THE EFFECT OF THE INADEQUACY OF SCIENCE INSTRUCTIONAL MATERIALS ON THE ACADEMIC PERFORMNACE OF BIOLOGY STUDENTS IN OVIA NORTH-EAST LOCAL GOVERNMENT, EDO STATE.

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A PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF CURRICULUM AND INSRUCTIONAL TECHNOLOGY, FACULTY OF EDUCATION, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE AWARD OF BACHELOR OF SCIENCE (B.Sc.ED) IN BIOLOGY EDUCATION, IN THE UNIVERSITY OF BENIN, BENIN CITY.

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CERTIFICATION

We, the undersigned, certify that this research work was carried out by **Faith Adiya IMAHA**, with the matriculation number **EDU1902964**, in the Department of Curriculum and instructional Technology, Faculty of Education, University of Benin, Benin City in partial fulfillment of the requirements of the award of Bachelor of Science (Ed) degree in Biology.

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DEDICATION

This project is solely dedicated to the Almighty God for His love and grace over my life.

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ABSTRACT

The investigation on The Effect of Inadequacy of Science Instructional material on the Academic Performance of Biology Students in Ovia North-East LGA, Edo State, Four (4) research questions served as its guidelines, and it used a descriptive survey study design. It sought to find out how many schools in Ovia North-East LGA will have adequate science instructional materials? Will there be significant effect of instructional materials on the academic performance of science students? Will there be significant effect of instructional materials on students' academic performance in biology based on gender, and on students' academic performance in biology based on the type of school?

The study employed a sample of Biology students in Ovia North-East LGA and a total of (100) respondent which were collected from three public schools and three private schools. The researcher-developed questionnaire titled Questionnaire on the Effect of Inadequacy of Science Instructional Material on the Academic Performance of Students in Biology used as the data collection tool. There are twenty (20) items on the questionnaire. To respond to Research question 1, descriptive statistics such as mean were used while Research question 2-4 which had hypotheses were tested using Chi-square.

The study found that most secondary schools do not have adequate science Instructional Materials. The study also reveal that science Instructional materials do not have significant effect on Student's academic performance based on gender and also based on school type. It was suggested that biology Instructional materials should receive adequate funding, staff and Students should receive adequate training on how to properly improvise Instructional materials, store Instructional materials appropriately, provide accurate records/logistics, replace damaged/faulty instructional materials and plan, implement, supervise, monitor, and evaluate all Science Instructional materials users.

CHAPTER ONE

INTRODUCTION

Background to the Study.

Nations rely on science as a vast enterprise to progress technologically. The foundation for all technological advancements has been science. Ogunleye (2002) states that science is a dynamic human endeavor that aims to comprehend how the world functions. Man is able to learn more about the cosmos thanks to this insight. It would have been challenging to discover other planets in the cosmos without the applications of science.

The term "science instructional materials" describes the equipment and supplies used to support scientific-related teaching and learning. Textbooks, workbooks, handouts, audio files, lab supplies, whiteboards, charts, diagrams, models, and other visual aids are some examples of these resources. According to Agun (1992), instructional resources are those that optimize learning across a variety of domains and are beneficial to both instructors and students. The many tools or devices that a classroom instructor utilizes to support their instruction in order to help students accomplish the stated goal can also be referred to as instructional resources. In addition, both non-human and human resources are employed to support the process of teaching and learning. Insufficient educational resources can make it difficult for students to comprehend scientific ideas, theories, and concepts, which can affect their performance on assessments and examinations. A

biology teacher might not be able to conduct practical experiments, which are a crucial component of the curriculum, if they lack access to specimens or laboratory equipment.

No matter how skilled a professional scientific teacher is, Franzer, Okebukola, and Jegede (1992) assert that without the tools and resources needed in the classroom to turn potentials into reality, they will not be able to implement their ideas. When utilized properly, instructional materials may inspire students to study and give a tangible basis for conceptual thinking, which makes them extremely significant in the teaching of biology (Ajalla, 1997).

