



EXTENT OF IMPLEMENTATION OF BIOLOGY CURRICULUM IN SENIOR SECONDARY SCHOOLS IN NSUKKA AND OBOLLO-AFOR EDUCATION ZONES OF ENUGU STATE, NIGERIA

Ezeh, Obiageli Vivian,¹ Prof. Nwobodo, Donatus,² and Ishiwu I. U., Ph.D³

Department of Educational Foundation, Faculty of Education,
Godfrey Okoye University Enugu, Nigeria

Abstract: *The study assessed the extent of implementation of Biology curriculum in senior secondary schools in Nsukka and Obollo-Afor education zones of Enugu State. Descriptive survey research design was used for the study. The study used the whole of 109 SS II Biology teachers in the two zones because they were small and manageable. The instrument that was used in this study was the Biology Curriculum Implementation Questionnaire (BCIQ). The internal consistency of the instrument was determined using Cronbach Alpha. The reliability estimate were 0.76 and 0.88 for clusters A and B. Two research questions and one null hypothesis were formulated and guided the study, and hypothesis tested at 0.05 level of significance. Mean and standard deviation were used to answer the research questions. The result of the findings showed that teachers in urban secondary schools are provided with instructional media more than those teachers in rural secondary schools.*

Keywords: Implementation, Instructional Media, Instructional Methods, Biology Curriculum

Introduction

The entire nation is aware that the study of Biology is one of the ways to achieving national development. The Nigerian Educational Research and Development Council (NERDC, 2008) listed the objectives of secondary school Biology curriculum in Nigeria as follows: Adequate laboratory and field skills in Biology; meaningful and relevant knowledge in Biology; ability to apply scientific knowledge to everyday life in matters of personal and community health and agriculture as well as reasonable and functional scientific attitude. Giving the inadequate provision of teaching resources for teaching and learning of Biology, there is obvious divide in the extent of curriculum implementation based on urban and rural lines. UNESCO (2009) observed rural deprivations or neglect including educational services.

Ovansa (2017) also noted that most rural schools lack adequate facilities for teaching and learning of Biology. This the researcher maintained contributes to low academic performance of students in West African Examination Council (WAEC). According to Jimoh (2009), instructional materials serve as a channel through which message, information, ideas, and knowledge are disseminated more easily. This is so because they can be manipulated, seen, heard and felt.

It is also worthy of note that inability of Biology teachers to use instructional methods bring about ineffective implementation. The technique used must be student-centered and activity-oriented. It should be a research-based instruction that allows maximum student-to-student interaction for learning purposes.

British International Journal of Education And Social Sciences

An official Publication of Center for International Research Development Double Blind Peer and

Editorial Review International Referred Journal; Globally index

Available @CIRD.online/BJESS: E-mail: bjess@cird.online



Information on the extent of implementation of Biology curriculum in Nsukka and Obollo-Afor education zones seems scanty.

Statement of the Problem

The importance of science education as a pre-requisite for national development, in part explains why most countries of the world make huge investment in it. In Nigeria, a major goal of science education is to produce scientists who will fit into the world's national development. Despite Nigerian government's efforts to promote science education programmes in the country, a number of factors militate against effective implementation of the sciences and the resultant production of high quality students. Biology as a science of life impacts positively on health related and other contemporary issues. The importance of Biology notwithstanding, the implementation of its curriculum seems to be having a problem. This is evidenced in the poor performance of candidates in the subject in SSCE as shown in chief examiner's report of 2013.

Research has shown that provision and use of instructional media, use of innovative instructional methods among other things are factors that could affect the implementation of every curriculum including that of Biology curriculum. Assessing this factor has become imperative because it is one thing to develop/design curriculum in an area of study and another thing to implement it effectively.

Purpose of the Study

The main purpose of the study is to determine the extent of implementation of Biology curriculum in secondary schools in Enugu State. Specifically, the study sought to determine:

1. extent to which Biology teachers in urban and rural secondary schools are provided with instructional media for the implementation of Biology curriculum;

2. extent to which Biology teachers in urban and rural secondary schools employ innovative instructional methods;

Significance of the Study

The proper usage of instructional media and innovative instructional methods will increase students' academic achievement and retention in Biology as well as acquisition of skills.

Teachers will find out whether they make effective use of instructional media and innovative instructional methods to ensure effectiveness in the implementation of Biology curriculum. The study would reveal appropriate instructional media and innovative instructional methods that could improve the teachers' effectiveness.

The study would enable the authorities of the Post Primary Schools Management Board (PPSMB) in Enugu State to check for availability and use of instructional media with respect to urban and rural secondary schools. They would subsequently make provisions for those resources equally to both urban and rural secondary schools.

The state Ministry of Education may also use the information provided in this study to organize seminars, workshops and conferences for the retraining of teachers.

Scope of the Study

The study has both geographical and content scope. The geographical scope of this study is Enugu State of Nigeria. The study covered all the S. S. II Biology teachers in both urban and rural areas in Nsukka and Obollo-Afor education zones of Enugu State. The content scope of the study considered the extent of implementation of Biology curriculum in senior secondary schools in Nsukka and Obollo-Afor education zones of Enugu State.



