

**PERCEPTION ON THE UTILIZATION OF INSTRUCTIONAL MATERIALS
IN TEACHING AND LEARNING OF SECONDARY SCHOOL BIOLOGY IN
BOSSO LOCAL GOVERNMENT AREA OF NIGER STATE.**

BY

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**A PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE
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ABSTRACT

This study aimed at determining the Perception of Teachers and Students on the Utilization of Instructional Materials in Teaching and Learning of Secondary School Biology. The study sort to answer three research questions which include; how do teachers and student perceive the role of instructional materials in the teaching and learning of Biology? What challenges are faced in the making and the use of instructional materials in teaching Biology? What is the availability of instructional materials for Biology in schools? A descriptive survey research design was used for the study. A sample size of 180 respondents from Five Schools were used for the study. The instrument used for data collection was a questionnaire. Validation of the research instrument was done by two experts from the Department of Science Education and Educational Technology. The reliability of the instrument was tested at 0.95. The method of data analysis was percentage, mean and standard deviation. Results of the findings showed that; Teachers and Students perceive that instructional materials play an important role in teaching and learning of Biology with a grand mean score of 4.15, that teachers find it difficult to make and use instructional materials with a grand mean score of 3.45, and finally, the respondents perceive that instructional materials are available in schools for the teaching and learning of Biology with a grand mean score of 3.27. The following recommendations were made: Modern instructional gadgets/materials should be provided in schools for the teaching and learning of Biology. Such as computers, projectors etc. More qualified teachers should be employed, because too many classes for a single teacher could be the reason for the lack of regular use of instructional materials, e-libraries should be constructed in all schools and be well equipped.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

The benefits realized when instructional materials are utilized in the teaching and learning process in any level of Education across Institutions of learning cannot be over-emphasized. Educational Researchers over the years have made findings on the importance played by these materials in both teaching and learning situations. For instance, Effiong *et al* (2015), came up with the following uses of instructional materials; instructional materials promote meaningful communication and effective learning, ensure better retention, help to overcome the limited classroom by making the inaccessible accessible, provide a common experience upon which late learning can be developed, stimulate and motivate students to learn, encourage participation especially if students are allowed to manipulate materials used and help to bring about an enhanced respect for teacher's knowledge of the subject matter.

Instructional materials undeniably enhance teaching and learning processes. Although, most teachers are aware of this fact they tend to neglect its usage in classroom instruction but rather, holding unto the old talk-chalk method of presentation. What could be the cause of this negligence? One of the reason is the mindset, belief system or perception that both teachers and students have towards the utilization of instructional materials.

If a teacher does not attach value to the matter(instructional materials) or does not believe that the application of instructional materials in classroom actually proves to be more beneficial compared to conventional teaching approach, his/her attitude to the collection and usage of them will be faulty.

Like most concepts within the social science disciplines, perception (or what other scholars refer to as social perception) has been defined in a variety of ways since its first usage. From the lay man's perspective, perception is defined as an act of being aware of one's environment through physical sensation, which denotes an individual's ability to understand. However, many social psychologists have tended to develop the concept around one of its most essential characteristics that the world around us is not psychologically uniform to all individuals. This is the fact, in all probability, that accounts for the difference in the opinions and actions of individuals/groups that are exposed to the same social phenomenon (NOUN: Perception and Conflict Pp. 18).

Perception is the state of being or process of becoming aware of something in such a way. Notice, that when you look at an object, you acquire bits of information about it, including its location, shape, texture, size and (for familiar objects) name. Some Psychologists namely, those working in the tradition of James Gibson, would argue that you also immediately acquire information about the object's function. Cognitive Psychologists seek to describe how people acquire such information and what they then do to process it (www.sagepub.com/galotticp5e). According to Advanced Learner's Dictionary; perception is a belief or opinion, often held by many people and based on how things seem.

In a research conducted by Shiva Datta Dawadi, (2017) on perception of teachers towards the use of Instructional Materials in teaching mathematics at secondary level, the researcher discovered that teachers have negative attitude towards Instructional Materials under the sub-heading; availability. This implied that due to the difficulty encountered by teachers in gathering Instructional Materials, its usage in classrooms will be greatly reduced or minimized.

Teachers and students' perception of Instructional Materials in classroom presentation will influence the degree and level of its usage to a very large extent. A teacher can create an impression towards the use of Instructional Materials such that it favors or hinders its acceptability in the teaching-learning process, unless they have a better understanding and positive perception.

Biology is a core science subject that is taught in Senior Secondary Schools in Bosso Local Government Niger State. Biology is a natural science that is concerned with the study of life. This science subject requires both theoretical and practical approach in teaching and learning. Biology remains one of the basic science subject whose teaching and learning is generally known to be efficient and successful when taught with adequate and appropriate Instructional Materials (Ahmad *et al* 2018).

1.2 Statement of the Problem

Instructional Materials are very important in the process of teaching and learning of Biology among Senior Secondary School Students. Aside their benefits to the learners which include the stimulation of the students' interest in classroom and aiding retention etc. and earning respect for the teacher as a knowledgeable and competent instructor in the eyes of the students, Instructional materials also promote meaningful communication and effective learning, ensure better retention, thus, making learning more permanent.

Since no education system may rise above the quality of its teachers and the training facilities, teacher education and the training facilities are being continuously given major emphasis in all educational planning and development in Nigeria. In these crucial endeavor teachers need help by being provided with instructional materials, which will enhance effective teaching and learning at all levels of education i.e. primary,

secondary, post-secondary, and tertiary-from the local, state and the Federal Governments (www.currentschoolnews.com)

According to P. I. Eze, (2016). The establishment of educational centers is one of the strategies mapped out by the Federal Government to achieve objectives of the educational services to improve quality education which indicates that each state and local government authority shall establish teachers' resources centres where teachers will meet for discussion and investigations, study, workshop, short courses and conferences federal government and state Government shall establish educational resources centers whose activity shall be multidisciplinary.

The Government had made efforts in ensuring that Educational Technology Centers are established across the country in several colleges of Education and Universities as well as libraries and laboratories in Secondary Schools in order to equip curriculum implementers' i.e. the teachers with necessary materials, information and skills. These skills will enable the teachers to locally improvise where need be and use Instructional Materials in teaching. In most secondary schools it is assumed that there is considerable number of equipment, diagrams, models, charts etc. in their Biology Laboratories for effective teaching and learning of the subject. Nevertheless, most teachers are fond of delivering lessons without using even improvised Instructional Materials they were trained to develop and use.

Onche, (2014), identified some reasons for teachers' negligence of Instructional Materials. They include; Government policy towards efficient provision, lack of accessibility and exposure of teachers to Modern Instructional Facilities, poor salary schemes of teachers which leaves teachers with insufficient funds to purchase or design Instructional Materials locally. Lack of electricity supply in some areas where schools

are located, skillfulness and creativity of teachers are other factors that can diminish the use of Instructional Materials in Biology classes.

This study seeks to find out the perception of teachers and students on the utilization of Instructional Materials for teaching and learning of Biology in Secondary Schools of Bosso Local Government Niger State.

1.3 Aim and Objectives of the Study

The main aim of the study is to determine the perception of teachers and students on the Utilization of Instructional Materials in teaching and learning of Secondary School Biology students. In specific terms, this study seeks;

1. To determine the perception of Biology teachers and students towards the utilization of Instructional Materials in teaching and learning.
2. To investigate the challenges teachers face in the preparation and utilization of instructional materials in teaching Biology.
3. To find out the availability of Instructional Materials for Biology teaching and learning in Secondary Schools.

1.4 Research Questions

This study seeks to answer the following questions:

1. What is teachers and students' perception on the utilization of instructional materials in the teaching and learning of Biology?
2. What are the challenges teachers face in the preparation and utilization of Instructional Materials in teaching Biology?
3. What is the availability of instructional materials for Biology teaching and learning in Secondary Schools?