Scientific teaching resources give students chances to engage with scientific apparatus and offer them with practical learning experiences that aid in the visualization and understanding of concepts and principles. Eya (2004) states that educational resources pique students' interests, assist teachers and students in overcoming physical obstacles while presenting content, and are excellent for document and record preservation. On the other side, inadequate resources can result in subpar instruction and learning opportunities, which can impede the development of the information and abilities required for success in the classroom.

As per Umar (2011), biology is a branch of natural science that studies the living world. It includes the structure, functions, development, origins, interactions between living entities, and their interaction with their surroundings. According to Ahmed (2008), biology is a prerequisite topic for several academic fields that greatly advances national

technological advancement. This covers a wide range of fields, such as biotechnology, medicine, nursing, pharmacy, forestry, and agriculture (Ahmed and Abimbolas, 2011). The study of living things, including plants and animals, is known as biology. It is a branch of science and a requirement for many other academic disciplines, and it has made significant contributions to the advancement of national technology. Senior secondary biology coursework may provide students with practical ideas, theories, and principles that will help them overcome obstacles both before and after graduation. In addition to piqueing students' interest in the topic, well-taught biology in senior secondary school also boosts academic achievement. To get this level of successful academic achievement, instructional materials must be used.

Inadequate scientific teaching resources have a significant impact on senior secondary school biology students' academic achievement, especially in poor nations. The teaching and learning of biology principles, ideas, and concepts depend heavily on these resources. Nonetheless, the performance of senior secondary school biology pupils in Ovia North East Local Government Area, Edo State, might benefit from the availability of these scientific teaching resources.

The inadequate quality of scientific teaching materials may be attributed to a number of problems, such as inadequate financing, inadequate teacher preparation, a lack of government support, inadequate infrastructure, and a lack of cooperation between

researchers, educators, and politicians. These difficulties also affect the standard of biology instruction provided in schools.

The quality of the educational materials at a school might differ based on a number of factors, such as the financing for educational materials, technological integration, the resources available to the school, general educational policy, and the priorities of the nation or area.

The message is more frequently conveyed through instructional materials, particularly when speaking to illiterate audiences. Because they are more efficient and serve as a complement to text books, instructional materials are employed extensively. It's commonly accepted that providing students with face-to-face access to educational materials is the most effective approach to support them. In Akkinson's (2006) view, verbalization or words are not as successful as using resources. The only way to do this is through the influence of educational resources that depict actual life circumstances. This is due to their ability to grasp and apply the experience acquired to real-life circumstances, as well as their ability to communicate the intended message to the recipient as they received it. In addition, given that rural populations tend to be highly literate, poor, ignorant, and hold traditional beliefs, using educational materials can spark their curiosity, provide a clear mental image, facilitate understanding, aid in memory retention, and foster a sense of shared experience—all of which contribute to the development of historical awareness. According to Brown (2015), when you look at something with the person you are trying to communicate with, you both see the same thing. As a result,

when you share something, the words you use are easier to understand because you can both relate them to common educational resources. Finally, the use of instructional materials compels attention through their combined influence of movement, sound, and a wide variety of instructional materials. However, care must be taken with what is taught and advised if we are not to waste time rather than aid in the teaching.

Additionally, scientific education resources may have repercussions for the entire community. Lack of understanding in biology may prevent students from pursuing jobs in science-related disciplines, which can severely restrict their employment options and therefore have an impact on societal development.

In conclusion, improving biology education requires addressing the serious problem of the inadequate quality of scientific teaching resources. It is vital that legislators, educators, and the government collaborate to furnish sufficient cash, infrastructure, and teacher training to guarantee that children have access to superior scientific teaching resources. Their academic performance will therefore increase, and scientific education as a whole will be of higher caliber.

Statement of Problem.

