

**THE USE OF VISUAL AIDS IN TEACHING BIOLOGY IN SENIOR
SECONDARY SCHOOLS IN BENIN METROPOLIS.**

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MARCH, 2023

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**A PROJECT SUBMITTED TO THE DEPARTMENT OF CURRICULUM
AND INSTRUCTIONAL TECHNOLOGY, UNIVERSITY OF BENIN, BENIN
CITY IN PARTIAL FULFILLMENT OF THE REQUIREMENT OF THE
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APPROVAL

I hereby certify that this research work was carried out by ANYI ONOME PRECIOUS, adequate in scope and quality in partial fulfilment of the requirements of the Award of The Bachelor of Science (Ed) Degree in Biology in the Faculty of Education, University of Benin City.

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CERTIFICATION

We undersigned, certify that this research work was carried out by Anyi Onome Precious in the Department of Curriculum and Instructional Technology, Faculty of Education, University of Benin, Benin City in partial fulfilment of the award of the Bachelor of Science (ed) degree in Biology.

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DEDICATION

This research work is dedicated to God Almighty, always loving Father, my very present help in times of need and my sufficiency. His unending grace has seen me through my academic pursuit in University of Benin.

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I am immensely indebted to God Almighty, who made it possible for me to initiate and accomplish this research work.

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ABSTRACT

This study was carried out to analyse the use of Visual aids in teaching Biology in Senior Secondary Schools in Benin metropolis. The research was carried out as survey research using relevant literature from journals, magazines, books and the internet. Four research questions were raised to guide the study. The researcher made effort in analysing the extent of the availability of visual materials in senior secondary schools, constraints faced by teachers in the use of visual aids in the teaching of Biology and effective usage of visual aids by Biology teachers.

The random sampling technique was used in selecting schools. 50 Biology teachers that were purposively selected from Senior secondary schools in Egor Local, Oredo and Ikpoba Okha Government Area, Edo state. These Local Government Areas are part of Benin Metropolis. The data were collected with the questionnaire instrument and analyzed using simple percentage.

The result revealed that; Most visual materials for teaching Biology are not available in Senior Secondary Schools in Benin metropolis, predominate challenges faced by Biology teachers in the use of visual aids are, Irregular power supply, overpopulation, finance, high cost of visual aids and poor implementation of the Biology curriculum. And Biology teachers in the schools of study, make use of available visual materials like maps, Educational charts, models, pictures and textbooks for teaching. based on the results, it was recommended that, education stakeholders in the country should finance provision of computers, power generating sets, Audio-Visual Aids, and expand teaching aids in all secondary schools. This will enhance the use of Audio-Visual aids in the teaching and learning of Biology, Biology teachers should be trained and retrained in the proper use and handling of instructional materials to bring about desirable learning outcomes and Based on the challenges teachers are facing in the use of audio visual aids, regular power supply or an alternative source of power should be provided for the schools, schools. As this will be a motivating force to drive teachers in the use.

CHAPTER ONE

INTRODUCTION

Background to the Study

Education is presently undergoing changes with innovations in teaching methods as multiplicity in policies and procedures can be clearly observed. And at different levels of education system change is always welcomed as per required. The present situation calls for comprehensive change in almost every level of education so that a practical and dynamic approach can be given to existing and new fields of study in education. The crux of this modern education is to awaken the hidden curiosity and interest of the learner, nourishing his behaviors, attitudes and beliefs in order to develop basic and essential skills of learning and ability to think critically and to judge himself and others in a more beneficial manner.

Biology is a natural science concerned with the study of life and living organism which include plants and animals. It is a fascinating study that ranges from microscopic-cellular molecules to the biosphere, encompassing the earth's surface and its living organisms. Biology is one of the science subjects taught at the secondary senior level of the Nigerian schools, (FRN, 2004). It is an important Science subject and a requirement for further study of a number of science-related professional courses like medicine, agriculture, pharmacy, Biochemistry, anatomy, Physiology, Botany, Zoology, Microbiology, Cell Biology, Ecology, Entomology,

Immunology, Molecular biology, Evolutionary, Genetics. Adequate laboratory and field skills are necessary to learn the subject effectively.

The learning of Biology is so much that it needs to be taught with the proper instructional materials in order to motivate and arouse student's interest. Tabotndip (2014) lamented that abstract teaching goes on today where teachers do not use appropriate apparatus and students are not using textbooks. However, the issue remains that in most secondary schools in Nigeria, there is high rate of failure in the subject due to the lack of use of instructional materials which may certainly result in poor academic achievement and performance of the students (Folorunso, 2014). There are other factors attributing to the failure of Biology such as; lack of interest of students in biology, inadequate motivation from teacher, poor incentives to Biology teachers, inadequate supply of instructional material, lack of qualified teachers, and use of teacher centered instructional method, inadequate use of instructional materials and use of abstract standardized materials.

Visual aids are those materials that appeals to the sense of seeing. It helps in maintaining and sustaining students' interest. The video gives the students the opportunities to take the instruction in its original form instead of abstract. For instance topic like human reproductive system treated in this study, students had opportunity of seeing the parts of human reproductive system and how the parts carryout their functions in an environment that appears somewhat "real life"

instead of “show charts show diagrams of” as contained in the Federal Ministry of Education Biology Curriculum for this topic in Nigeria.

Visual aids are good means of communicating with people and students. Visual aids facilitate and assist the regular and traditional teaching session. They help in maintaining and retaining student’s interest almost till the very end of the classroom session. Conceptualizing is clearer and concrete as the use of visual aids appeals, activates and utilizes the five senses of individual student i.e. see, hear, touch, taste and smell. Also retention rate of the students increases by the use of visual aids (Prasad, 2015).