1.5 Scope of the Study

This study seeks to determine perception of teachers and students towards the utilization of instructional materials for teaching and learning of secondary school Biology students of Bosso Local Government, Niger State. That is this study covered Senior Secondary Schools of Bosso Local Government Area of Niger State only.

1.6 Significance of the Study

This study will be of benefit to the following; Government, Ministry of Education, Teachers, Students and parents.

Government is responsible for the establishment, maintenance and funding of all public schools in Nigeria. The discovery of this study will supply the Government with the right information concerning the state and usage of instructional materials in the schools and of the need to fund the schools for the procurement and development of instructional materials for better academic achievement of the students where these materials are not available or insufficient.

The ministry of Education in the other hand will be aided by the result of this study to make policies that will, through school administrators ensure the use of instructional materials for Biology teaching and learning in all senior secondary schools. This can be achieved when teachers are not only supervised but also sufficiently motivated through further training, provision of the materials etc. When this happens to teachers their effort in teaching Biology will greatly improve and they will do more to ensure that Biology classes are adequately supported with appropriate instructional materials.

The students, on the other hand are the most benefitted from this study. As they stand to not only have interesting class sessions but better academic achievement at the end of their study. Coming out of secondary school with higher grades will give them a

competitive advantage when seeking admission into tertiary institution and their choice courses. This will also benefit parents in that they will not have to spend more money for their children to take another ‘O level examination ‘year after year’. It will also minimize examination malpractice which is common in many secondary schools and reduce unnecessary delay entering into higher institution of learning which is usually encountered by many candidates with average or lower grades.

1.7 Operational Definition of Major Terms

Perception: One's belief, thought or mindset about the roles of instructional materials

Utilization: Is the application of instructional materials in the classroom teaching and learning of Biology.

Instructional materials: Are those items, objects, gadgets or documents that can be used in the classroom to enhance or aid the teacher to deliver lessons effectively.

Teaching: The act of imparting knowledge, information, ideas, skills or values by a professional teacher to a learner.

Learning: The process of acquiring knowledge or skills through instruction or study

Biology: Is a systematic and scientific study of living organisms. The term is derived from two Greek words ‘bio’ meaning life and ‘logos’ meaning study

Challenges: are defined in this context as the difficulties encountered by teachers while preparing Biology lessons, especially with regards to collection, or design of instructional materials.

Availability: is defined as the presence or absence of instructional materials in secondary schools.

CHAPTER TWO

2.0

LITERATURE REVIEW

2.1 Review of Related Variables in the Study

2.1.1 Perception

Perception according to the concise oxford English Dictionary is the ability to see, hear or become aware of something through the senses. It is the state of being or process of becoming aware of something in such a way. It is the organization, identification and interpretation of sensory information in order to represent and understand the environment. Perception takes different forms such as perception of sound, speech, touch, taste, sight, and of the social world. Perception is the way we judge or evaluate others and things around us. Perception is a personal manifestation of how one views the world which is colored by many sociocultural elements (S.M. McDonald, 2011).

Demuth, (2013), is of the opinion that we start being aware of something and begin to study it when that thing stops working. Perception is one of the basic ways of meeting reality and for many it is actually reality. If we want to learn something about the reality we meet, we should know something about the way we capture it or how the meeting with reality is constructed.

In a nutshell, perception in this context refers to the opinions and beliefs of teachers and students about instructional materials' functions or roles in teaching and learning. Many researchers have discovered the roles played by these instructional aid in teaching and learning, but after all these findings, do they feel that the use of these materials make any difference at all? Are they manning up to the challenge of using them regularly in teaching and learning? If not could there be any challenge faced that is the reason for negligence? Are these materials available for the teachers to use? Or do they

not at all derive any pleasure in them? These and many more questions talk about perception in this study.

Due to our individual differences, personalities, experiences, training, exposure and values we tend to show considerable differences in the way we perceive the environment and things around us. This as well affect the way teachers or students relate with others and their disposition in teaching and or learning.

2.1.2 Instructional Materials

The term ‘material’ can be seen as ‘a substance or mixture of substance that constitutes an object. It can also refer to information or idea for use in creating a book or other work. The term instruction is the act of educating, giving the steps that must be followed or an order.’ Instructional materials is also referred to as teaching/learning materials, teaching aid, or instructional media. These are any collection of materials including animate and inanimate objects, human and non-human resources that a teacher may use in teaching and learning situations to help achieve desired learning objectives. The term encompasses all the materials and physical means a teacher might use to implement instruction and facilitate students’ achievement of instructional objectives (en.m.wikipedia.org).

Erastus, (2015), defined Instructional Media as the kind of media used in teaching to aid in learners’ easier understanding according to the set objectives. Instructional material refer to those additional channels of communication which a classroom teacher can use to concretize a concept during teaching and learning process. Traditionally, classroom teachers have relied heavily on the chalk-talk method during instruction. But recently, instructional materials help to provide variations in the ways in which messages are sent across (Samuel W. A., 2018).

Instructional materials are materials which assist teachers to make their lessons explicit to learners. They are used to transmit information, ideas and notes to learners. They can be referred to as the widely varieties of equipment and materials used for teaching/learning by teachers to stimulate self-activity on the part of the learners (Beatrice et Al 2015). Maureen (2016), also supported the fact that Instructional Materials cannot be neglected in teaching and learning, if teachers' efficiency and students' performance must be promoted and improved respectively. "Teaching aids are needed to supplement the teacher's oral explanation with the students' visible experiences" she said.

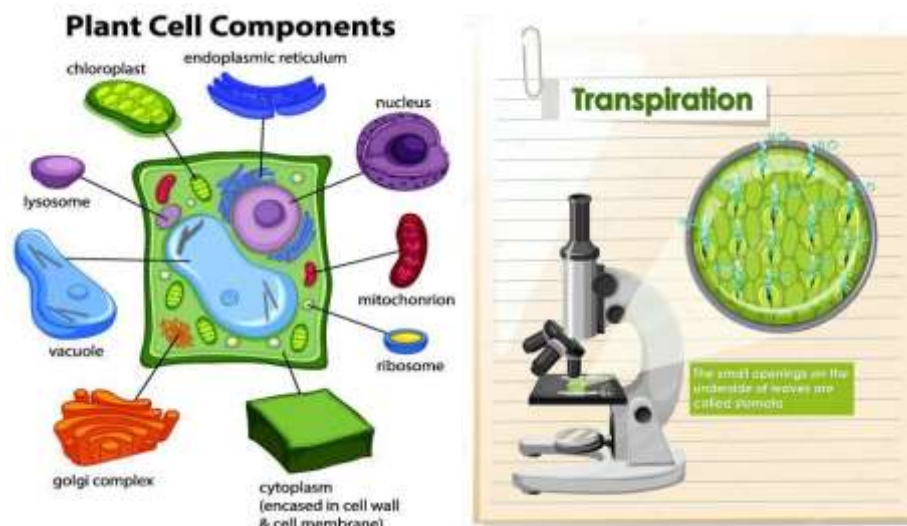


Figure 2.1 Labeled Diagrams of Plant cell and a Microscope
Sources: (www.freepik.com & www.britannica.com)