One of the main problems facing most secondary schools in the Nigerian society today is the relative decline in the academic performance of students especially in sciences. The effects of inadequacy of science instructional materials on the performance of Biology students in senior secondary school in Ovia North East Local Government

Area could be as a result of some factors such as: Lack of Biology laboratory and teachers that are often unqualified to teach biology, Lack of funds to purchase enough materials, lack of facility for imparting knowledge, lack of teacher's zeal and non-challant attitude to make do with the available materials or improvise in the absence of standard materials. There is the need therefore, for improvisation. Adebimpe (1997) and Daramola, (2008) however noted that improvisation demands adventure, creativity, curiosity and perseverance on the part of the teacher, such skills are only realizable through well-planned training programme on improvisation. Large size of classes leading to inadequate or poor management of classes.

For learning to be meaningful, effective and have a long-lasting impact on the performance of science students studying Biology, it is necessary that there is availability of quality and proper use instructional materials. Therefore, this study has been designed to ascertain the impact of instructional materials in teaching and learning of Biology.

Research Questions

The following questions have been prepared for the study:

1. How many schools will have adequate science instructional materials?
2. Will there be significant effect of instructional materials on the performance of science students?

3. Will there be significant effect of instructional materials on student's performance in Biology based on gender?

4. Will there be significant effect of instructional materials on student's performance in Biology based on school type?

Hypothesis

The following null hypothesis were formulated to be tested of alpha significant level of 0.05.

1. There will be no significant effect of instructional materials on student's performance in Biology.
2. There will be no significant effect of instructional materials on student's performance in Biology based on gender.
3. There will be no significant effect of instructional materials on student's performance in Biology based on school type.

Purpose of the Study

The purpose of this study is to identity the extent to which the impact of the availability and the adequacy of instructional materials have on the academic performance of Biology students in senior secondary school in Ovia North East Local Government Area. While the specific objectives are as follows:

1. To identify the effect of instructional materials on Biology students academic performance in senior secondary school in Ovia North East LGA.

2. To determine the inadequacy of science instructional materials in senior secondary schools for teaching Biology.

3. To determine the extent to which the inadequacy of instructional materials affects the academic performance of Biology students.

4. To identify the challenges faced by teachers in using science instructional materials to teach Biology.

5. To provide recommendations for improving the availability and adequacy of science instructional materials in senior secondary schools to enhance student performance in Biology.

Significance of the Study

The theoretical significance of this study is based on the cognitive development theory of Jean Piaget. According to Piaget, children develop knowledge by inventing or constructing reality out of experience and thus mix their observation with their ideas about how the world works. Piagets theory of intellectual development holds that cognitive development takes place from active interaction of the child with his environment. This means that the basis of learning is the childs own ability as he interacts with his physical and social environment. Piaget is of the opinion that a child must act on

the objects in his environment for him to learn. This means that he should be actively involved not be passive. The active involvement of the child may be in form of direct manipulation and visual observation. Therefore, this study will help to validate Piagets theory of cognitive development or question the theory.

This study will be useful to classroom teachers, curriculum planners, students, researchers and parents. For teachers they will be better informed on how to help and guide their students on better way of producing instructional materials. The teachers can also engage students to do some of the illustrations during biology instructions.

This study will help to develop problem solving skill in students and will also help student to be more resourceful during lessons. The study could be beneficial to curriculum planners who would design functional curriculum by taking into considerations students teacher instructional materials.

The findings of this study, if discussed in workshops and seminars will guide the choice of instructional materials used in the teaching/learning process in biology and other subject areas. The findings of this study will equally help to alleviate the problem of the scarcity of instructional materials for biology teaching/learning and the importance of improvisation.

The results of the study could provide information to researchers interested in working on student-teachers generated instructional materials in other subject areas. This

may help them to get more information on the efficacy of improvisation, especially researchers in the area of science and technology. Parents will be better informed on how to encourage and help their wards to produce improvised materials. This may be in form of sourcing local materials and providing funds for the materials that cannot be found in their environment.