Activity based learning leads to critical thinking, reasoning, creativity and the development of inquisitive mind which is the aim of education. Visual aids entail activity for teacher as well as for students that keep them attentive and motivate them to think and inquire resulting in deep comprehension about what is being taught (Mangal S., 2008). visual aids help in maintaining the class discipline as every of the student is focused and attentive towards learning, unlike ordinary classroom lecture where the students may get bored and start whispering, which brings indiscipline in the classroom (Prasad, 2005).

Many authors have been writing on the effective use of visual aids to improve and supplement teaching that results in desired social and behavioral change. Mohan (2010) opined in a study at India that 85% of the students are in

favor of teaching methods that employ visual aids as compared to typical lectures delivered without the use of visual aid. Jimoh (2009) agreed based on investigation that learning is reinforced with teaching aids i.e. visual aids; as they motivate and stimulate the students' interest along with holding his/her interest during the whole instructional process.

Statement of Problem

One of the problems faced by most secondary schools in Nigeria is the relative decline in the academic achievement of students especially in the sciences WAEC (Chief Examiners Report, 2015–2017). The academic achievement of students in the sciences have been on the decline, which is applicable to Biology as a science subject. The poor achievements in biology could be attributed to some factors such as; the quality of materials, teachers, and equipment used in Biology which are usually considered sub-standard, poor perception, and lack of instructional materials in schools. More so, the nonchalant attitude of teachers towards the utilization of these materials, contribute to the poor teaching of Biology education.

The inability to select appropriate visual materials and sometimes its irregular use as support to the teaching of Biology in classrooms by its teachers was observed to be a strong hindrance to students achievement in the subject. The use of visual materials has been discovered to facilitate effective communication, transfer of information, knowledge, skills, attitudes and other useful capabilities. It

is however, worrisome to note that despite its usefulness to the teaching process. Biology teachers have not fully take advantage of it such that it is inappropriately selected and may not be regularly put to use.

Also shortage of visual aids in our secondary schools is not new. What seems to be the practice is that teachers have not been able to even utilize the available visual aids and by implication, these visual aids are wasted. In this view, Based on the above hindrances, coupled with the fact that students do not retain for long or understand what they are taught without visual aids the problem of this study is therefore to find out an analysis of the use of Visual aids in teaching Biology in senior secondary schools in Benin metropolis.

Research Questions.

The following research questions have been formulated to guide the study;

1. What are extent of the availability of visual materials in senior secondary schools in Benin metropolis?
2. What are the constraints faced by teachers in the use of visual aids in the teaching of Biology in senior secondary schools in Benin metropolis?
3. Have Biology teachers' have been able to use visual aids in the teaching of Biology in Senior Secondary Schools in Benin metropolis?

Purpose of Study

The purpose of this study is to carry out an analysis of the use of Visual aids in teaching Biology in senior secondary schools in Benin metropolis. Specifically, the study intends to Examine:

1. The extent of the availability of visual aids in senior secondary schools for the teaching of Biology in senior secondary schools in Benin metropolis.
2. Constraints faced by teachers in the use of visual aids in the teaching of Biology in senior secondary schools in Benin metropolis.
3. How effective Biology teachers' have been able to use visual aids in the teaching of Biology in senior secondary schools in Benin metropolis.

Significance of the Study

The study will invariably be of tremendous importance to students, teachers and researchers in biology accordingly. The work will enable student's to read and understand various visual aids that facilitate teaching learning process, particularly video show.

The Study will serve as reference to teachers who wish to find out the impact of visual aids (video-show) on students' academic achievement particularly in senior secondary schools. It will also highlight the appropriate materials of

teaching biology which will bring about student's interest and active participation in the subject.

The work will enable the teachers to understand that the success of any teaching-learning activities is determined by how much the students are able to learn or gain from teaching. This can be achieved through the use appropriate visual aids. The study will serve as a reference to researchers who wish to embark on further research on effects of visual aids on students' academic achievement.

The work will also enable researcher to understand the impact of comprehension, demonstration and co-operation in the use of visual aids in teaching-learning process.

Scope and Delimitation of the Study

The scope of the study is to carry out an analysis of the use of Visual aids in teaching Biology in senior secondary schools in Benin metropolis. The study will determine the extent of availability and uses of visual materials for the teaching of Biology in senior secondary schools. The study is therefore limited to senior secondary school teachers of biology in Egor Local Government Area of Edo State Nigeria.

Operational Definition of Terms

visual materials: those instructional materials that may be used to convey meaning with sound and pictures for teaching computer science, they include; pictures, flashcards, posters, charts, tape recorder, radio, video, television, computers among others.

Biology: a natural science concerned with the study of life and living organism, including their structure, function, growth, evolution distribution and scientific exploration.

Teaching: The act of passing knowledge or values from a skilled person to an unlearned person through any suitable teaching method.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter focuses on the review of related literature. And it will be discussed under the following sub-headings:

- The extent of the availability of visual materials in senior secondary schools
- Constraints faced by teachers in the use of visual aids in the teaching of Biology
- Effective usage of visual aids by Biology teachers.
- Comparison of Traditional and Modern Methods of Learning by Using Visual Aids
- Summary of Reviewed Literature

The Extent of the Availability of Visual Materials in senior secondary schools

Education is an indispensable component in the development of any nation. As a result, many countries in the world view education as a good investment for national development. This is because it ensures that the needs and aspirations of individuals are met. This means that education can only provide and meet the needs of the individual and society when it is taught with the right materials.

The idea of using materials and equipment to enhance effectiveness in the instructional process is as old as mankind. The wise teacher will always use tools

or aids in form of instructional materials to help the learners understand and learn better. The unavailability of instructional materials for effective teaching in Public senior Secondary Schools and the little or no use of the available ones have been perceived to have impacted negatively on the performance of students at the secondary level (Anyanwu, 2013).

