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EDITORIAL

It is my pleasure to present to you the Volume 3 Number 1 of STEM **JOURNAL OF ANAMBRA STAN (STEMJAS).** This is one of the products of the our Bi-annual conference of Science Teachers Association of Nigeria, Anambra State Chapter with the theme **Curriculum Crisis in Science, Technology, Engineering and Mathematics (STEM).**

The article were peer renewed and edited thus, gave rise to Volume 3 No.1 edition. The articles in this edition is centered on the conference theme.

The volume 3, No. 1 STEMJAS is rich and therefore recommended to students, science teachers, curriculum planners and indeed the general public.

Happy Reading.

Prof. Rita N. Nnorom
Editor-In-Chief

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STRATEGIES FOR REDUCING LEARNING DIFFICULTIES IN BIOLOGY

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Abstract

This study was a survey which investigated the strategies for reducing learning difficulties in Biology. The study was carried out in Orumba South Local Government Area. The population of the study was 304 SS 2 biology students in 13 Public Secondary Schools in Orumba South Local Government Area. A proportionate simple random sampling technique was used to sample 152 biology students from 304 students. A structured questionnaire was the instrument for data collection. The instrument was face validated and its reliability established using Cronbach Alpha which gave an index of 0.82. The data obtained was analyzed using mean. The result of data analysis showed that teachers' style of teaching, the nature of the topics/learning task, students' learning habit among others are the factors responsible for learning difficulties in Biology. It was recommended among others that biology teachers should develop their communication skills by attending language training.

Keywords: Strategies, Learning difficulties

Introduction

The concept of science has been variously defined by different authorities. Science is a body of systematically organized knowledge concerning world around us, and a way of investigating the world around us in order to discover that body of knowledge

(Nzelum, 2018). Science is also defined as a dynamic process of seeking for knowledge about nature through systematic observation and experimentation Anaekwe, Nzelum,. Olisakwe and Okpala 2010). However, in this paper, science is seen as the systematic investigation of nature with a view to understand and harnessing them to serve human needs. Biology is one of the core subjects taught in secondary schools in Nigeria. Biology is favoured by most students because it deals with natural environment and the organisms living within them. It also deals with the interactions existing between them and non-living components of the environment (Nwagbo, 2008). A sound working knowledge of Biology is prerequisites for entrance into such profession as medicine, pharmacy, agriculture etc. Effective learning of Biology is very essential because it enables the students to acquire the knowledge to live effectively in the modern age of science and technology.

Learning can be defined as a process which causes a change in beahviour of an individual (Ngwoke, 2004). This change in behaviour results from experience or interaction between the individual and his environment. Human learning is a process of adaptation which may lead, hopefully to better adjustment to the demand of life. It is a continuous process which goes on throughout life. It may be observed in the form of development or change of attitudes, interests, adjustments, skills, values, beliefs, cognitive structures, insights, mannerisms, gestures, etc. (Ugwoke, 2004). Learning leads to a relatively stable change in behavior that is not explained in terms of native response tendencies like fatigue, drugs and concussion. Learning is an activity the learner does and not something the teacher does to the learner. Despite the efforts of some biology teachers to inculcate knowledge to students, some of them still face learning difficulties.

Learning difficulties can be said to be any situation where a student fails to understand a relatively easy concept or notion that he or she is expected to acquire as a result of some instructional intervention (Kempa, 1991). Learning difficulties may appear in situations where teaching intentions and instruction are not adequately matched to the learner's intellectual capability or cognitive functioning. The mismatch is attributable to some "deficiencies" in the learner's knowledge structure or his/her verbal repertoire (Kempa, 1991). Learning difficulties may also occur when teaching strategies used by teachers are in conflict with students' natural learning styles or their preferences for certain instructional procedures..

It is important for biology teachers to recognize and respond to the various causes of students' learning difficulties. This will not only reduce these difficulties, but also make our teaching and learning effective. This study therefore sought to identify the causes of learning difficulties in Biology students and possible strategies to reduce these learning difficulties.

Purpose of the Study

The study is aimed at finding out the strategies for reducing learning difficulties in Biology students. Specifically, this study set out to identify the

1. Factors responsible for learning difficulties in Biology students.
2. Strategies for reducing learning difficulties in Biology students.

Research Questions

The study was guided by these research questions;

1. What are the factors responsible for learning difficulties in Biology students?
2. What are the strategies for reducing learning difficulties in Biology students?

Method

The research design was survey carried out in secondary schools in Orumba South Local Government Area of Anambra State. The Population of the study comprised 304 SS II students in 13 government Secondary schools in Orumba South Local Government Area of Anambra State. Proportionate sampling technique was used to select 152 students from the entire populations. The instrument for data collection was questionnaire titled questionnaire on strategies for reducing students learning difficulties in Biology (SRSLDB) developed by the researcher. The questionnaire has two sections and the information collected was used to answer the research questions.

