The ages covered varies between, and sometimes according to countries. However, in Nigeria, junior secondary school is for children from ages 10-12 which is pre-vocational and academic in scope. At this level most or all subjects are made compulsory to enable the children widen their scope and knowledge in preparation for senior secondary school. At the Junior Secondary School (JSS) level, Basic Technology is one of the pre-vocational subjects that is offered (federal ministry of education science and technology (FMEST, 1985).   The National Policy on Education (FRN, 2004 and Okorie, 2001) in Odu (2013) have stated that the junior secondary schools will be both prevocational and academic. However, the policy document goes further to state the pre-vocational subjects as:

a. woodwork
b. metal work

c. electronics
d. basic electricity
e. elementary building construction
f. technical drawing
g. food preservation and storage and other miscellaneous topics

With the intense benefit technology offers to mankind, it is therefore imperative for adequate and appropriate teaching materials to be made available for the effective teaching and learning in the classroom.

The term technology is derived from two Greek word "techno" meaning, art, skill, craft and "logia" meaning study of. (Popper, 2007). In the same vein, Bain, (2008) an American sociologists asserted that technology includes all tools, machines, utensils, weapons, instruments, housing, clothing, communicating and transporting devices and the skills by which we produce and use them. Stanley (2006) continued by saying technology refer to all tools and procedures used or required for manufacturing and producing materials needed for daily life. Basic technology therefore, is a subject taught in the junior secondary school with the incorporation of many skilled subjects such as woodwork, metal work, electrical/electronics, mechanics, technical drawing and local crafts to enable students of that school age be abreast with basic technological skills and competencies for useful living in the society (Otamba, 2013). The objectives of Basic technology are:

❖ To provide pre-vocational orientation for further training in technology.
❖ To provide basic technological literacy for everyday living.
❖ To stimulate creativity and innovation.

One of the basic need for teaching vocational subjects in junior secondary school is to enable the individual acquire appropriate skills, abilities and competence as equipment for him to live in, and contribute to the development of his society (Olaitan, 1996). Implicitly, one of the broad aims of secondary education, among others is "to equip the students to live effectively in our modern age of science and technology" (FRN 2004). Despite the relevance of basic technology, the cry for poor implementation of the curriculum for basic technology still poses a challenge to secondary education in Cross River State. Odu (2013) lamented that "unfortunately, a recurring problem besieging basic (technical) education since its inception has been the absence of adequate facilities to foster effective teaching and learning. This lament by Odu prompted Ibe (1992) to suggest the adoption of improvisation of instructional materials by teachers of basic technology. He said, improvisation of instructional materials is the preparation and the provision of alternatives to real materials as teaching aids. The inadequacy of instructional materials for teaching is therefore

responsible for the idea of adoption of improvisation by teachers to be able to cover areas of need in classroom situation.

In the light of the above expositions, it is very vital to determine the status of basic technology as one of the pre – vocational subjects, aimed at enabling the students to live effectively in our modern age of science and technology. The purpose of this study therefore is to ascertain the current status of Basic Technology in Cross River State Junior Secondary Schools.

Research Questions

To address this study, three research questions were posed:

1. How do the teachers perceive the basic technology course content?
2. How adequate are the instructional facilities and equipment provided?
3. What are the instructional problems encountered by the students?

Methodology

Population: All the one hundred and twelve basic technology teachers employed by the State School Board, Calabar, consisted the population of the study.

Sample and Sampling Procedure: The sample for the study consisted of sixty basic technology teachers (20 teachers from 3 education zones making a number of 60), randomly drawn from the examiners during the 2006 Junior School Certificate Examination (JSCE) marking session in Hope Waddel Training Institute Calabar, Ogoja and Basic Education Authorities of Cross River State. Also used were three hundred Junior Secondary three (JSS 3) students purposively drawn from only schools that offer the subject at JSCE level, irrespective of gender, were drawn by simple random sampling through balloting.

Instrument for Data Collection: Data were collected for the study using 4 – point rating scale termed "Status of Basic Technology Inventory (SOBTI), which was developed and validated by the researchers.

A reliability coefficient of 0.72, using Cronbach Alpha formula was determined for SOBTI. The value was considered high enough to permit the conclusion that the instrument was reliable and hence, adequate for the study.

The research questions were answered using mean and standard deviations. A cut – off point of 2.50 was determined by finding the mean of the nominal values assigned to the options of strongly agree (SA = 4) Agree (A = 3), Disagree (D = 2), and strongly Disagree (SD =1) and response therefore, with a mean of 2.50 or above was regarded Agree while that below, were regarded as disagreed. Teachers responses only,

were used to answer research questions 1, 2, 3, 4, while the students' response provided data for analyzing research questions 5 and 6.