In recent years, there have been discussions and debates on the falling standard of education. The blame has always been on teachers, parents and students. In spite of the contributions of teachers, parents and even the students towards the failing standard of education in Nigeria, research have also found that lack of availability and utilization of instructional materials is also a potent factor. Instructional materials are devices used by teachers to enhance teaching and learning in schools.

Instructional materials can be defined as essential and significant tools needed for teaching and learning of school subjects to promote teachers' efficiency and improve students' performance. Instructional materials, however, do not achieve any of the attributed values on their own. Their usefulness depends on what the teacher makes out of them. This infers that intelligent handling of these materials in the classroom is necessary. For effective utilization of instructional materials, teachers must understand how to use and control instructional materials. It is mandatory for the classroom teacher that uses these devices to direct the

attention of students to focus on the application of the instructional materials for lesson delivery.

Over the years, the poor performance of students in public examinations has been blamed on the wrong choice of non-utilization and availability of visual instructional materials by teachers (Coomb, 2016). Nevertheless, teaching and learning activities have a lot to do with other variables, such as the use of instructional materials; teacher's qualification; school environment variables; students' factors among others. The importance of instructional materials in any teaching/learning process cannot be over emphasized. This is because such materials enhance, facilitate and make the teaching/learning process easy, lively and concrete.

Visual are essential for enhancing teaching and learning because they provide means of widening students' learning experience, expose students to a wide range of learning activities, increase the efficiency of the teacher by providing tutorials and response guidance for individual students and small groups. They also facilitate increased interest in learning; hold learners' attention; provide opportunities of interacting with the social and physical environment (e.g. during excursions/field trips) and promote knowledge gathering (NTI Manstal, 2006).

Instructional materials as helps the teachers to communicate effectively with students in order to achieve the desired objectives where ordinary words or

verbalization have been found to be inadequate for effective teaching. Thus, it serves as a channel through which message, ideas and information are disseminated more easily. Education that hopes to promote the quality of students in schools with a global outlook must be enhanced with the aim of achieving pre-determined educational goals that characterize the 21st century.

The Federal Republic of Nigeria in her National Policy of Education (FRN, 2013) also emphasized on making learning experiences more meaningful and realistic for children by advocating for the development and promotion of effective use of innovative materials in schools. This implies that government is also aware that instructional materials ensure better retention, stimulate and motivate students to learn. Thus, it encourages participation especially if students are allowed to manipulate materials used.

Instructional materials have been categorized by several authors base on certain classifications. For Ibe (2000), instructional materials are classified based on the sense. In instructional materials, learners learn from them by listening, whereas in visual instruction materials, learners learn from them when the stimulus of sight and hearing are present to them simultaneously.

The visual aids include overhead projectors, smart boards and multimedia projectors while the audio aids comprise of the radio, tape recorders and son on. The visual materials are the textbooks, chalkboards, charts, flannel boards, maps,

pictures, models and practical demonstrations. The use of instructional materials is necessary in Public Senior Secondary Schools as inevitably, as it is perceived that students in Public Senior Secondary Schools sometimes find it difficult to comprehend immediately what is being taught by the teacher due to non-availability of instructional materials to convey the concept and topics taught to the learners. This may have affected the grades of students in Public Senior Secondary Schools (Emmana, 2004). Most of them have not been able to achieve academic success in both internal and external examinations because of perceived inadequate supply or availability of instructional materials in the public Senior Secondary Schools. It is imperative that to assert that availability of instructional materials in Public Senior Secondary Schools cannot be effective without proper utilization. This means that utilization of available materials for instruction is necessary.

The visual resources have their unique roles to play in teaching and learning situation and so must be made readily available and accessible especially at the resource centers like library. Chambers English dictionary defined the words 'available' in this research work' to mean the state of being physically present, within easy reach of users. It also refers to information resources that are within the reach of users for their use, while accessibility refers to resources being effectively and independently reached and utilized. The distinction between these two terms availability and accessibility is that the former refers to the provision of the

resources and the other the ability of access to get to them. Instructional resources for the classroom are available in a variety of sources.

In line with the provision of education services as outlined in the National Policy on Education, the federal and State government have established several educational visual centres. They are responsible for the provision/procurement and distribution of educational media to schools said (Adewoyin, 2017). For example, the curriculum development centre, Enugu produces maps and graphs for schools in its graphic arts section and builds learning aids and games from wood in its woodwork division. The centre also has a good number of overhead and sound projectors as well as a stock of sound films which are loaned generally to schools (Idowu and Mabawonku, 2009).

The National Education Technology Centre, Kaduna is a highly specialized instruction centre serving a national purpose of enhancing the teaching-learning processes for the advantages of both teachers and learners. The center has adequate training facilities in educational broadcast that has contributed greatly to the Craning and development of high level man power for educational broadcasting in Nigeria. Fawole (2014) pointed out that many states and local government in the country have benefited from the National Educational Technology Centre training programmes.

Constraints Faced by Teachers in the use of Visual aids in the Teaching of Biology.

The primary aim of education is to make learners capable of being responsible, productive and useful member of the society. That is why Nigeria Government sees education as an instrument per excellent for individual and national development. It is therefore important to give education a solid foundation through effective teaching and learning. This will ensure that knowledge, skills, attitudes and appreciations are built through classroom interaction pattern of the teacher and the learners. But, Megbo and Saka (2015) pointed out that effective teaching cannot be fully accomplished without the use of instructional materials. Agina (2005) defined instructional materials as concrete or physical objects which provide sound, visual or both to the sense organs during teaching. Abimbola and Udonsoro (2017) defined instructional materials as two or three dimensional aids used by a teacher in order to save students from wondering in imagination and to keep their understanding. Agbulu & Wever (2011) pointed out that instructional materials are important because they help both teacher and students to overcome physical limitations during lesson presentation among others. Giginna and Nweze (2014) while citing Onwudinjor and Onwudiafor (2009) emphasized on the importance of instructional materials as follows: Concretizing abstract concepts,

stimulating students' attention and interest, arousing students' curiosity and promoting students' active participation in the classroom.

