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AVAILABILITY AND UTILIZATION OF INSTRUCTIONAL MATERIALS IN TEACHING BASIC SCIENCE IN SELECTED SECONDARY SCHOOLS IN ABAKALIKI EDUCATION ZONE OF EBONYI STATE, NIGERIA

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ABSTRACT

This study, focused on the availability and utilization of instructional material in teaching and learning of Basic Science in selected junior secondary school in Abakaliki education zone of Ebonyi State-Nigeria. The survey research design was used for the study, population of the study was 92,414. The sample for this study comprised of one hundred students from ten selected junior secondary schools.Structured questionnaire was the instrument used for data collection, and the instrument was face validatedby three experts. Three research questions guided the study. The data were analyzed using percentages. The result revealed that onlytwo dimensional instructional materials are available in schools. Other instructional materials e.g. Audio materials, Audio-visual materials are lacking in most schools. The study also revealed that teachers do not improvise instructional materials to facilitate theirteaching. The researchers therefore recommend that teachers should be givenorientations/workshops from time to time on the improvisation and utilization of instructional materials and that the government should also assist in the provision and supply of these instructional materials for use in schools.

KEYWORDS: Instructional material, basic science, Utilization, Improvise, audio material, two-dimensional material

INTRODUCTION

In Nigeria, the government pronouncement and activities geared towards encouraging secondary school students to study the science abound. Towards this development, the Nigeria Educational Research and Development Council (NERDC) was mandated to develop science curricula for use in Junior Secondary education and indeed all levels of educational system in Nigeria. In line with government declaration for Universal Basic Education Programme, The NERDC was directed by the National Council on Education (NCE) to re-structure and re-align he existing Junior secondary school science curricula to meet the target of the Nine (9) year Basic Educationwhich seeks to achieve the Millennium Development Goals (MDG). The curriculum reflects depth, appropriateness, and interrelatedness of the science curricula contents. Since the curricula represents the total experience to which learners must be exposed, the contents, performance objectives, activities and instructional materials were provided. Instructional materials referto materials that are used to facilitate teaching and learning. It enables the teacher communicate ideas or concepts with ease as they appeal to many senses at a time (Munchi 2008). The learner can see, touch, smell or taste thereby making learning more meaningful. This agrees with the Chinese proverb that state: I hear - I forget, I see - I remember, I do - I understand. Basic science is designed to enable the learners develop interest in science and technology, acquire basic knowledge and skills in science and technology, and also apply their scientific and

technological knowledge and skills to meet societal needs. If these objectives will be achieved, then efforts should be made to provide adequate instructional materials to Nigeria Junior secondary schools inteaching of Basic science and to encourage its effective use. Despite the emphasis placed on the usefulness of instructional materials in teaching and learning process, most students still finds it difficult to cope with the study of basic science in schools. This may have resulted from lack of or underutilization of instructional materials by teachers. The researchers focused group discussions and Field experience reveal that in most schools in the state, instructional materials are lacking and where they exists they are not adequately utilized by teachers. The main of study to ascertaining the availability and utilization of instructional materials in teaching Basic science in selected junior secondary schools in Abakaliki educational zone of Ebonyi state. Specifically, the study seeks to find out:

- 1. If instructional materials for teaching and learning Basic science are available in schools.
- 2. The extent to which Basic science teachers improvise instructional materials for teaching.
- 3. The extent to which instructional materials are utilized by the teacher.

Significance of the study

Results of this study will be utilized by teachers, School authorities, and government. The study is expected to create awareness to teachers, the school authority, the Ministry of Education, and the Government of Ebonyi State on the availability and utilization of instructional materials in schools. This will make teachers rise up to the challenge; it will also make the school authority and government to intervene, strategize and consequently supervise and monitor the classroom teachers on the use of these materials to facilitate learning in the schools.

Scope of the study

The study covers the availability of instructional materials in teaching Basic science in Junior Secondary schools in Abakaliki Education zone of Ebonyi State, the extent to which these instructional materials are utilized and the extent to which Basic Science teachers improvise instructional materials.

Research Questions

The following research Questions guided the study.

- 1. Are instructional materials for teaching and learning Basic science available in schools?
- 2. Do teachers improvise instructional materials in schools?
- 3. Are instructional materials utilized by the teachers?

METHODOLOGY

Design of the Study

The study adopted survey research design. Survey research design, in the opinion of Owens (2002) is that in which the same information is gathered from an unbiased representative group of interest. It is very valuable tool for assessing opinion and trends from representative group of population being investigated.

