

## ABSTRACT

This study was to find out the need of improvisation in the teaching and learning of Biology. This study was carried out with five secondary schools selected randomly from Egor Local Government Area of Edo State. The questionnaire was the research instrument used for the study. A total of one hundred (100) students responded to the questionnaire. The data obtained were analyzed using mean and simple percentages. The result obtained showed that improvisation presents next to real situation to the student in the absence of the real thing. It was then concluded that improvisation of instructional materials is necessary for quick and perfect understanding of Biology concept.

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## **CHAPTER ONE**

### **INTRODUCTION**

#### **Background of the Study**

Science education must seek to permit the individual to develop to the fullest his capacities for adjustment and continuous change in order that he may meet the problems of his day and solve them successfully when they arise. Biology, the study of living things is a science which has developed methods of its own. The structural complexity of the organisms themselves, the multiplicity of functions occurring simultaneously in an organism's body and the inter-relationship between the organisms and their environment have led to methods of study unique to this particular science. Jean Bremner (2000) stated that the methods

are characterized by the art of scientific investigation in relation to pupils' study of new specimen, the experimental approach to biological science in relation to experiment carried out by the individual study. These are necessary for the effective transfer and permanent communication of biological knowledge.

Practical experience in any science for that matter is crucial for proper understanding of any principle and application of the knowledge in that subject for cognitive growth and technological orientation and advancement. In appreciation of this fact, Lee (1999) emphasized that if biology is to perform the above role of improving the society, then the biology teacher must do the following:

1. Choose the best materials to present to students.
2. Try new roles, materials and strategies.
3. Make use of individual instruction.

Therefore activities such as collecting of materials, observing, recording observations, classifying and carrying out field work should be well encouraged. The method for achieving this is through visual instruction. It was the original method in biological science when the naturalist devoted his study to organisms as he found them in nature. The result of his work, he wrote down to be passed on to others. The knowledge was finally put in form of books. As the study of biology becomes more popular in schools, and number of students increased, it becomes more difficult to study original materials. Part of this difficulty comes by the use of laboratory, preserved materials and charts and models. But the pressure of larger number of students and increasing cost caused this situation to be abandoned most times. Miller and Blaydes (2001) asserted that the result has been that an increasing proportion of biology teaching has been done from books and lecture notes. This situation to a large extent is responsible for the poor performance in the senior secondary school certificate examinations conducted by West African Examination Council. In Nigeria, the educational system has been facing a lot of critical problems amongst which are increasing enrolment, shortage of qualified teachers, absence of laboratories and in many cases presence of laboratories but acute shortage of necessary teaching and learning materials.

The Federal Government of Nigeria through the Federal Ministry of Education with the assistance of UNESCO in 1998 established a science equipment centre to provide course for science teachers and laboratory assistants. The provision of this centre though laudable has been inadequate. Teachers of biology and other sciences therefore have to acquire and develop skills of producing teaching materials. This is what improvisation is all about. It is the process of providing quickly in time of need, using whatever happens to be available, the materials and equipment for facilitating the teaching of biology. Otitoju (2000)

opined that in biology teaching nature presents a rich laboratory because specimens of plants and animals are abundant around us, however equipment needed for capturing animals. Performing physiological experiment, timing experiment or processes as well as some specimens which are available have to be improvised using locally available materials and a little imagination. The essential qualities of any improvised teaching aid are accuracy, realism, comprehensibility and interest.

To make teaching more meaningful, teaching materials should be used and student should have equipment to work with. Students should be made to learn by carrying out experiments and other practical aspects of study themselves using any of the methods of science teaching and not just through verbalism. Too much verbalism encourages authoritarian approach and makes learning difficult and uninteresting.

### **Statement of the Problem**

It is an indispensable fact that knowledge of biology is highly relevant in the world today. Bearing this in mind therefore, effective and efficient study is very important in the primary (as integrated science) secondary and tertiary institutions of learning. The optimum value of biology has been greatly reduced due to the array of problems that its teaching and learning face over the years.

The problem of this study is the non-use of instructional materials in the teaching of biology influenced by lack of creative improvisation of teaching materials on the part of the teachers. This situation may be one of the factors that cause poor performance of students in biology examinations like the Senior Secondary Certificate Examinations (SSCE).

Thus, this research is designed to investigate the effect of improvisation of instructional materials on student's performance in biology.

### **Purpose of the Study**

The purpose of this study is to investigate the effect of improvisation of instructional materials in the teaching of biology in secondary schools and also to examine the effect of instructional materials on the performance of students in biology. The study will also identify those factors militating against effective use of instructional materials during biology lessons.

### **Research Questions**

- i. Does the absence of adequately equipped biology laboratories influence learner's performance in biology?
- ii. Are teachers aware of the importance of improvisation of instructional materials?
- iii. Does the use of instructional materials make teaching and learning interesting and lively?
- iv. Does teaching aids create motivation on the parts of the students?

v. Does the use of instructional materials create a good environment by increasing learning rate/outcome.

### **Significance of the Study**

The act of teaching without instructional materials in an abstract way will not yield positive and meaningful results in any learning environment. But when interacting with real or almost real designed materials, students' understanding of concepts and principles would be greatly facilitated. It is pertinent to note that this study would help to enlighten all stakeholders in the education sector on the relevance of instructional materials. This study would achieve this by highlighting the benefits of improvisation in the teaching and learning process as well as citing the disadvantages of its unavailability.

To teachers, this study would help them devise, utilize and maximize the use of improvised teaching materials in order to attain set down educational objectives as they relate to biology. To the students, the use of instructional materials would benefit them as they would be motivated to learn biology and understand its concepts easily. Learning biology would become more interesting to the students as the abstract concept and phenomenon in biology would be turned into real life or almost real life situations. The policy makers and educational administrators would benefit from this work as they would know the various factors militating against the optimal implementation of the educational policies and curriculum, thus knowing how to checkmate these factors.

Finally, this research work would serve as a blue print to educational administrators and stakeholders on ways to improve on the diverse skills of improvising instructional materials and subsequently seeing improvisation as a means of making instructional materials available in our schools.

### **Scope and Delimitation**

There are many aspects of scientific knowledge amongst which are physics, chemistry, biology, mathematics, etc. This research work will concentrate on the biological aspects. This study will also be limited to the improvisation of biological materials and its effect, but will not consider the method of teaching.

This study is intended to cover public secondary schools within Egor Local Government Area of Edo State. Secondary schools will be randomly selected and samples will be drawn from these schools in the course of the study.

### **Definition of Terms**

1. **Biology:** A science devoted to the study of life and living organisms be it plant, animals or even organisms too small to be seen by the human eye.

2. **Science:** The systematic study of anything that can be examined, tested and verified.

**3.Improvisation:** Making effective use of locally available materials to achieve pre-determined educational objectives.

**4.BiologyTeacher:** A person who has professional training in teaching qualification ranging from National Certificate of Education (NCE), Bachelor of Education (B.Ed) in Biology or one who has post-graduate Diploma in education (PGDE).

### **Effect of improvisation of biology instructional materials on students of ilesha east local government of osun state**

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