Research Questions

Two research questions guided the study:

1. To what extent are Biology teachers in urban and rural secondary schools provided with instructional media for the implementation of Biology curriculum?
2. To what extent do Biology teachers in urban and rural secondary schools employ innovative instructional methods in the implementation of Biology curriculum?

Hypothesis

There is no significant difference in the mean ratings of Biology teachers in urban and rural secondary schools on the extent to which they are provided with instructional media for use in the implementation of Biology curriculum.

Instructional Media and Implementation of Biology Curriculum

Instructional media for teaching of Biology are those devices and materials used by the teacher during teaching and learning process in order to make abstract concepts of Biology topics and ideas concrete. Odhiambo (2013) defined instructional media as those materials that support or aid the learning and understanding of the concepts or ideas presented in a learning environment. Scanlan (2011) states that instructional media encompass all the materials and physical means an instructor might use to implement instruction and facilitate students' achievement of instructional objectives. They may include traditional materials such as chalkboards, handouts, charts, slides, overheads, real objects, and video tape or film, as well as newer materials and methods such as computers, DVD's, CD-ROMs, the internet and interactive video conferencing. These instructional media may be classified as audio, visual, and audio-visual devices or materials. Audio instructional materials appeal to the sense of hearing only. Examples of audio instructional media are audio-tape, radio, etc. Visual instructional

materials are those materials that appeal only to sense of sight. Examples of visual materials are chart, pictures, chalkboard etc. Audio-visual instructional materials refer to a combination of audio and visual materials that appeal to both senses of ear and sight. Examples of audio-visual materials are computer, television etc. However, audio-visual materials are the most preferred technology used for instructional purposes.

Adamu et al (2018) defined audio-visual as the combination of various digital media types such as text, images, sound and video, into an integrated multi-sensory interactive application to convey a message or information to an audience. In other words, use of audio-visual means by an individual or a small group implies using a computer with a multi-sensory interactive application to receive information that is represented in several media. One selects what to see and hear next. They maintained that the power of audio-visual lies in the fact that it is multi-sensory, stimulating the many senses of the audience. It is also interactive, enabling the end users of the application to control the content and flow of information. This study sought to find out to what extent instructional media is used in Enugu State secondary schools considering their positive impact on teaching and learning.

Gopal (2010) asserted that audio-visual materials help the teacher to overcome physical difficulties of presenting subject matter. This implies that with audio-visual materials, the barrier of communication and distance is broken. Natoli (2011) stressed that audio-visual materials are important in the teaching and learning process because "having seen something, most people remember, for whatever that thing was, it conjures up an image at a mere mention and can be talked about freely".

According to Furor (2012), education cannot be a bed rock of national development without adequate instructional usage of the instructional media. Omingi



(2009) emphasizing the importance of instructional media, said that since we are in a digital world, it calls for a digital thinking and acting. Thus Biology teachers need to adopt instructional media as the way out in Biology teaching and learning in Nigerian schools. A Biology teacher cannot apply only manual methods in this 21st century and expect to accomplish the objectives of Biology education. In recognition of the prominent role of information technology (IT) in advancing knowledge and skills necessary for effective functioning in a knowledge based world, it was stated in National Policy on Education (2014) that government shall provide adequate IT for effective implementation. If this is properly employed in the teaching of Biology in secondary schools, there will certainly be a great achievement by the students. Effective use of these technologies demands experience or exposure on the part of the teachers obtainable from long service, conference, workshops, seminars etc. The question now is: are these instructional technologies made available for teachers in urban and rural secondary schools? How professionally trained are these teachers in the use of these technologies? Government should train these teachers on how to effectively use them for effective implementation.

Innovative Instructional Methods and Biology Curriculum Implementation

Innovative instructional strategies are designed to engage and challenge the students to think critically, analytically and objectively as they participate actively in the teaching and learning process. There are different instructional strategies and they are grouped into two namely: teacher-centered and student-centered. According to Sawa (2009) student-centered approach include all the teaching methods that reduce emphasis on the teacher as a decision maker and problem solver in the classroom but rather see teachers as guides, facilitators, mentors, coach or consultants in the teaching and

learning process. Student-centered approach is task-based, develops curiosity, creativity and collaboration or cooperation among the students. It equally leads to joyful learning, active participation in classroom activities and encourages the student to learn. Under this kind of learning situation or environment, students learn with minimal or no stress or tension. The innovative or student-centered methods for implementing the new Biology curriculum for senior secondary schools lay emphasis on field studies, guided discovery, laboratory techniques and skills along with conceptual thinking. The methods were prescribed in pursuance of the stated objectives, the content and context of the Biology curriculum (Nigerian Educational Research and Development Council (NERDC), 2008).