Uzoagulu (2011) asserted that survey research design is considered the best design as it is interested in collecting original data for the purpose of describing conditions as they exist in their natural forms.

Population of the study

The population of this study consists of 92,414 students from sixty Junior Secondary schools (JSS1)in Abakaliki Education Zone of Ebonyi state. The JSS1 are chosen because at their level, basic science is compulsory for all the students.

Sample and Sampling Techniques

The sample for this study comprised of one hundred Junior Secondary School JSS I students drawn from ten schools out of sixty secondary schools in Abakaliki education zone of Ebonyi State. The ten schools were drawn through a stratified random sampling method. In each of the schools, 10 students were selected through simple random sampling method.

Instrument for Data Collection

The instrument used for data collection is the structured questionnaire. The questionnaire was divided into three sections, A, B, C. Section 'A' is concerned with the data needed on the availability of instructional material in schools. Section 'B' determined weather teachers improvise instructional teaching aids and 'C' obtained information on the utilization of instructional material in schools.

Validation of Instruments

The instrument was face validated by 3 experts, one in science education and two experts in measurement and evaluation, Ebonyi State University Abakaliki.

Reliability of Instrument

The reliability of the instrument was determined using test re-test method with thirty respondents from Afikpo education zone. The instrument was administered on the same respondents after two weeks. The reliability coefficients of the two were determined using spearman's rank order coefficient and result obtained was 0.78. The reliability of an instrument is the consistency of the instrument in measuring whatever it is designed to measure.

Procedure for Administration

A total of one hundred questionnaires were administered to basic science students of the sampled schools. Ninety of the questionnaire were correctly filled, returned and was used to analyze the data. Data were analyzed using percentages.

RESULTS

The results of the study were obtained from the research questions answered through data collected and analyzed.

Research question 1:

Are instructional materials for the teaching of basic science available in schools?

The data for answering research question 1 were presented in table 1.

S/N	Instructional materials	NYR	%	NNR	%
1	Two-dimensional instructional materials (pictures, chart, diagrams,	70	(78%)	20	(22%)
	posters etc).				
2	Three- dimensional instructional material (specimens, models, & games)	35	(39%)	55	(61%)
3	Audio materials (tape, cassette, radio).	37	(41%)	53	(59%)
4	Audio - visual materials (television, video recoding, motion pictures)	18	(20%)	72	(80%)
5	Electronic (computer)	20	(22%)	70	(78%)
6	Materials/software (slide, film strip, over head project)	30	(33%)	60	(67%)

TABLE1: Percentage response of respondents on the availability of Instructional materials in schools.

Key: *NYR* = Number of yes response, NNR = Number of No response, % percentage response

The dataon table 1 shows that seventy students representing 78% of the respondents maintained that picture, charts, diagrams and posters were available in their schools while twenty students representing 22% said that they are not available in their schools. This indicated

that two dimensional instructional materials are available in the schools.

Items 2 indicated that Thirty five respondents representing 39% are of the view that specimens models and games were available in their schools while fifty five respondents representing 61% responded on the contrary. This implies

that 3 dimensional instructional materials are not adequately available in schools.

In items 3, Thirty seven respondents representing 41% of the students were of the opinion that tape, cassette, radio, teleconference were available in their schools while fifty three respondents representing 67% of the students held a contrary view. This also indicates unavailability of audio materials in schools.

Items 5 shows that twenty respondents representing 22% said they have computers in their schools while seventy respondents representing 78% indicated that non availability of computers and e-mail in their schools. This

implies that computers are not available for use in schools in the study area.

Items 6 shows that thirty respondents representing 33% of the students responded on affirmative that slide, film strip, overhead transparency are available in their schools while sixty respondents representing 67% of the students responded that they are not available. This means that schools lack audio visual teaching aids.

Research question 2:

Do teachers improvise instructional materials in schools? The data for answering research question 2 were presented in table 2

TABLE 2 : Percentage response of respondents on teachers	' improvisation of instructional materials for teaching basic
science i	n schools

S/N	Instructional materials	YRF	%	NRF	%
1	Two-dimensional instructional materials (pictures, chart, diagrams,	40	(44%)	60	(66%)
	posters etc).				
2	Three- dimensional instructional material (specimens, models, & games)	25	(28%)	65	(72%)
3	Audio materials (tape, cassette, radio).	17	(19%)	73	(81%)
4	Audio – visual materials (television, video recording, motion pictures)	18	(20%)	72	(80%)
5	Electronic (computer)	12	(13%)	78	(87%)
6	Materials/software (slide, film strip, over head project)	15	(17%)	75	(83%)
K_{ev} : NYR – Number of ves response NNR – Number of No response % percentage response					

Key: NYR = Number of yes response, NNR = Number of No response, % percentage response

Data on table 2 shows that items 1-6 had yes response frequencies ranging from13% to 44% and the No response frequencies ranged from 66% to 87%. This implies that teachers in junior secondary schools do not improvise instructional materials in teaching Basic science in the secondary schools. The results show that the respondents

maintain that teachers do not improvise these instructional materials.