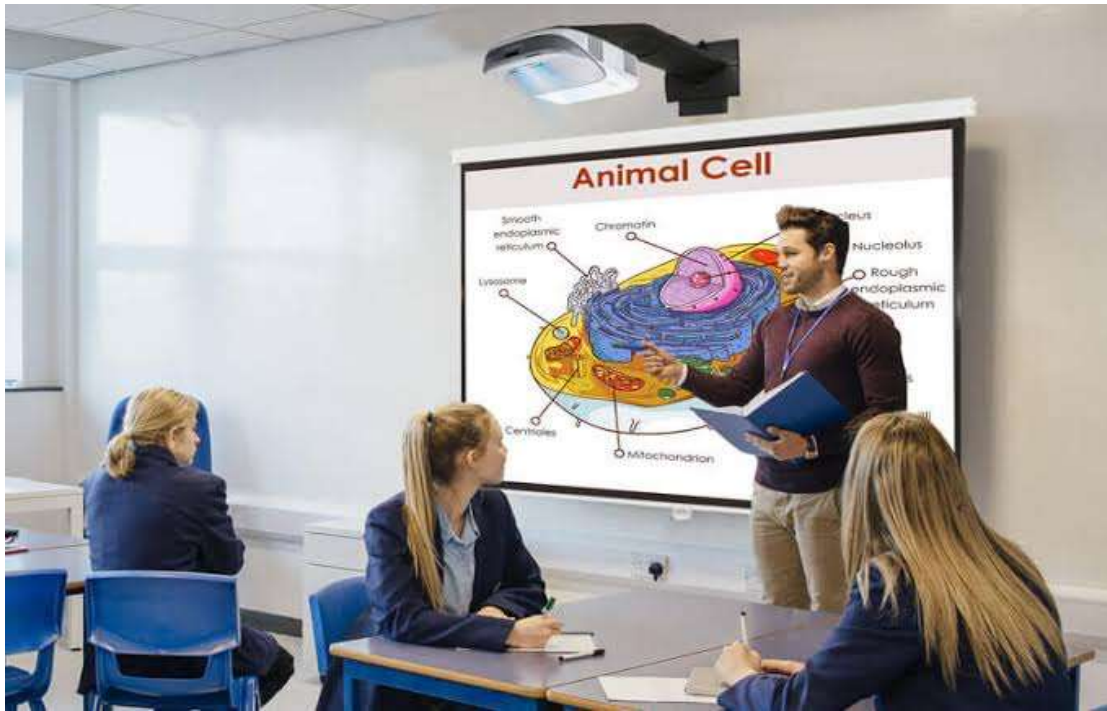


Figure 2.2 Classroom Instruction using a Modern Electronic Projector.

Source: (www.digitalllearning.eletonline.com)

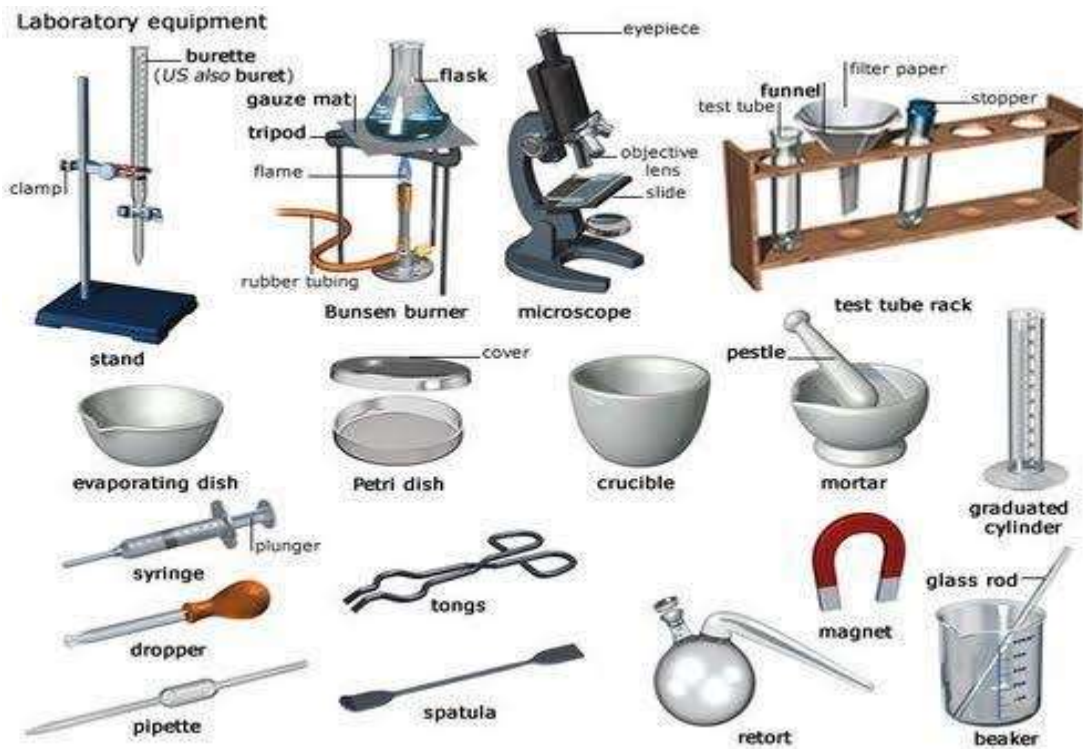


Figure 2.3 Biology Equipment. Source: (www.indiamart.com)

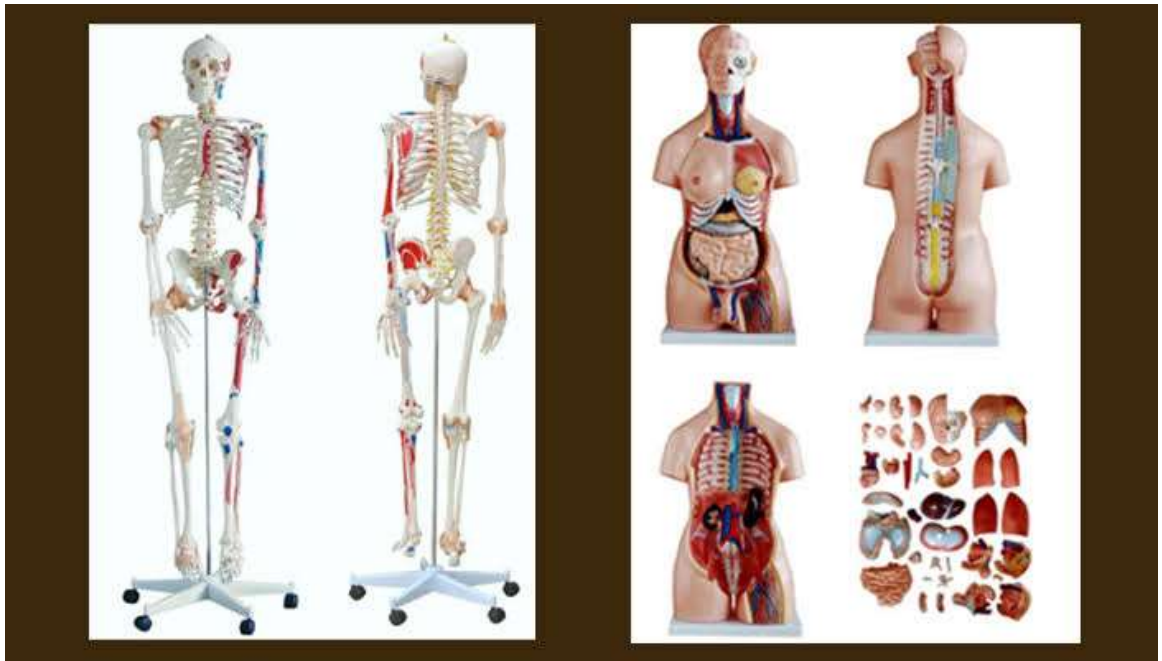


Figure 2.4 Models showing the human skeletal system (left) and human internal organs (right)
Source: (www.indiamart.com)



Figure 2.5 A Bulletin board showing the ecosystem. Source: (www.pinterest.com)



Figure 2.6 Video Camera (left) and Audio Recorder(right).
Sources: (www.bhphotovideo.com & www.gearbooker.com)



Figure 2.7. The Internet.
Source: (www.sanskritipatil21.blogspot.com)

2.1.2.1 Classification of Instructional Materials

Tolorunleke (2013) viewed instructional materials as the vehicle through which instructions are disseminated to the learners for the purpose of appealing to their senses of touching, seeing, hearing, and feeling so that desired behavioral changes are achieved. No Media in their own right have absolute influence but are themselves vehicles for more and better instructions (Nwosu, *et al*, 2017). Instructional materials can be classified into the following;

1. Durable and non-durable materials: *Durable materials* are those materials that last for very long time. These include; computer, projectors, television, radio, cameras etc. They are hardware and possess high technology materials (Hi-Tech). *Non-durable materials* are materials that have short lifespan or those that cannot be stored for a very long time. These Materials include pictorial and graphic representations (posters, maps, charts, etc.), and projected pictures (filmstrips, transparencies, motion pictures etc.).