In spite of the importance and emphasis that Biology teachers should select and use instructional materials in the teaching and learning Biology, research reports have shown that Biology teachers teach without using instructional materials. The commonest reason, they give for this is that already made ones are not available in the schools (Ezeliora, 2019). The teachers' view was supported by the assertion of National Teachers Institute (2011) that most of the instructional materials used for teaching and learning in schools are expensive and not readily available. This situation has worsened in the present days due to economic recession and high exchange rate of dollar to naira that makes it impossible for many schools to purchase enough instructional materials. Therefore, Biology teachers and students have been called upon to improvise the necessary instructional materials.

There are many problems associated with visual aids used in teaching and learning of Biology. They are as follows:

1. Poor Funding: One of the problems associated with the instructional material used in teaching and learning is lack of fund. Some school cannot afford to buy those instructional material used in teaching and learning of Biology.

2. Lack of power supply: This is another major problem that hinders the use of instructional materials in school. Most of the instructional materials use power supply to function effectively and most of the schools in rural area are not provided with electricity so this makes it difficult for them to use technological instructional materials in their areas. Even the schools in the cities lack power supply which makes the use of instructional materials boring and inefficiency in teaching and learning.
3. Lack of skills: Most of the teachers in secondary schools do not know how to install, operate or use some of the instructional materials in teaching and learning. For example some of them cannot operate computer, how can he or she use computer in teaching some of the concepts of Biology to the students.
4. Lack of network: There is no steady network when trying to use some of the instructional materials like internet. This frustrates the teacher and the students as they will spend much time waiting for network to be available.
5. High cost: Some of the instructional materials used in teaching and learning Biology are very costly; Examples are projectors, computers, the public address system etc.
6. Inadequacy of the materials: The instructional materials used in teaching and learning in secondary schools are not enough for the students. School finds it difficult to provide computers for each student in the class, and this hinders

the effective use of such instructional material in teaching and learning of Biology.

Using of visual aids seems very essential in today's education; individuals of 21st century belong to virtual age brackets. They experience video games, online learning and computerized programming ranging from classroom learning to every shopping mall. It is often experienced in daily life that children love to watch an educational movie than to read a book.

To meet this end teacher incorporate visual aids i.e. models, video presentation, power point slides show etc in the classroom sessions. But all these and other teaching aids carry along with them many disadvantages, therefore along with merits one must keep the demerits of using visual aids in mind. By an effective and timely use of visual aids one can better able to eliminate following deservting aspect of using visual aids in classroom:

While any specific visual aid is in operation for say, Over Head projector; any technical problem may hit all of sudden. Projector bulb may burn out. Desired sound and color missed while using a multimedia or if using a Digital Video Disc (DVD) or Compact Disc (CD) they may not well-match your players. Therefore possibility of technical problems is higher (Prasad, 2015).

Critiques believe that visual aids carry high rate of attractiveness that results in child being diverted from desired path of learning and lost in recreation and fantasy (Mangal S, 2008).

Most of the schools suffer budget constraints and as the fact is clear i.e. visual aids are expensive; it is impossible to make adequate availability of such aids in every classroom (Kinder, 2009). Brown, Lewis and Harcleroad (2015) states that activity supplemented by visual aids is completely mere waste of time and resources if choice of desired visual aids is not possible. Suppose a teacher is to teach about specific culture of a particular area using a map is a waste full activity rather charts with pictures of traditional dresses, food and life style etc can be beneficial.

Preparing visual aids require substantial amount of time. Making your very own transparencies, slides, films, posters, charts or any other teaching aid is very time taking.

While arranging them teacher totally overlooks the importance of developing clear and well-organized lesson plan. Displaying too many of visual aids simultaneously in a single class can be very confusing for students and even for teachers' as well. Concepts can overlap and can lead to misunderstanding and poor retention. Mangal S (2018) describes that selection of appropriate visual aids in relation with the age group of students is very rare. Often teachers are not aware

about particular visual aids that are most suitable for young kids, grown-ups and higher grade students. Suppose flashcards and pictorials are good for young taught but if a teacher selects them for 9th grade level it will surely be not appropriate.

Teachers when use visual aids overlook the aspect of explanation rather consider visual aids as self-explanatory. But explanation at every level of learning is a must. Suppose if a diagram of heart is shown to the students and if it is wrongly labeled, instead of passing concrete concept it will lead to misinformation (Prasad, 2005).

Effective usage of Visual Aids by Biology Teachers.

Hornby (2004) informatively explained that utilization is the process whereby use is made of available services at the individual's disposal, to derive maximum benefit or stated objective through available materials. These instructional materials or resources include the tools, textbooks, visual aids, audio aids, mock-up, and improvised materials and so on. Olagunju & Abiona (2018) also stated that resource utilization is the process whereby instructional materials is systematically managed and organized, towards meeting the end goal. It was further added that in a school, teaching materials that are available should be utilized such that it enables the students to acquire desirable learning competencies.

Utilization of standard instructional materials in teaching had been known to be fruitful learning since it stimulates student's senses and motivates them.

Ekenedo (2014) pointed out that there is a relationship between knowledge of a skill and the actual utilization of such knowledge even when it comes to teaching and learning in Public Senior Secondary School. Utilization has been further described as the actual patronage of the education facilities, equipment and supplies by the education teacher in teaching of Biology.