Research question 3:

Are the available instructional materials utilized by the teachers?

The data for answering research question 3 were presented in table 3

S/N	Instructional materials	Frequently	Sometimes	Not at all
1	Two - dimensional (pictures, charts diagrams, posters)	70(78%)	15(17%)	5(5%)
2	Three - dimensional (specimens, models, and game)	8(9%)	15(17%)	67(74%)
3	Audio materials (tape, cassette, radio, teleconferencing)	0(0%)	10(11%)	80(89%)
4	Audio - visual materials, (television video recording, motion	0(0%)	7(8%)	83(92%)
	pictures) etc.			
5	Electronic (computer, e-mail)	25(27%)	15(17%)	50(56%)
6	Material/software (slide, filmstrip, overhead transparency)	0 (0%)	8(99%)	82(91%)

TABLE 3: Responses of respondents on the Utilization of Instructional Materials by Teachers

Key: NYR = Number of yes response, NNR = Number of No response, % percentage response

The data on table 3 reveal that 78% of the respondents maintained that pictures, charts, diagrams and posters were frequently used in teaching basic science in their schools, 17% maintained that it was sometimes used while 5% said that they are not used at all by their teachers This means that two dimensional instructional materials are utilized in schools by teachers. Data on the use of three-dimensional instructional materials shows that 8% of the respondents are of the view that they are frequently used by their teachers, 15% maintained that they are sometimes used while 74% of the respondents affirmed that they are not used at all by their teachers. This affirms the non availability of such materials in schools as well as their non utilization. Items 3 also reveal that no respondent agreed that audio materials (cassette, radio, teleconference etc) were frequently used by their teachers, only 11%

agreed that it is sometimes used while 89% maintained that it is not used at all during teaching and learning. Again, none of the respondents agreed that audio - visual materials (television, video recording, motion pictures etc) were used by their teacher. 8% maintained they are sometimes used while 92% of the respondents were of the view that they were never used in their schools. In case of electronics (computer) 27% of the respondents agreed to its frequent use. 17% said it is sometimes used during teaching and learning while 56% of the respondents maintained that it is not used at all. This implies that computers, audio materials, audio-visual materials and materials/software are not utilized for the teaching of basic sciences in the secondary schools .It was equally revealed from the analysis of data that none of the respondents agreed to the frequent use of slide, film strip, overhead

transparency in their school. 9% responded sometimes while 91% responded not at all to the use of software instructional materials.

DISCUSSION

Result presented in table 1 reveals that two-dimensional instructional materials are readily available in schools. This finding agrees with Arokwu (2003) that carried out a similar study and found out that instructional materials (textbooks) were available in schools. It is worthy of note that Arokwu investigated the availability of textbooks only and not other instructional materials. The study also reveals that there is low availability of three-dimensional instructional materials, audio materials, audio visual, electronics and software instructional materials

Results obtained also shows that teachers do not improvise instructional material. The study also reveals that teachers do not frequently utilize these instructional materials to teach their students. This finding is in line with the findings of Arokwu (2003), who maintained that though there are enough textbooks in the schools; teachers do not often use them during the teaching and learning exercise. Notwithstanding the agreement of this findings with that of Arokwu (2003),this finding is in contrast with Adedijo (2000) who opined that students' performance in the subject is ensured as a result of effective utilization of instructional materials in schools.

CONCLUSION

Finding from this study revealed that apart from twodimensional instructional materials, most schools lack other valuable very important instructional materials for teaching and learning basic science. Most teachers hardly improvise instructional materials and that even when the instructional materials are available, teachers do not adequately utilize them in the teaching and learning of basic science.

RECOMMENDATION

Based on the findings of this study, the following recommendations were made.

1. There is need to re-orient the basic science teachers and indeed all science teachers on the provision and utilization of instructional materials.

- 2. Science teachers should endeavor to belong to professional bodies, attend seminar/workshops regularly e.g. Curriculum Organization of Nigeria (CON)
- 3. Government should pay more attention to education and provision of instructional materials for teaching and learning.

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