2. Audio visual Materials: These are materials that appeal to the sense of hearing and seeing examples include video, television, computer, motion pictures etc.

3. Print and Non-print Materials: *Print materials* include textbooks, newspapers, journals, pamphlets, magazines etc. While the *Non-print materials* are maps, charts, posters, graphs etc.

4. Projected and Non-projected Materials: *Projected Materials* require other equipment especially projectors to function. In most instances they require electricity. Examples include; slides and filmstrips, video cassettes, transparencies, motion pictures, computer software etc. *Non-projected materials* do not require any other equipment to function. Materials like posters, flashcards, charts, pictures etc. fall under this category (Adekola, 2010).

Oluwadare, (2010), states that where Instructional Materials are properly selected, utilized and appropriately matched to a specific learning objective learners' perception, understanding, transfer of training, recall and retention can be greatly enhanced. Properly selected and utilized Instructional Material can promote academic achievement, give to learners increased conceptualization and understanding that is more than they usual gain from verbal explanation (Nwosu, *et al*, 2017).

2.1.2.2 Utilization of Instructional Materials

Instructional Materials are considered important in teaching and learning in all levels of education because textbooks and other resource materials are basic tools. Absence or inadequacy makes teachers handle subject in an abstract manner, portraying it as dry and non-exciting. For example, Textbooks, Charts, Maps, Audiovisual and Electronic Instructional Materials such as Radio, Tape Recorder, Television and Video Tape Recorder contribute much in making teaching more interesting (Atkinson, 2000). The importance of Instructional Materials is also evident in the performance of students.

Schools whose teachers use more Instructional Resources performed better than schools whose teachers do not use Instructional Materials. This corroborated the study by Babayomi as cited by John in 2016, that private schools perform better than public schools because students and teachers are provided with sufficient and quality teaching and learning resources. From this importance, schools at all levels of education have been advised to have quality and adequate instructional facilities to raise academic performance of their students (John Lawrence Tety, 2016).

According to J. Mukagihana et al, (2020). The use of Biology instructional resources has diverse importance not only for pre-service Biology teachers' education but also for all kinds of students, and their use becomes fruitful, especially when students

manipulate the used materials. For instance, instructional resources use in teaching raises students' level of discovery and stimulates students to learn more as they see what they are taught. Besides, Johnson & Cotterman, (2015) cited by Mukagihana, (2020), found that the use of video clubs increased the pre-service science teachers' understanding of their science subject content. Technology related instructional resources are more imperative for training pre-service science teachers, as they afford the required technology skill essential for a qualified teacher of this digitalized world. Besides, the teaching process becomes less stressful for both teachers and students when instructional materials are used. Therefore, identifying available instructional materials at schools, especially at higher learning institutions, is of imperative need as learning by hands-on and observation of instructional resources raise students' level of memory and enhance learning achievement.

Effiong, *et al*, (2015) and Roseline, (2019), stated that instructional materials;

- i. Enhance the memory level of the students
- ii. Facilitate the teaching-learning process
- iii. Improve students' rate of accumulation
- iv. Serve as tools by the teachers to correct wrong impression and illustration of things that learners cannot forget easily
- v. Assist in giving sense of reality to the body of knowledge under discussions
- vi. Gives lesson a personal look and encourages students' creativity
- vii. Permits the students and teachers to experience in concrete terms the learning activities that can promote the idea of self-evaluation.
- viii. Promote meaningful communication and effective learning, ensure better retention, thus, making learning more permanent
- ix. Help to overcome the limited classroom by making the inaccessible accessible

- x. Provide a common experience upon which late learning can be developed
- xi. Stimulate and motivate students to learn
- xii. Encourage participation especially if students are allowed to manipulate materials used, and.
- xiii. Help to bring about an enhance respect for teacher's knowledge of the subject matter

No matter how qualified a science teacher is he will be limited in communicating or converting his ideas into practice if the school setting lacks the equipment and materials necessary for him to translate his competence into reality. Instructional material is a channel of delivery between the teacher and students, they serve as motivation in the teaching-learning process, they are used to get the attention of the students and eliminate boredom. This means that the teacher can use them for effective classroom management or control. Those new to the teaching profession will be highly aided by these materials in planning and delivery of lessons (Stephen A., *et al*, 2013).

2.1.2.3 Challenges faced in the Preparation and Utilization of Instructional Materials

In his research work John, (2016), pointed out some challenges faced by teachers regarding instructional materials in rural areas these can be summarized as; Insufficient finances provided by the government to Community Secondary Schools for the purchase of Instructional Resources, severe poverty among the members of the community in which those schools are located. Moreover, some schools do not even have enough textbooks, chalkboards and sometimes even common chalk, enough seats for students, conducive classroom etc. let alone instructional materials to enhance teaching learning process.

Lack of electricity supply can also serve as a very big hurdle to why some instructional materials such as audio-visuals may not be purchased or used in such schools these will obviously make teachers feel reluctant about the subject entirely. According to Onche, (2014), Government policy towards efficient provision of this aspect of educational resources has not been encouraging and has always not been well planned, monitored, supervised and evaluated with rural schools as the backbench of implementation of these policies.

Another challenge that teachers face is lack of accessibility and exposure to modern instructional facilities. With the advancement in technology it is easier to deliver instruction through different ICT gadgets. However, this is still an issue in rural schools since most teachers have not been equipped with the necessary skills to manipulate these gadgets i.e. to operate, maintain, install, service or repair etc. This problem is especially profound among teachers who had training in the 90s in such places and situations teachers still use chalk and duster approach to teach Biology.

The challenge of poor salary faced by teachers. Nigerian secondary schools teachers are among the least salary earners in civil service. Most teachers who might want to improvise or use personal equipment or gadget for better instruction will not be able to do so considering the fact that their income cannot even afford them a comfortable life. Most teachers in that level have debts to pay every month and others have to receive loans to enable them undertake any tangible projects such as building a house or purchasing vehicles that will convey them to their place of work. Aside being unable to purchase teaching materials teachers will also not be able to acquire new ideas, skills and knowledge by failing to enroll for further educational program including information and communication technology (ICT), the academic and intellectual capacities of teachers and learners are bound to be negatively affected (Onche, 2014).

Inadequate skills and creativity will also serve as great hindrance to the design and or improvisation of instructional materials where the original materials are not available. In improvisation of instructional material sometimes there is need for a teacher to draw, to manipulate objects, to cut, to design and to change certain local objects into desired teaching aids. This requires skills and creativity, but where teachers are not properly equipped with the skills they will be unable to improvise instructional materials.

Time/ duration allocated to Biology classes is another factor. As the display, explanation or operation of instructional materials is time consuming and students usually have other subjects or classes to attend. For instance, in most public and private secondary schools, a period of 40 to 45 minutes is allocated for a class after which another teacher comes to take over the class for a different subject entirely. Except for cases where double period is allocated for a lesson which is often given to Mathematics and English classes. This makes teachers unable to cover or exhaust their lesson plan during instruction let alone use instructional materials effectively. Students may pass through a three (3) year duration in senior secondary without having sufficient exposure to the practical aspects of Biology. In fact, in most public schools students are familiarized with certain Biological concepts and laboratory experiences only when they are about to write the Senior Secondary Certificate Examination (SSCE).

2.1.3 Teaching and Learning

A.H. Sequeira, (2012), defined teaching as a set of events outside the learners which are designed to support internal process of learning. Teaching is the process of communicating Facts, Concept, Ideas, skills etc. to a learner or group of learners with the sole purpose of causing a change in behavior of the learners.