The effective utilization of Visual aids is necessary in the teaching-learning process, since these materials do not achieve any of their values alone unless when utilized effectively by competent teachers. There are certain principles, plans and skills required for effective utilization of instructional materials in the teaching and learning process which classroom teachers must know and acquire. Surprisingly, not many teachers have this basic knowledge and skills. This view was expounded by (Onyjejemezi, 2012; Olaitan 2014) as they pointed out that lack of necessary skills and techniques to operate some Visual aids militate against their use. They cited examples in schools where these materials are locked up in school stores and left at the mercy of certain atmospheric conditions, rats, cockroaches and termites. As a panacea, Onyjejemezi and Olaitan advocated the establishment of resource (instructional) material centres in teacher-training institutes, colleges of education where teachers in training will receive adequate instruction on the appropriate

utilization of necessary Visual aids. In support of the above views, Olowookere (2004) suggested that for effective utilization of instructional materials, only qualified teachers of various subjects offered in schools should be used to teach the subject in both primary and secondary school as well. Non-qualified teachers should be discouraged from teaching Biology since they lack vision towards the utilization of Visual aids to enhance teaching and learning process among learners.

Furthermore, she suggested that teachers should be encouraged to attend conferences, workshops and seminars in order to improve themselves academically and skillfully. Government on the other hand should give incentives in the form of hazard allowance and extra load allowances to teachers especially those who utilize Visual aids in teaching. Government should also provide these materials adequately in schools for their provision pressure in every school would motivate teachers into using them for teaching and learning purposes.

Conclusively, Visual aids are essentially needed for appropriate practice demonstrations in schools to enable the learners acquire the needed employable skills for gainful employment or to be self-relevant economically for which UBE is meant for. Unfortunately, Visual aids are grossly inadequate in our schools system due to certain problems such as poor funding of the educational system by the government, lack of enough local materials for producing local instructional materials, inadequate skill personnel in the production and utilization of instruction

materials and poor maintenance culture among the educational/school administrators and their subordinates.

Comparison of Traditional and Modern Methods of Learning by Using Visual Aids

Arora, (2013) studied the development of students with the use of visual aids with complete virtual learning and their impact. The researcher compared the use of traditional method with the modern teaching methodology where the impact and use of visual aids learning on the student of Indore at university level, an objective type questionnaire was developed to collect the data. A sample size of 30 students was taken and the questionnaire was made to fill by them. It was concluded that there is a great impact of visual aids in the teaching-learning process in Indore. According to the students, they find this method of teaching very effective. They said that if the topic shown to them are all related to their curriculum and gives them additional knowledge then they get more attracted towards this technology. It motivates students to attend lectures, as they are very curious to see or hear what the teacher is going to show them in the upcoming class. They say by seeing animated effects, colorful presentation and hearing recording they are able to concentrate more in class.

Further it was found; it develops a strong bonding between students and teacher and students open up with their queries and those who used to hesitate to ask a question they do not feel shy now. Thus, it makes an interactive learning and makes the teaching-learning process more effective. Students also say that textbooks are knowledgeable but if they need updated knowledge then they refer to presentation and videos shown them in class and they also said that it saves there time from copying notes from the board and thus increasing more of communication in class.

Akram and Malik (2012) carried out a study on the “use of visual aids for effective teaching of biology at secondary school level”. The target population of the study comprised teachers of biology of both public and private schools. Descriptive survey was used as the research design. The findings revealed that teachers in public schools were more familiar with the importance and use of visual in teaching and learning of biology than teachers in private schools. The present study is a quasi-experiment of the nonequivalent control group design. Four coeducational secondary schools were drawn by random sampling of such school type because gender was considered in this study. The four schools were randomly assigned, two to experimental and control groups respectively. An intact class of Senior Secondary three (SS3) was randomly selected from each of the four schools in Enugu North LGA of in Enugu state, Nigeria and used for the study.

Thus the sample comprised of one hundred and fifty (150) students. The regular teachers were involved in the study via the training on integrating visual resource in their classroom Biology instruction with special reference to teaching Reproductive System of Human as contained in SS3 curriculum.

Summary of Reviewed Literature

Visual aids play vital roles in teaching and learning process in the field of education. Its management for effective implementation of the desired educational goals cannot be over emphasized.

The summary of the of the reviewed literature revealed that instructional materials are grossly inadequate in our schools system due to certain problems such as poor funding of the educational system by the government, lack of enough local materials for producing local instructional materials, inadequate skill personnel in the production and utilization of instruction materials and poor maintenance culture among the educational/school administrators and their subordinates.

According to the findings, it was understood that students learn through many senses, the more the senses that instructional material appeal to, the higher the rate of learning. The criteria for selection of educational media that could help in the

accomplishment of instructional goals were: materials to the topic, cost and benefit to be derived herein, age and experience of the learner .etc.

Furthermore, poor funding, timing constraint, poor academic background of learners etc. inadequate availability of educational media centers are the problem, confronting the proper application of instructional materials in teaching and learning.

CHAPTER THREE

METHODOLOGY

This chapter describes the research methodology that was used in the study it is presented under the following sub-headings:

1. Research Design
2. Population of the Study
3. Sample and Sampling Technique
4. Research Instrument
5. Validity of the Instrument
6. Reliability of the Instrument
7. Method of Data Collection
8. Method of Data Analysis

Research Design

The survey design was adopted to enable the researcher carry out systematic investigation and obtain information across the population of the study.

Population of the Study

The population of the study comprised all Biology teachers from all Senior secondary school teachers in Egor Local Government Area of Edo State.