The instrument was given to three experts in the area of science education and measurement and evaluation for face and content validity. Their corrections were effected before the final questionnaire was constructed.

To establish the reliability of the instrument, ten copies of the instrument were administered to biology students of Orumba South Local Government Area who were

not part of the sample used for the study. Their responses were subjected to a reliability analysis using Cronbach alpha which gave co-efficient of 0.82. A total number of 152 questionnaires were administered to SS II biology students of the sampled schools.

The data was analyzed using mean. A mean of 3.5 was used as cut off point. Therefore any item with a mean of 3.5 and above was accepted while a mean of less than 3.5 was rejected.

Results

The data was analyzed and result presented as follows in the table below in line with the research questions.

Research Question One: What are the factors responsible for learning difficulties in Biology students?

Table 1: Mean responses of students on the factors responsible for learning difficulties in Biology students.

S/N	ITEMS	SA	A	UN	D	SD	MEAN	REMARK
1.	The nature of knowledge possessed by students	100	30	2	15	5	4.3	Accepted
2.	The inadequacy of such knowledge in relation to the concept to be acquired.	70	40	1	26	15	3.8	Accepted
3.	The demand and complexity of a learning task/content.	80	50	-	16	6	4.2	Accepted
4.	Lack of interest	20	30	2	40	60	2.4	Rejected
5.	A mismatch between instructional approaches used by the teacher and the students preferred learning style.	50	60	1	25	16	3.7	Accepted
6.	Lack of attention.	10	30	-	42	70	2.1	Rejected
7.	Inadequacy of attention	16	29	2	50	55	2.3	Rejected
8.	The complexity of textbooks for use by students	65	55	-	20	12	3.9	Accepted
9.	The complexity of teachers' speech	70	50	-	19	11	3.9	Accepted
10.	Students learning habit.	60	50	-	26	16	3.7	Accepted
11.	Capacity of students to hold and manipulate different pieces of information simultaneously.	70	50	-	21	11	4.0	Accepted

All the items in table 1 except items 4, 6 and 7 are accepted by biology students as the factors responsible for learning difficulties in Biology.

Research Question Two: What are the strategies for reducing learning difficulties in Biology students?

Table 2: The mean responses of biology students on the strategies for reducing learning difficulties in Biology.

S/N	ITEMS	SA	A	UN	D	SD	MEAN	REMARK
12.	Ascertaining the previous knowledge of the students prior to being taught.	60	50	-	25	17	3.7	Accepted
13.	Modification of such knowledge or replacement of such ideas if found inadequate by new ones.	65	48	-	20	19	3.8	Accepted
14.	Careful and purposeful structuring of information given to students.	68	50	2	21	11	3.9	Accepted
15.	Avoidance in the design of texts, laboratory instructions, examination questions, etc.	80	50	2	10	10	4.2	Accepted
16.	Using varieties of teaching approaches to suit different learning styles of the students.	90	40	-	16	6	4.3	Accepted
17.	Using students centred approaches	60	50	-	20	20	3.7	Accepted
18.	Proper organization of learning task/content.	98	34	-	15	5	4.3	Accepted

All the items in table 2 are accepted by biology students as the strategies for reducing learning difficulties in Biology.

Discussion

The findings of the study revealed that the factors responsible for learning difficulties in Biology include; the nature of knowledge possessed by students, the inadequacy of such knowledge in relation to the concept to be acquired, the demand and complexity of a learning task/content, the complexity of textbooks for use by students and the complexity of teachers' speech amongst other factors. This finding is in agreement with the statement of Cimer (2012) that the nature of the topics, teachers' style of teaching and students' learning habit amongst others are the factors responsible for learning difficulties in Biology. The finding is also supported by Kempa (1991) who stated that communication problems arising from language use, or the complexity of sentence structure and syntax used by the teacher, the nature of the knowledge system already possessed by the students and the inadequacy of such knowledge in relation to the concept to be acquired among others are some of the factors responsible for learning difficulties in students. Kempa and Martin (1990) also observed that other factors such as lack of interest and lack of attention which-may equally affect students learning could be regarded as preconditions for learning and not factors responsible for learning difficulties.

The study also revealed that carefully and purposefully structuring of information given to students, using varieties of teaching approaches to suit different learning styles of students among other factors are the strategies for reducing learning difficulties in Biology. This findings is in agreement with the statement of Kempa (1991) that deliberate training of students in chunking" strategies through the systematic analysis of information presented to them and carefully and purposefully structuring of information given to students are the strategies for reducing learning difficulties in Biology.

Recommendation

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

- Biology teachers should develop their communication skills by attending seminars and workshops.

- Students should be encouraged to develop good study/learning habit by motivating the students that performed well.

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