Discussion of Findings

Table 1 provided answer to research question one (1). The respondents agreed to all the items about the instructional content of basic technology as offered in Junior secondary school in Cross River State. All the items had a mean score of 2.50 or above. Where is above, the cut–off point for accepting any statement stands at which is 2.50. The results of table one shows that Basic technology is relevant and important to be studied by Junior Secondary school students in Cross River State as this relationship is in line with (FM EST,1985) which asserted that the instructional content of Basic Technology was consistent with the objective of basic technology. This mean that the course contents of introductory technology are intimately related with the objectives of secondary education.

From table 2 above, responders agreed that instructional facilities and equipment are inadequately provided to enable for effective teaching and learning of basic technology in secondary schools. This is in line with Ibe (1992) who suggested the adoption of improvisation of instructional materials by teachers of basic technology was a veritable tool for effective delivery of basic technology in secondary schools in Cross River State. He added that the inadequacy of instructional materials for teaching is therefore responsible for the idea of adoption of improvisation by teachers to be able to cover areas of need in classroom situation.

Table 3 provided answer to the research question 3 which carried 5 items on the instructional problems faced in the learning of basic technology which aligns with Omaribe (2012) who posited that in most cases, even when instructional materials are provided for teachers to use for the teaching and learning process, not a single teacher is capable of giving up to date and complete information in his/her own subject for assimilation of the course content. Ass sited above, one of the major challenges faced in the teaching of basic technology is effective instructional delivery of the course content to students. This can only be achieved by recruiting teaching which specialized skills in handling basic technology equipment and material for a sound acquisition of technological skills for useful living among members of the society.

Conclusion

Self-reliance is very necessary for today's world especially in Cross River, when children in junior secondary school are exposed to pre-vocational skills through basic technology it will better their chances of becoming entrepreneurs after school as they

will learn relevant skills that will help them to become self-reliant as well expand their horizon for technological subjects or courses.

Recommendations

Based on the findings of the study the following recommendations were made

1. Adequate instructional materials should be provided for the teaching of basic technology in junior secondary schools in Cross River State.
2. In-service or on the job training should be given to teachers in this subject area for professional growth.
3. Well-equipped laboratories and technology workshop should be provided for practical work.
4. Teachers should make the course content attractive by involving students in practical classes to enhance better understanding.

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Table 1: Mean and standard deviations of the respondents on their perception about the course content of Basic technology

S/N	QUESTIONNAIRE ITEMS	X	S D	Decision
1.	Objectives of the subject taught are consistent with national goal.	2.90	0.86	Agree
2.	Content areas are relevant to national goals.	3.35	0.45	Agree
3.	Emphasis is placed on helping students gaining insight and knowledge of basic scientific principles.	2.50	0.62	Agree
4.	Activities are geared toward self – reliance.	3.40	0.52	Agree
5.	Course content emphasizes desirable personal characteristics, good work habits and good workmanship	2.80	0.53	Agree
6.	Course content is relevant to business, industry and technology.	3.10	0.28	Agree
7.	Emphasis is placed on skill acquisition	3.00	0.60	Agree

Table 2: Responses on adequacies of instructional facilities/equipment for teaching of Basic Technology

S/N	QUESTIONNAIREM ITEMS	$\overline{X}$	S D	Decision
8.	Workshops/space are not adequately provided	2.90	0.50	Agree
9.	Workshops are not adequately ventilated/lighted	2.60	0.54	Agree
10.	Material resources are not available to meet the enrolment needs of students	2.60	0.84	Agree
11.	Equipment/machines/apparatuses are not adequately provided	2.80	0.55	Agree
12.	Sufficient hand tools are not provided	2.60	0.80	Agree
13.	Adequate provisions are made for safety in the workshops	2.40	0.50	Disagree

Table 3: Responses on students' Instructional problems faced in the learning of Basic Technology

S/N	QUESTIONNAIREM ITEMS	$\overline{X}$	S D	Decision
14.	Activities in it are too demanding on students	3.12	0.81	Agree
15.	Basic Technology is very expensive subject	3.17	0.60	Agree
16.	Actual teaching periods are few compared with the content areas	3.21	0.49	Agree
17.	Teachers only takes and gives us note to copy	3.14	0.98	Agree
18.	The level of action some topics are introduced are too advanced for most students	3.02	0.93	Agree

Key:

$\overline{X}$ -   Mean ratings of respondents

SD   -   Standard deviation of respondents