Teaching can also be seen as an act of imparting skills and information to others. It is a process whereby a more knowledgeable individual instructs a less knowledgeable one in an attempt to make the learner acquire the same knowledge possessed by the instructor. Teaching, can be described as a process of transferring, facts, skills, ideas, concepts, experiences, beliefs, mindset etc. by a more experienced individual. It is also a means of guiding an individual or group of persons into discovery of information, practice and utilization of skills for a better living.

According to Isola Rajogopalan, (2019). Teaching is regarded as both an art and science. As an art, it stresses on the imaginative and artistic abilities of the teacher in creating a worthwhile situation in the classroom to enable students to learn. As a science it sheds light on the logical, mechanical or procedural steps to be followed to attain an effective achievement of goals. In his article, he highlighted four steps involved in teaching. These steps include;

1. Planning of teaching which includes content analysis identification and writing of objectives
2. Organization of teaching which indicates the teaching strategies for achieving the objectives of teaching
3. Identification of suitable teaching-learning strategies for effective communication of content
4. Management of teaching-learning whereby the focus is on the assessment of the learning objectives in terms of student performance, and this forms the feedback to the teacher and students.

Teaching is an activity which is expected to result in learning at the end of the day this means that teaching influences or affects learning positively. Learning is about a

change; the change brought about by developing a new skill, understanding a scientific law, changing an attitude. The change is not merely incidental or natural in the way that our appearances changes as we get older. Learning is a relatively permanent change usually brought about intentionally. When we attend a course, search through a book, or read a discussion paper we set out to learn. Other learning can take place without planning. For example, by experience. Generally, with all learning there is an element within us of wishing to remember and understand why something happens and to do it better next time (A. H. Sequeira, 2012).

Learning is the process of acquiring knowledge and skills either by an experience through study or when we are taught by someone. While teaching involves a face-to-face contact between teacher and learners, learning can take place without a teacher in the scene. Although, the two go hand-in-hand learning still remains the most important aspect of educational objectives, curriculum and policies.

2.1.4 Biology as a Science Subject

According to Ahmad, *et al*, (2018). Biology is a natural science which is concerned with the study of life. It is a derivative of the Greek words ‘bio’ meaning ‘life’ and ‘logos’ meaning ‘study’. Biology is a prerequisite to studying other disciplines such as Medicine, Microbiology, Agriculture, Pharmacy, Biochemistry, Molecular Biology, Marine Biology, Biotechnology, Biomedicine, Biophysics, Bioengineering, Evolutionary Biology, Biofeedback Phenomenon and Developmental Biology. This makes Biology a core Science subject in secondary schools to prepare the students who might consider studying any of the above courses in higher institution of learning.

The teaching and learning of Biology require both theoretical and practical approach. Learners are expected or given the chance to observe, handle, dissect, identify describe,

count, measure, and draw living organisms, structures, related models, diagrams and pictures as well as manipulate apparatus in the teaching and learning process.

Biology remains one of the basic science subjects whose teaching and learning is universally known to be efficient and successful if only undertaken simultaneously with the help of adequate instructional resources and facilities. Biology provides a range of balanced learning experiences through which students develop the necessary scientific knowledge and understanding, skills and processes, values and attitudes embedded in the life and living strands of science education for personal development and contributing towards a scientific and technological world.

According to Adegboye, *et al*, (2017), Biology is a unique branch of natural science however like other natural sciences, it is concerned with the search for in-depth understanding of natural phenomena and events. It is composed of two major fields: Functional Biology and Historical Biology which is also known as evolutionary Biology the functional processes of Biology deal with physiological processes in living things and it can be explained with the natural laws of physical sciences especially at the cellular molecular level. The most frequent questions asked in Functional Biology field is ‘how?’ In the field of Historical Biology a sound knowledge of history is needed for the explanation of all aspects of the living world that has to do with the dimension of historical time. Experiments are sometimes inappropriate to provide answers to the ‘why’ and ‘how’ questions that are frequently and occasionally ask respectively in this field of Biology.

Despite efforts being made to improve teaching and learning of Biology, high records of poor achievement of students in Biology is on the increase (WAEC, 2010). Studies have shown that the reasons for low academic achievement in Biology is due to poor

understanding of the basic concept, lack of adequate instructional materials and textbooks that reflect the students' environmental needs, low level and low quality of cognitive interactions with teachers, and language problems. All these compel students to memorize and regurgitate facts and principles (Okebukola, 2005).

2.2 Theoretical Framework

This study is carried out based on the following theories: Constructivist Theory, Behavioral Learning Theory, and Cognitive Learning Theory.

Constructivist theory assumes that the process of perception is a highly active process of extracting sensory stimuli, their evaluation, interpretation and backward organization of sensory stimulus. Perception is the end product of the interaction between stimulus and internal hypotheses, expectations and knowledge of the observer, while motivation and emotions play an important role in this process. Perception is thus influenced by a wide range of individual factors that can lead to an inadequate interpretation. While behaviorist background is typical for the theory of direct perception, constructivists accepted Helmholtz's principle of sensory data processing by means of unconscious inference (inference of color constancy). They also took into account the knowledge of Gestalt psychology which enabled them to look for unconscious patterns of perception as well as to study the influence of conscious experience on irreversibility or reversibility of perceived shape (Philip Zigman, 2018).

“The Behavioral Learning Theory is a concept that emphasizes how students learn. It is based on the idea that all behaviors are learned through interaction with the environment. This theory states that behaviors are learned from the environment, and says that innate or inherited traits have very little influences on behavior. Behaviorism

is key to educators because it imparts how students react and behave in the classroom, and suggests that teachers can directly influence how students behave.

Cognitive Learning Theory which originated from the Gestalt psychology. The term 'Gestalt' means patterning, shaping, forming or configuring. The cognitive field theorists include; M. Wertheimer, K. Koffka and W. Kohler all of them German psychologists. Cognitive Learning Theory suggests that teaching is a process of understanding and developing an insight in the learner. Learning is the organization of percepts and purposes by the learner. This theory often prefers to talk about cognition and perception. Cognition involves thinking and relating sensory inputs to our present experiences and interpreting these experiences for possible actions.

Cognitive theory believes that a man is actively engaged in perception and learning. This is unlike Stimulus Response (S-R) theories that assumed that a man is passive in a highly determining environment. Cognitive theorists laid emphasis on organism-environment interaction. Their views was also rooted in the idea that all psychological activities of a person occur in the field. The field in this context means that the total psychological world of a person at any moment or time. It includes the person's present, past and future experiences, and they may be concrete, abstract, or imaginary. In the classroom, a stimulating learning environment should be provided so that the learners could structure out a desirable psychological field which will automatically enhance learning". (Oluyori Aremu, 2008).

2.3 Empirical Studies

A study was carried out by Effiong, *et al*, (2015), in which he asked if there is any significant influence between the uses of instructional materials on the academic performance of students in Biology. 62% of the respondents indicated that instructional materials make learning real and permanent. This means that the learners perceive that

whenever instructional materials are employed in Biology classes, learning becomes meaningful as the abstract concepts of Biology are made real and students can interact with those object as well as enhance the ability of learners to recall what they have learnt in the future more easily than if they were to be taught without instructional materials.

U. U. Maureen, (2016), carried out a study on the perception of students in the use of improvised instructional materials in teaching Biology in senior secondary schools in Azeagu local government area of Enugu State Nigeria. The researcher used descriptive survey research design to find out the opinion of different people on the topic of the study. The findings showed that students attitude towards the use of improvised instructional material when teaching Biology is positively high as indicated by a grand total of 3.5 which is above 2.5 the decision rule. The results also show that the respondents agreed that students' achievement is enhanced whenever instructional materials are used.

This means that the use of improvised materials was perceived to be highly effective over the conventional 'chalk-talk' method of teaching. Conclusively, the population of Biology students the researcher covered actually got more interested and achieve better whenever a teacher uses instructional material even if it is an improvised one to instruct them.

John L. Tety, (2016). Carried out a study on the role of instructional materials in academic performance in Community Secondary School in Rombo District Tanzania. The result of the study revealed that 92% of the teachers affirmed that E-learning instructional materials were very important, 84% of teachers agreed that the use of Posters, Charts and Diagrams in teaching were very important for students learning and 68% of the teachers' respondents noted that the use of instructional material for teaching is very important.