Sample and Sampling Technique

The sample consists of 50 Biology teachers that were purposively selected from Senior secondary schools in Egor, Oredo and Ikpoba Okha, Government Area, Edo state. Hence, all Biology teachers in Egor Local Government Area were involved in the research.

S/N	Local Government	Sample
1	Egor	20
2	Oredo	10
3	Ikpoba Okha	20
	Total	50

Research Instrument

The research instrument was a questionnaire designed by the researcher called “the use of Visual aids in teaching Biology in senior secondary schools in

Benin metropolis”. It is divided into two sections A and B. Section A contains the demographic data of the respondent. While section B contains twenty-nine items, the item contained in the questionnaire revolve around the research questions raised in the chapter one of this study and the response obtained from the respondent will help to answer the research questions.

Validity of the Instrument

In order to ascertain the validity of the instrument, the questionnaire designed by the researcher were given to the supervisor and two other lecturers in the department of Curriculum and Instructional Technology (C.I.T) to scrutinize and for necessary corrections. Corrections made on the draft were incorporated in the final draft.

Reliability of the Instrument

The reliability of the instrument was determined by administering the questionnaire to twenty (20) students who were not part of the main study. The data collected from the students were subjected to Cronbach alpha reliability statistics., the reliability of the instrument was established at 0.756.

Method of Data Collection

The questionnaire was administered personally to the respondents; The researcher will take permission from the principal of the schools of the study. The

respondents were assured of confidentiality and urged to answer the questions honestly to the best of their knowledge. Instructions would be given to the respondents on how to fill out the questionnaire and copies of the questionnaire would be collected the same day to avoid loss.

Method of Data Analysis

The data collected were properly organized and tabulated. The responses were statistically analyzed by the use of simple percentages, frequency count, mean to answer all the research questions.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF RESULTS

This chapter involved the analysis of data and the presentation of result in the course of the research. The data are presented in tables and are arranged according to research questions.

Presentation of Results

Research Question 1: To what extent is visual materials available in senior secondary schools in Benin metropolis?

Table 1: extent to which visual materials are available in senior secondary schools in Benin metropolis

S/N	ITEMS	N	SA	A	SD	D	Mean	Standard Deviation	Decision
1.	Televisions are available in my school for the teaching of Biology.	49	Null %	Null %	13 19.4%	36 53.7%	1.73	.446	Disagree
2.	Computers are available in my school for the teaching of	49	Null %	17 25.4%	10 14.9%	22 32.8%	2.14	.736	Disagree

Biology.

3.	Sound projectors are available in my school for the teaching of Biology	49	Null %	5 7.5%	13 19.4%	31 46.3%	1.84	.590	Disagree
4.	Slides are available in my school for the teaching of Biology	49	Null %	17 25.4%	10 14.9%	22 32.8%	2.14	.736	Disagree
5.	Pictures and photographs are available in my school for the teaching of Biology	49	21 31.1%	18 26.9%	5 7.5%	5 7.5%	3.12	.971	Agree
6.	Educational charts are available in my school for the teaching of Biology	49	26 38.8%	14 20.9%	4 6.0%	5 7.5%	3.24	.990	Agree
7.	Smart boards are available in my school for the teaching of Biology	49	26 38.8%	6 9.0%	13 19.4%	4 6.0%	2.92	1.304	Agree
8.	Maps are available in my school for the teaching of Biology	49	26 38.8%	18 26.9%	Null %	5 7.5%	3.43	.677	Agree
9.	radios are available in my school for the teaching of Biology	49	5 7.5%	9 13.4%	13 19.4%	22 32.8%	2.12	.927	Disagree
10.	Models are available in my school for the teaching of Biology	49	21 31.1%	23 34.3%	Null %	5 7.5%	3.33	.658	Agree

SD: Standard Deviation. Source: Field Study, 2023

Research question one sought to examine extent to which visual materials are available in senior secondary schools in Benin metropolis. The data analyzed in table 1 reveals that out of the 10 items, five of them agreed which representing fifty percent (50%) of items on the questionnaire. It therefor concludes that most visual materials for teaching Biology are not available in senior secondary schools in Benin metropolis.

Research Question 2: What are the constraints faced by teachers in the use of visual aids in the teaching of Biology in senior secondary schools in Benin metropolis?

Table 2: constraints faced by teachers in the use of visual aids in the teaching of Biology in senior secondary schools in Benin metropolis

S/N	ITEMS	N	SA	A	SD	D	Mean	Standard Deviation	Decision
1.	Irregular power supply is one of the problems faced in the use of audio visual aids in the teaching of Biology	49	35 52.2%	14 20.9%	Null %	Null %	3.71	.456	Agree
2.	Class size is a constraints faced by teachers in the use of visual aids in the teaching of Biology	49	26 38.8%	24 35.8%	Null %	Null %	3.52	.505	Agree

3.	Lack of finance is a constraint faced by teachers in the use of visual aids in the teaching of Biology	50	26 38.8%	24 35.8%	Null %	Null %	3.60	.495	Agree
4.	Lack of awareness of the importance of the use of audio visual is a constraint faced by teachers in the use of visual aids in the teaching of Biology	50	30 44.8%	20 29.9%	Null %	Null %	3.60	.495	Agree
5.	Poor implementation of the Biology curriculum is a constraint faced by teachers in the use of visual aids in the teaching of Biology	50	26 38.8%	20 29.9%	Null %	4 6.0%	3.44	.644	Agree
6.	High cost of visual aids is a constraint faced by teachers in the teaching of Biology	50	30 44.8%	20 29.9%	Null %	Null %	3.60	.495	Agree
7.	Teachers motivation is a constraint faced by teachers in the use of visual aids in the teaching of Biology	50	5 7.5%	20 29.9%	8 11.9%	17 25.4%	2.44	.884	Disagree

SD: Standard Deviation. Source: Field Study, 2023

Research question one sought to examine constraints faced by teachers in the use of visual aids in the teaching of Biology in senior secondary schools in Benin metropolis. The data analyzed in

table 2 reveals that out of the 7 items, 1 of them disagreed which representing fifteen percent (15%) of items on the questionnaire. It therefor concludes that predominate challenges faced by biology teachers in the use of visual aids are, Irregular power supply, overpopulation, finance, high cost of visual aids and poor implementation of the Biology curriculum.