Methodology

The design of the study is a descriptive survey research design. The study was carried out in Nsukka and Obollo-Afor education zones of Enugu State. The entire population of the study covered all the 109 urban and rural public secondary schools in Nsukka and Obollo-Afor education zones. The sample size of the study was 109 SS II Biology teachers. All the 109 SS II Biology teachers in the two zones were used. This is because they were small in number and manageable. The instrument was a structured questionnaire designed by the researcher known as the Biology Curriculum Implementation Questionnaire (BCIQ). The reliability of the instrument was determined using Cronbach's alpha which measure internal consistency ("reliability"). The reliability coefficients obtained were 0.76 and 0.88. Research questions were analyzed using descriptive statistics. Specifically, mean and standard deviation were used to analyze data and provide answers to the research question. Further, t-test statistic as a type of inferential statistics was used to test the null hypotheses at 0.05 level of significance.



RESULT

Research Question

To what extent are Biology teachers in urban and rural secondary schools provided with instructional media for the implementation of Biology curriculum?

The result showing a total mean response of 3.10 implies great extent for the urban schools, and 2.33 for the rural schools implies a low extent at which Biology teachers are provided with instructional media for teaching of Biology in rural schools.

Research Questions 2

To what extent do Biology teachers in urban and rural secondary schools employ innovative instructional methods in the implementation of Biology curriculum?

The result indicates that the total mean responses of 3.47 and 3.45 for the urban and rural schools respectively imply that, to a great extent Biology teachers employ innovative instructional methods in the implementation of Biology curriculum in both urban and rural schools.

Hypothesis

H₀: There is no significant difference in the mean responses of Biology teachers in urban and rural secondary schools on the extent to which they are provided with instructional media for use in the implementation of Biology curriculum.

t-test Analysis of the significant difference in the mean responses on instructional media for teaching Biology

At significance of $P < 0.05$

With a P value 0.000 which is less than 0.05 indicating that there is significant difference in the mean responses of Biology teachers in urban and rural secondary schools on the extent to which they are provided with instructional media for use in the implementation of Biology curriculum. The null hypothesis is therefore rejected.

Discussion of Findings

Two research questions and one null hypothesis guided the study and the result obtained showed that teachers in urban areas are provided more with instructional media more than teachers in rural areas. This finding is in agreement with Ovansa (2017) who asserts that most schools in rural areas lacked adequate facilities for teaching and learning of Biology.

The result also showed that teachers in both urban and rural secondary schools employ innovative instructional methods in the implementation of Biology curriculum. This finding is opposed to Ofoha et al (2009) who revealed that teaching method used in implementing the curriculum in Nigeria was mainly theoretical.

Conclusion

There is need to bridge the gap that exists in urban and rural secondary schools in terms of distribution of instructional media for the teaching and learning of Biology. Biology teachers' inability to use instructional media in Biology classroom brings about ineffective implementation. Ineffective implementation of Biology curriculum by Biology teachers brings about poor performance of candidates in West African Examination Council (WAEC).

Recommendation

Enugu State government should provide adequate instructional media equally to schools in urban and rural areas for the effective implementation of Biology curriculum.

Enugu State government should make it mandatory for Biology teachers in urban and rural secondary schools to attend workshops, seminars, and conferences. This will help to re-train teachers on the proper and effective ways of using instructional media for the implementation of Biology curriculum. The state government, non-governmental organizations, philanthropists and industries/companies can help to sponsor such programmes.



References

- Adamu, T. I., Ibrahim, M. S., Adamu, T. A. & Ibrahim, A. (2018). Use of audio-visual materials in teaching and learning of classification of living things among secondary school students in Sabon Gari LGA of Kaduna State. *Plant Journal*, 6(2), 33-37
- Federal Republic of Nigeria (2014). *National policy on education*, Lagos: NERDC Press
- Furor, F. (2012). The effects of social media on teaching of English language in government science secondary, Toro Bauchi State Nigeria. *A Journal of Education* 4(20).
- Gopal, V. P. (2010). Importance of audio-visual in teaching methodology. Mahourashtra India. Maya Publishers.
- National Education Research and Development Council, (2008). *Senior secondary school curriculum: Biology for senior secondary schools 1-3*. Yaba Lagos: NERDC Press
- Natoli, C. (2011). The importance of audio-visual materials in teaching and learning. Retrieved from www.helium.com/channels/224-early-childhood-ed.
- Odhiambo, M. A. (2013). The effect of instructional media on performance in language activity among pre-school children in Nyaharwa Zone Siaya, Kenya. *Masters Unpublished Dissertation*. Department of Educational Communications and Technology, University of Nairobi.
- Omingi, O. (2009). *Understanding the pathway to greatness*. Nigeria: Aboki publishers.
- Ovansa, J. U. (2017). A comparative study of facilities and students performance in biology in urban and rural schools: A case study of Adavi Local Government Area of Kogi State. *International Journal of Education and Evaluation*, 3 (6), Retrieved from www.iiardpub.org
- UNESCO (2009). *Education for rural development: towards new policy responses*. UNESCO publishing International Institute for Educational Planning.
- West African Examination Council, (2013). WAEC e-learning chief examiner report, November/December 2013. Retrieved from www.waeconline.org.ng/e-learning
- Sawa, M. M. (2009). *Typologies of instructional strategies and techniques: Principles and methods of teaching*. Yola, Nigeria. Paraclete Publishers.
- Scanlan, C. L. (2011). Instructional media: Selection and use. Retrieved from <https://ivypanda.com/instruction>