Similar results were also discovered in a study conducted by Shiva (2017). Shiva conducted a research on the perception of teachers towards the use of instructional materials in teaching mathematics at secondary level. Descriptive Survey Design was adopted for the study which is a quantitative design. The statements in the questionnaire were categorized into four categories as availability, appropriateness, self-confidence in using instructional materials, and motivation to use it. The results showed that teachers have negative attitudes towards the statements under the subheadings availability which indicates that teachers find it difficult in gathering instructional materials to teach mathematics and they were found to be positive towards the statement under the subheadings appropriateness, self confidence in using and motivation. The study also concluded that the perception of the teachers regarding the use of instructional materials in teaching mathematics at secondary level differs according to the teaching experience of the teacher interestingly the teachers with less teaching experience were found more positive in using instructional materials to teach mathematics at secondary level.

2.4 Summary of Literature Review

In this chapter, relevant and related literatures for this study were reviewed. The first part of the chapter deals with conceptual framework in which the following concepts were defined, explained and fully cited where necessary; perception, instructional materials(types, utilization, challenges), teaching and learning, and Biology.

The second part treated theoretical framework. Here, the following theories were reviewed; Behavioral Learning Theory which is based on the idea that all behaviors are learnt through interaction with the environment, Stimulus-Response Theory which proposed that learning is a formation of bonds between stimulus and response, and

Cognitive Learning Theory which suggests that a man is actively involved in perception and learning. The last part of the chapter covered four empirical evidences relating to the objectives of the study.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research Design

In this study the researcher adopted descriptive survey research design type. Descriptive research is considered conclusive in nature due to its quantitative nature. Descriptive research is pre-planned and structured in design so the information collected can be statistically inferred on a population. The main idea behind this type of research is to better define an opinion, attitude, and behavior held by a group of people on a given subject (www.surveymonkey.com). Survey research is used to assess thoughts, opinions, beliefs and feelings of selected groups of individuals, often chosen for demographic sampling (www.wikipedia.com).

3.2 Population of the study

The population for this study comprised of Biology teachers and students in the senior secondary schools within Bosso Local Government Area of Niger State. There are twenty (20) public Senior Secondary Schools in the Area. With a total number of 1200 SS2 Biology Students and 80 Biology teachers (a total target population of 1280); according to Niger State Ministry of Education, Planning, Research and Statistics (PRS) Unit, 2018/2019 Academic Session.

3.3 Sample and Sampling Technique

A sample of 180 respondents which is equivalent to 14% of the target population from five (5) schools were selected. i.e 170 SS2 Biology Students were selected because the class is at the center of the Senior Secondary School. The researcher considered SSI Students to be starters with less experience in the subject while SSIII were writing

SSCE which made them inaccessible to the researcher. And 10 Biology teachers across the 5 Secondary Schools were also selected. The researcher used simple random sampling to select 34 students and stratified random sampling to select two 2 teachers from each school.

Table 3.1 Sample of the Study

SN	School	Students	Teachers
1	Abdullahi Dada Secondary School Maikunkele	34	2
2	Bosso Secondary School Minna	34	2
3	Day Secondary School Maikunkele	34	2
4	Hilltop Model Secondary School	34	2
5	Model Science College Tudun Fulani	34	2
	Total	170	10

3.4 Research Instruments

For this study a structured questionnaire titled: “Perception on the Utilization of Instructional Materials in Teaching and Learning of Secondary School Biology Students in Bosso Local Government Area of Niger State” was used as instrument for data collection. The questionnaire consist of three (3) sections; namely section A, B and C. Section A consist of an introduction by the researcher. Section B consist of respondent’s bio data which include items such as; Gender, Age, Marital Status, Teacher’s qualification and Student’s Class. Section C consist of 12 items under each research question with a rating scale of 5 options which include: Strongly Agreed (SA), Agreed (A), Undecided (U), Disagreed (D), and Strongly Disagreed (SD). Each of the rating scale carries: 5, 4, 3, 2, & 1 respectively.

3.5 Validation of Research Instruments

An instrument is considered valid if it measures what it is designed/ expected to measure so that we can rely on it. This instrument was validated by two experts from the department of Science Education and Educational Technology; the instrument was vetted and necessary corrections and recommendations were made which the researcher effected before administration to respondents.

3.6 Reliability of the Research Instruments

Instrument reliability means that such instrument is consistent in measuring what it is designed to measure. Cronbach Alpha was used to determine the reliability of this instrument, and a reliability index of 0.95 was obtained which proves that the instrument is reliable. The Cronbach alpha was calculated using the formula below:

$$\alpha = \left(\frac{K}{K-1} \right) \left(\frac{S_y^2 - \sum S_i^2}{S_y^2} \right)$$

α = Cronbach Alpha

K = Number of respondents

S_y^2 = Variance of total score

$\sum S_i^2$ = Sum of item variance

3.7 Method of Data Collection

The researcher obtained a letter from the department of Science Education Federal University of Technology Minna to get data from the Ministry of Education and the selected schools in order to obtain permission to collect data. The instrument was administered to the teachers and students in their respective schools. The researcher took time to explain to the respondents the purpose of the study and how they are

expected to fill in their responses. Enough time was equally given to the respondents to carefully answer the questions.

3.8 Method of Data Analysis

In this study, percentage, mean and standard deviation were adopted as methods of data analysis. Percentage was used to analyze the respondents' bio-data, while the mean and standard deviation were used to analyze the research questions. The mean and standard deviation were computed using Special Package for Social Sciences (SPSS) version 25.

Any item of mean score that is 3.00 and above was accepted as influencing the items in the questionnaire positively while any item of mean score that is below 3.00 was considered to negatively influence the questionnaire item.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Introduction

The purpose of the study is to determine the perception of teachers and students on utilization of instructional materials in teaching and learning of secondary school Biology in Bosso Local Government of Niger state. This chapter discusses the data analysis, presentation of the results of data analyzed and discussion of the results. The data were analyzed using the Statistical Package for Social Sciences (SPSS) Version 25. The bio data of the respondents was analyzed using simple percentage, while the research questions were analyzed using mean and standard deviation. A satisfactory scale was set to infer disagree and agree; 1.0 – 2.9 disagree, 3.0 – 5.0 agree.

4.2 Analysis of Demographic Information

The researcher administered 180 questionnaire and was able to retrieve all 180 from the respondents this data then constitute 100% of the total sample size for the study.

Table 4.1.1 Distribution of Respondents by their Status

Status	Frequency	Percentage (%)
Teachers	10	5.6%
Students	170	94.0%
Total	180	100%

The sample size makes a total number of 180 respondents, of which 5.6% of that sample are professional Biology Teachers whereas 94.0% makes up the students.

Table 4.1.2. Distribution of Respondents by Gender

Gender	Frequency	Percentage (%)
Male	91	50.6%
Female	89	49.4%
Total	180	100%

The gender of the respondents however is thus; Males constitute 50.6% of the sample while females constitute 49.4% of the sample making a sum of 100% of the selected population.

4.3 Analysis of Research Questions

Research Question 1: What is teachers and students' perception on the utilization of instructional materials for teaching and learning of Biology?