Research Question 3: Have Biology teachers’ have been able to use visual aids in the teaching of Biology in Senior Secondary Schools in Benin metropolis?

Table 3: extent to which Biology teachers’ use visual materials in senior secondary schools in Benin metropolis

S/N	ITEMS	N	SA	A	SD	D	Mean	Standard Deviation	Decision
1.	I use projectors in teaching Biology effectively	50	Null %	19 28.4%	9 13.4%	22 32.8%	2.20	.728	Disagree
2.	I use slides in teaching a topic in Biology	50	Null %	9 13.4%	19 28.4%	22 32.8%	1.80	.728	Disagree
3.	I use pictures and photographs in teaching a topic in Biology	50	26 38.8%	15 22.4%	9 13.4%	null %	3.16	1.113	Agree

4.	I use computer in teaching a topic in Biology	50	Null %	15 22.4%	14 20.9%	21 31.3%	2.02	.769	Disagree
5.	I use textbook in teaching a topic in Biology	50	27 40.3%	15 22.4%	8 11.9%	Null 7.5%	3.22	1.075	Agree
6.	I use television in teaching a topic in Biology	49	Null %	Null %	28 41.8%	22 32.8%	1.44	.501	Disagree
7.	I use sound projector in teaching a topic in Biology	49	Null 38.8%	Null 9.0%	28 41.8%	4 32.8%	1.44	.501	Disagree
8.	I use smart boards in teaching a topic in Biology	50	27 40.3%	5 7.5%	18 26.9%	Null %	2.82	1.410	Agree
9.	I use models in teaching a topic in Biology	50	27 40.3%	18 26.9%	5 7.5%	Null %	3.34	.917	Agree
10.	I use maps in teaching a topic in Biology	50	32 47.8%	18 26.9%	Null %	Null 0%	3.64	.485	Agree
11.	I use educational charts in teaching a topic in Biology	50	43 64.2%	4 6.0%	3 4.5%	Null %	3.74	.751	Agree

SD: Standard Deviation. Source: Field Study, 2023

Research question one sought to examine extent to which Biology teachers' use visual materials in senior secondary schools in Benin metropolis. The data analyzed in table 3 reveals that out of the 11 items, five of them agreed which representing Forty percent (40%) of items on the questionnaire. It therefor concludes that Biology teachers in the

schools of study, make use of available visual materials like maps. Educational charts, models, pictures and textbooks for teaching.

Discussion of Results

The result of this study has been quite instructive, informative and revealing. Based on the analysis of data or information collected from the opinion of the respondents on: **an analysis of the use of Visual aids in teaching Biology in senior secondary schools in Benin metropolis.**

Based on the analysis on the research questions, the following findings were revealed:

The results of research question showed that most visual materials for teaching Biology are not available in senior secondary schools in Benin metropolis. The visual aids include overhead projectors, smart boards and multimedia projectors while the audio aids comprise of the radio, tape recorders and son on. The visual materials are the textbooks, chalkboards, charts, flannel boards, maps, pictures, models and practical demonstrations. The use of instructional materials is necessary in Public Senior Secondary Schools as inevitably, as it is perceived that students in Public Senior Secondary Schools sometimes find it difficult to

comprehend immediately what is being taught by the teacher due to non-availability of instructional materials to convey the concept and topics taught to the learners. This may have affected the grades of students in Public Senior Secondary Schools (Emmana, 2014).

The results of research question two shows that predominate challenges faced by biology teachers in the use of visual aids are, Irregular power supply, overpopulation, finance, high cost of visual aids and poor implementation of the Biology curriculum. In spite of the importance and emphasis that Biology teachers should select and use instructional materials in the teaching and learning Biology, research reports have shown that Biology teachers teach without using instructional materials. The commonest reason, they give for this is that already made ones are not available in the schools (Ezeliora, 2019).The teachers' view was supported by the assertion of National Teachers Institute (2011) that most of the instructional materials used for teaching and learning in schools are expensive and not readily available. This situation has worsened in the present days due to economic recession and high exchange rate of dollar to naira that makes it impossible for many schools to purchase enough instructional materials. Therefore, Biology teachers and students have been called upon to improvise the necessary instructional materials.

The results of research question three shows that Biology teachers in the schools of study, make use of available visual materials like maps. Educational charts, models, pictures and textbooks for teaching. The effective utilization of Visual aids is necessary in the teaching-learning process, since these materials do not achieve any of their values alone unless when utilized effectively by competent teachers. There are certain principles, plans and skills required for effective utilization of instructional materials in the teaching and learning process which classroom teachers must know and acquire. Surprisingly, not many teachers have

this basic knowledge and skills. This view was expounded by (Onyjejemezi, 2012; Olaitan 2014) as they pointed out that lack of necessary skills and techniques to operate some Visual aids militate against their use. They cited examples in schools where these materials are locked up in school stores and left at the mercy of certain atmospheric conditions, rats, cockroaches and termites.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter gives the summary of this work, as well as conclusion and recommendation drawn from the findings of the study

Summary

The purpose of this research was designed to find out an analysis of the use of Visual aids in teaching Biology in senior secondary schools in Benin metropolis.