Table 4.3.1. Perception on Utilization of Instructional Materials

S/N	Items	N	Mean	SD	Decision
1	Instructional materials are always used to teach Biology in my school	180	3.96	1.23	Agree
2	Instructional materials make Biology classes interesting	180	4.46	0.82	Agree
3	Instructional materials enhance easy delivery in Biology lessons	180	4.23	0.96	Agree
4	Instructional materials help me to comprehend and perform better in Biology	180	4.46	0.81	Agree
5	Biology practicals are often carried out in my school	180	3.69	1.37	Agree
6	Instructional materials enhance my understanding of Biology	180	4.22	0.96	Agree

7	Biology terms and concepts are difficult to explain without instructional materials	180	3.96	1.06	Agree
8	The use of instructional materials in Biology classes gives a teacher the sense of satisfaction for a job well done	180	4.14	1.18	Agree
9	Teachers who often use instructional materials to teach Biology earn more respect from the students	180	4.22	1.02	Agree
10	Instructional materials encourage students' participation during Biology classes	180	4.29	0.87	Agree
11	I like Biology so much and can go extra miles to teach or learn it.	180	4.21	0.93S	Agree
12	Students are involved in finding materials/specimen for Biology lesson	180	3.97	1.07	Agree
Grand Mean		180	4.15		Agree

Decision mean: 3.00

Table 4.3 shows that Item 1 has a mean score of 3.96 and a standard deviation of 1.23 which means that instructional materials are always used in teaching Biology. Item 2 has a mean score of 4.46 and a standard deviation of 0.82, item 3 has a mean score of 4.23 and a standard deviation of 0.96 and item 4 has a mean score of 4.46 and a standard deviation of 0.81 respectively. These show that instructional materials make Biology classes interesting, enhance easy delivery of lessons and aid comprehension and academic performance (i.e. achievement) in Biology respectively.

Item 5 asserts that Biology practicals are often carried out in Schools, this proves true with a mean score of 3.69 and a standard deviation of 1.37. Whereas the enhancement of Biological understanding and the explanation of biological terms and concepts are made easy with instructional materials, as we can observe in item 6 and 7 with the mean

scores and standard deviations of 4.22/0.96 and 3.96/1.06 respectively. However, teachers and students perceive that job satisfaction and respect to a teacher's competence are made possible by the regular employment of instructional materials in Biology classes. These are observed in item 8 and 9 with the mean score of 4.14/1.18 and 4.22/1.02 respectively.

It can also be observed from this study/results that students' active participation in Biology can also be stimulated whenever instructional materials are used/ introduced. This statement is proven by item 10 with a mean score of 4.29 and a standard deviation of 0.87. Item 11 assesses the interest that teachers and students have towards Biology, as this has ability to motivate them to go beyond what is available to bring about a successful teaching and learning process. The item bears a mean score of 4.21 and a standard deviation of 0.93. Item 12 has a mean score of 3.96 and a standard deviation of 1.07 which agrees that the responsibility of procurement, production, design or collection of instructional materials is not only bestowed on the teachers or Government alone but as well, the students.

The research question has a grand mean of 4.15 which means that the respondents which comprises Biology teachers and students have a positive perception/ mindset about the utilization of instructional materials for teaching and learning of Biology.

Research Question 2: What challenges do teachers face in the preparation and the utilization of Instructional Materials in teaching Biology?

Table 4.3.2: Challenges in Making and Use of Instructional Materials

S/N	Items	N	Mean	SD	Decision
1	Government does not provide special funds for Biology instructional materials	180	3.62	1.33	Agree
2	Planning Biology lessons with appropriate instructional materials is difficult	180	3.24	1.38	Agree
3	Duration for Biology classes is usually not enough to use instructional materials	180	3.97	1.12	Agree
4	Adequately using instructional materials in Biology classes is time-consuming	180	3.61	1.37	Agree
5	Lack of finances affect the purchase/ improvisation of instructional material.	180	4.04	1.27	Agree
6	Students are distracted whenever instructional materials are introduced in the classroom	180	3.18	1.47	Agree
7	I don't know how to utilize computer in teaching or learning of Biology	180	2.94	1.54	Disagree
8	My school does not have an e-library	180	3.30	1.56	Agree
9	A special time is not allocated for Biology practicals in my school	180	3.48	1.46	Agree
10	There are enough and specialized Biology teachers in my school	180	3.43	1.43	Agree
11	Drawings in Biology are difficult to carry out	180	3.05	1.45	Agree
12	It is difficult to get living specimens for Biology teaching and learning	180	3.54	1.40	Agree
	Grand Mean	180	3.45		Agree

Decision Mean: 3.00

Table 4.4 shows that Item 1 has a mean score of 3.62 and a standard deviation of 1.33 which shows that the statement is very correct. Government hardly any special provision for instructional materials in these schools. The teachers and students on the other hand agreed that planning Biology lesson with appropriate instructional materials is difficult, as we can observe a mean score of 3.24 and a standard deviation of 1.38 on the second item. These explain why instructional materials are not always being used in Biology lessons. Time/duration is another factor/challenge encountered in effective delivery of Biology lesson with instructional materials. Item 3 has a mean score of 3.97 and a standard deviation of 1.12 to prove this fact. Biology is a subject that requires a simultaneous process of both theoretical and practical learning and these processes require sufficient amount of time. Item 4 also proves this with a mean score of 3.61 and a standard deviation of 1.37. Item 5 has a mean score of 4.04 and a standard deviation of 1.27, item 6 has a mean score of 3.18 and a standard deviation of 1.47 and item 7 has a mean score of 2.94 and a standard deviation of 1.54. Accordingly, the respondents perceive that finance is a factor that could greatly limit the procurement, design and usage of instructional materials. Unfortunately, they agreed that certain instructional materials have the tendency of causing distraction to students during lessons. Moreover, according to item 7, the respondents have knowledge about the usage of computers for teaching and learning of Biology.

One striking discovery of the study is that there are no e-libraries in the schools as can be seen on item 8 with a mean score of 3.30 and a standard deviation of 1.56. Although, there are enough and specialized Biology teachers as proven by a mean score of 3.48 and a standard deviation of 1.43 on item no. 10. There is however, no special time allocation for Biology practical which means that the traditional talk- chalk method

of teaching is still prevalent till today. Item 9 supports this point with a mean score of 3.43 and a standard deviation of 1.46.

The respondents also agreed that Biological drawings and collection of living specimens for teaching and learning are difficult task to perform. With the mean scores of 3.05 and standard deviation of 1.45, 3.54 and standard deviation of 1.40 on items 11 and 12 respectively. And finally, with a grand mean of score of 3.45, it is factual that the subject of instructional materials, from collection, design, purchase and usage is a very challenging or difficult task to Biology teachers and learners.

Research Question 3: What is the availability of instructional materials for Biology teaching and learning in Secondary Schools?

Table 4.3.3: Availability of Instructional Materials

S/N	Items	N	Mean	SD	Decision
1	Information Communication Technology (ICT) are not available in my school	180	3.76	1.34	Agree
2	Instructional materials for teaching Biology are often funded by the teacher	180	3.48	1.21	Agree
3	Electricity supply in my school is adequate	180	3.36	1.41	Agree
4	There are enough and recommended Biology textbooks in my school library	180	3.06	1.52	Agree
5	My school Biology laboratory is sufficiently equipped with necessary materials for teaching and learning of biology	180	2.78	1.45	Agree
6	My school has computers and projectors which are used to facilitate Biology teaching and learning	180	2.48	1.48	Agree

7	I can use ICT gadgets in teaching and learning of Biology	180	3.26	1.41	Agree
8	Instructional materials collection or design is funded by government in my school	180	2.86	1.40	Agree
9	Teachers improvise most instructional materials used in Biology lesson	180	3.73	1.25	Agree
10	It is easy to improvise instructional materials from local items	180	3.51	1.23	Agree
11	Topics in Biology have appropriate teaching and learning materials in the store	180	3.18	1.36	Agree
12	Biology contents are delivered verbally with a lot of note to copy because there are usually no instructional materials	180	3.78	1.35	Agree
Grand Mean		180	3.27		Agree

Decision Mean: 3.00

Item 1 has a mean score of 3.76 and a standard deviation of 1.34, item 2 has a mean score of 3.48 and a standard deviation of 1.21, and item 3 has a mean score of 3.36 and a standard deviation of 1.41. These all agreed with the items' statement respectively, that ICT is not available in schools, teachers have to use their money to fund instructional materials and that there is adequate supply of electricity in the schools. Item 4 has a mean score of 3.06 and a standard deviation of 1.52 which implies that there are appreciable number of Biology teachers in the schools. However, Biology laboratories in those schools are not adequately equipped. It can be seen on item 5 which has a mean score of 2.78 and a standard deviation of 1.45. Item 6 has a mean score of 2.48 and a standard deviation of 1.48, item 7 has a mean score of 3.26 and a standard deviation of 1.41, and item 8 has a mean score of 2.86 and a standard deviation of 1.40.

Respectively, the results show that most schools do not have computers, teachers and students are enlightened about the operation of ICT and can apply it in teaching and learning of Biology. Also, there is no funding for instructional materials by the Government. In any case where instructional materials needs to be used, teachers will have to fall back to improvisation as shown on item 9 with a mean score of 3.73 and a standard deviation of 1.25.

Item 10 has a mean score of 3.51 and a standard deviation of 1.23 which means that it is easy to improvise from local items. However, a contradiction occurs between item 11 with a mean score of 3.18 and a standard deviation of 1.36 and item 12 with a mean score of 3.78 and a standard deviation of 1.35. Item 11 reveals that teaching and learning materials are accessible/available in stores, whereas, item 12 indicates that Biology lessons are always delivered with so much verbal explanation and much note-taking because instructional aides are not available. This disparity may mean that most teachers would rather deliver lessons verbally than take the pain of sorting out instructional materials from the store for every lesson plan.

Generally, on availability of instructional materials for teaching and learning of Biology is a grand mean of 3.27 which indicates that to some degree instructional materials are available for teaching and learning of Biology in Schools.

4.4 Discussion of Findings

Findings revealed that teachers and student perceive instructional materials to be useful in the teaching and learning of Biology as the responses gave a grand mean score of 4.15 indicating the perception on the utilization of instructional materials for teaching and learning. This is in line with the findings of Effiong *et al.* (2015) who observed that students and teachers perceive instructional materials to play a role in teaching and learning.

The findings also revealed that teachers face challenges in making and the use of instructional materials in teaching Biology.

The results of the findings revealed that instructional materials are available for Biology in secondary schools as the grand mean gave a total score of 3.27 which was greater than the decision mean of 3.00 indicating that instructional materials are available for teaching and learning. This finding is in line with Tety (2016) that instructional materials are available for teaching and Biology in secondary school.

Moreover, the results also reveal that modern day instructional aides are not available in secondary schools, there are no e-libraries and Of-course means that there is hardly any provision for internet access in secondary schools for teachers and students to access more, updated and current information online about the subject, laboratories in Schools are not in good condition as they lack modern and standard facilities.

Also, teachers don't see it necessary to utilize instructional materials in teaching although those materials may be available or accessible to them to a certain degree. This is proven from research question on availability specifically item number 11 and 12 with means scores of 3.18 and 3.78 with standard deviations of 1.36 and 1.35 respectively

4.5 Summary of the Findings

1. Teachers and Students perceived that utilization of instructional materials enhances students' achievement in Biology.
2. Teachers face many challenges in the preparation and utilization of instructional materials for effective teaching of Biology. These challenges include lack of finances, insufficient time/duration allocated for Biology teaching and learning unavailability of modern day instructional facilities etc.

3. Instructional materials are available/ accessible to teachers however, they are not always being used during teaching and learning of Biology.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The main purpose of this study is to investigate or determine the perception on Utilization of instructional materials for teaching and learning of secondary school Biology students in Bosso Local Government, Niger State. Chapter one treated introduction to the study, chapter two covered review of related variables, chapter three deals with research methodology which is descriptive research design. Chapter four treated analysis of data. The data was collected using a questionnaire and analyzed using Statistical Package for Social Sciences (SPSS). The result of the findings shows that respondents have positive opinion on the roles of instructional materials, that the making and use of instructional materials are a very challenging tasks in teaching and learning. However, instructional materials are available in most schools only that teachers don't use them so often.

5.2 Conclusion

The following conclusions are arrived at from this study;

1. Teachers and students perceive that the utilization of instructional materials enhance the teaching and learning of Biology.
2. Teachers face difficulties in the preparation and utilization of instructional materials to teach Biology
3. To an extent, instructional materials are available or accessible to teachers in Schools
4. Teachers do not always utilize instructional materials for teaching Biology even though such materials are available in schools.

5. There are no e-libraries in those Schools which Of course demand network or internet connection.
6. Laboratories in the schools are not in good working condition, they lack recent and standard facilities.

5.3 Recommendations

1. Government should supply modern instructional gadgets for Biology teaching and learning. Such as computers, projectors etc.
2. More qualified teachers should be employed, because too many classes for a single teacher could be the reason for the lack of regular use of instructional materials.
3. A unit or department of Technicians and Professionals should be created in the board and schools whose primary job description is to design, purchase, produce, distribute, and ensure teaching quality is maintained by ensuring that instructional materials are always used by teachers
4. Government should construct e-libraries in all Secondary Schools and equip them with necessary facilities. This will give the Schools competitive advantage with the global digitalization of education.
5. Teachers should be motivated to do their jobs well. The teachers' life should be enhanced and honored through timely salary payment, promotions, incentives, welfare as well as seminars and further training.
6. School administrators should allocate double periods for Biology classes which will enable teachers to carry out both theoretical and practical aspect of Biology.

5.4 Contribution of the study to existing knowledge

The contribution of this study to existing knowledge is described below;

In this study it was discovered that teachers and students perceive that instructional materials perform a positive role in the teaching and learning of Biology. This is seen under the research question on perception that there is grand mean score of 4.15. The result correspond with what Maureen, (2016) found out: that students' attitude towards the use of improvised instructional materials when teaching Biology is positively high as indicated by a grand mean total of 3.5 which was above the decision rule of 2.5.

Secondly, the result of this study showed that teachers and students encounter challenges or difficulties in making and use of instructional materials in teaching and learning of Biology. This fact is proved with a grand mean score of 3.45. Similar discovery was made by Shiva, (2017), that teachers find it difficult in gathering instructional materials to teach mathematics.

In addition, under availability, teachers and students perceive that instructional materials are available in schools. A grand mean score of 3.27 under the research question availability proves this fact. This is however, contradictory to the findings of Shiva, (2017), that teachers have negative attitude towards the statements under the sub-heading; availability.

Nevertheless, the entire study is in collaboration with; (i) Behavioural Learning Theory which emphasizes how students learn. This theory is based on the idea that all behaviours are learned from the environment. In the context of this study, environment of the learner include the classroom as well as the instructional materials that a learner interacts with during teaching and learning process. This interaction is able to cause a change in behavior and concretize learning. The theory further explains that innate traits

have very little influence on behavior. Implying that with the application of appropriate instructional materials, even learners with minimal natural endowment can have an enhanced academic achievement or performance.

(ii) Cognitive Learning Theory which also laid emphasis on organism-environment interaction. The theory expresses the view that all psychological activities of a person occur in the field. The field refers to the total psychological world of a person at any moment or time. It includes the person's past, present, and future experiences, and they may be concrete, abstract or imaginary. By implication, a stimulating learning environment(such as one with appropriate instructional materials) should be provided in the classroom, this will enable a student to carve out a desired psychological field that is capable of enhancing learning automatically, Oluyori A. (2008).

To have and to maintain quality education, it is imperative that all necessary requirement for effective delivery of contents and desired outcome be provided and utilized by teachers and students for maximum output. Any deficiencies whatsoever, has the capacity to render educational goals and objectives ineffective.

5.5 Limitation of the Study

The limitations to this study include;

1. The study was limited to only Biology teachers and Students from SS2 class.
2. In terms of geographical location, only Bosso Local Government Area of Niger State was covered.
3. Also, the study was limited to only urban areas of the local government.

5.6 Suggestions for Further Research

Further study could be done in the following:

1. Further study can be carried out on the same topic to determine perception of teachers and students on utilization of instructional materials to cover a wider population in the state.
2. Another study could be conducted to determine the specific challenges that hinders teachers from using instructional materials rural schools and other local government within the state, such as Agwara local government of Niger State.

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