The researcher made effort in analysing the extent of the availability of visual materials in senior secondary schools, constraints faced by teachers in the use of visual aids in the teaching of Biology and effective usage of visual aids by

Biology teachers. All of which have been discussed in details under the review of literature.

The collection of data was carried out through the administration of questionnaire to 50 Biology teachers that were purposively selected from Senior secondary schools in Egor Local, Oredo and Ikpoba ohka Government Area, Edo state. The data were interpreted and discussed using percentages, mean deviation, standard deviation and frequency table. The sampling technique used for the research is the purposive random.

Findings

Following the analysis of the data collected and finding made, the follow conclusions were drawn:

1. Most visual materials for teaching Biology are not available in senior secondary schools in Benin metropolis.
2. Predominate challenges faced by biology teachers in the use of visual aids are, Irregular power supply, overpopulation, finance, high cost of visual aids and poor implementation of the Biology curriculum. And
3. Biology teachers in the schools of study, make use of available visual materials like maps. Educational charts, models, pictures and textbooks for teaching.

Conclusion

Based on the results obtained in this study, the following conclusion were made; Integration of Audio-Visual Aids in the teaching and learning of classification of living things in the study area suffer from inadequate computer infrastructure in schools, ill equipped and overburdened teaching force and overstretched school budgets incapable of sorting out the financial challenges that the schools face relative to computer integration in the teaching and learning process. There is need to address those factors affecting Audio-Visual Aids use in teaching and learning Biology in order to integrate its use in the teaching and learning in schools. Use of Audio- Visual Aids enhanced and facilitated the acquisition of knowledge and skills more than the use of traditional teaching method.

Recommendations

In view of the above, the following recommendations are therefore put forward:

1. Education stakeholders in the country should finance provision of computers, power generator, Audio-Visual Aids, and expand teaching aids in all secondary schools. This will enhance the use of Audio-Visual aids in the teaching and learning of Biology.
2. Biology teachers should be trained and retrained in the proper use and handling of instructional materials to bring about desirable learning outcomes.

3. Based on the challenges teachers are facing in the use of audio visual aids, regular power supply or an alternative source of power should be provided for the schools, schools administrators should be a motivating force to drive teachers in the usage of teaching aids and most of these audio visual aids should be subsidized by the Government so that schools can afford them.

Suggestions for Further Study

This study investigated an analysis of the use of Visual aids in teaching Biology in senior secondary schools in Benin metropolis. The future researcher may repeat this study by using larger population such as more than one local government area.

APPENDICES

DEPARTMENT OF CURRICULUM AND INSTRUCTIONAL TECHNOLOGY (CIT)

FACULTY OF EDUCATION,

UNIVERSITY OF BENIN, BENIN CITY

QUESTIONNAIRE ON AN ANALYSIS OF THE USE OF VISUAL AIDS IN TEACHING BIOLOGY IN SENIOR SECONDARY SCHOOLS IN BENIN METROPOLIS.

Dear Respondents,

This questionnaire is designed for academic purposes. It is structured to find out **an analysis of the use of Visual aids in teaching Biology in senior secondary schools in Benin metropolis.**

Please kindly respond sincerely to the questions by ticking [] where applicable. Your responses which are needed for research purposes only will be treated with high level of confidentiality. Thank you.

Section A

Instructions: Please tick () where applicable.

1. sex: male () female ()
2. qualification: BSc () Msc () Phd ()
3. class taught : SSS1() SSS2() SSS3 ()

Section B

	ITEMS	Strongly Agree	Agree	Strongly Disagree	disagree
	To what extent is visual materials available in senior secondary schools in Benin metropolis?				
1.	Televisions are available in my school for the teaching of Biology				
2.	Computers are available in my school for the teaching of Biology				
3.	Sound projectors are available in my school for the teaching of Biology				
4.	Slides are available in my school for the teaching of Biology				

5.	Pictures and photographs are available in my school for the teaching of Biology				
6.	Educational charts are available in my school for the teaching of Biology				
7.	Smart boards are available in my school for the teaching of Biology				
8.	Maps are available in my school for the teaching of Biology				
9.	radios are available in my school for the teaching of Biology				
10.	models are available in my school for the teaching of Biology				
	What are the constraints faced by teachers in the use of visual aids in the teaching of Biology in senior secondary schools in Benin metropolis?				
11.	high is one of the problems faced in the use of audio visual aids in the teaching of Biology				
12.	Class size is a constraints faced by teachers in the use of visual aids in the teaching of Biology				
13.	Lack of finance is a constraint faced by teachers in the use of visual aids in the teaching of Biology				
14.	Lack of awareness of the importance of the use of audio visual is a constraint faced by teachers in the use of visual aids in the teaching of Biology				
15.	Poor implementation of the Biology curriculum is a constraint faced by teachers in the use of visual aids in the teaching of Biology				
16.	High cost of visual aids is a constraint faced by				

	teachers in the teaching of Biology				
17.	Teachers motivation is a constraint faced by teachers in the use of visual aids in the teaching of Biology				
	Have Biology teachers' have been able to use visual aids in the teaching of Biology in Senior Secondary Schools in Benin metropolis?				
18.	I use projectors in teaching Biology effectively				
19.	I use slides in teaching a topic in Biology				
20.	I use pictures and photographs in teaching a topic in Biology				
21.	I use computer in teaching a topic in Biology				
22.	I use textbook in teaching a topic in Biology				
23.	I use television in teaching a topic in Biology				
24.	I use sound projector in teaching a topic in Biology				
25.	I use smart boards in teaching a topic in Biology				
26.	I use models in teaching a topic in Biology				
27.	I use maps in teaching a topic in Biology				
28.	I use educational charts in teaching a topic in Biology				

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