It provides insights into the impact of instructional materials on student learning outcomes. The findings of this study can be used to inform policy and practice in the provision of science instructional materials in senior secondary schools, with the aim of improving the quality of education and enhancing student learning outcomes in Biology.

The study can help to identify the gaps in the availability and quality of instructional materials in senior secondary schools and provide recommendations for addressing these gaps. This can lead to the development of more effective instructional materials that are better aligned with the needs of Biology students and can improve their academic performance.

Furthermore, the study can help to raise awareness about the importance of instructional materials in teaching and learning Biology. It can also highlight the challenges faced by teachers in using instructional materials and provide insights into how these challenges can be addressed.

The study can contribute to the improvement of the quality of education in senior secondary schools and enhance the academic performance of Biology students, which can have significant implications for their future academic and professional success.

Scope/ Delimitation

The study covers the effect of science instructional materials on the academic performance of Biology students. The study is delimited to secondary school students in some selected senior secondary schools located in Ovia North East Local Government Area of Edo State. Overall, the delimitation is important to ensure that the study remains manageable, focused, and relevant to the research question.

Definition of Terms

1. Effect: Effect refers to the positive or negative result, or consequence of an action, event, or situation. It is also the impact or influence that something has on something else.

2. Science: Science is a systematic and logical approach to discovering how the natural world works. It is a body of knowledge that is based on empirical evidence, experimentation, and observation.

3. Instructional materials: These are resources used to facilitate teaching and learning process.

4. Biology: It is the study of living things and non-living things including plants and animals.

5. Academic Performance: It refers to how well a student is doing in their studies or a measure of their ability to learn and apply knowledge.

CHAPTER TWO

LITERATURE REVIEW

In this chapter, literature relevant to the study is reviewed. Specifically, the chapter is organized and presented under the following sub-headings: -

- Conceptual framework.
- The effect of instructional materials on the academic performance of Biology students.
- Factors that affect the use of instructional materials.
- Factors leading to poor performance of biology students.
- The significant effect of instructional materials on students'' academic performance based on gender.
- The significant effect of instructional materials on students' academic performance based on school type.
- Empirical studies.
- Summary of Literature Review.

Conceptual Framework.

While teaching methods have significance, the utilization of educational resources also impacts biology students' academic achievement, their application of process skills, and several other consequences. The tangible media that the curriculum's objectives are

experienced via is provided by instructional materials (Talmadge & Eash, 1979). According to statistics from a 1976 National study and Assessment of Instructional Materials study, students use instructional materials for learning activities over 90% of the time in the classroom (Talladge & Eash, 1979).

The study of science is concerned with the application and pursuit of knowledge and understanding of the social and national domains using an organized, evidence-based methodology. In addition to accelerating the achievement of the Millennium Development Goals, science education in Nigeria has the potential to strengthen the country's economic empowerment and development strategies. As a human endeavor, science is a dynamic, objective process that uses experimentation and observation to learn as much as possible about the globe and our local surroundings (Okon-Enoh, 2006).

With the information that has been gathered over time, scientists have been able to explain phenomena that they have seen. This covers notions, rules, theories, and conceptions. The Greek terms "Bios" and "Logos" are the origin of the word biology as a science. Logos means "study," and bios means "life." Therefore, the scientific study of life and its phenomena is known as biology. It is one of the significant fields of study that allows for movement into the realm of living beings. For instance, a lot of criteria for teaching biology in secondary schools are derived from the study of electronic microscopy, molecular biology, bionics, and disease control. If progress is to be made in our endeavors to establish a second foundation for scientific and technological growth,

these goals must be pursued and accomplished. Azubuike and Ekwenife (2006) list the following as the goals and objectives: obtaining the information that is necessary for everyday living, being free from superstitions and fear, pursuing a career, preventing overpopulation, combating moral decay, and agriculture.

However, it is noted that the goals and objectives of teaching biology in secondary schools have not been met because of a number of syllabus components that students do not fully understand, a lack of instructors, and subpar teaching resources. Students that enroll in biology as one of their subjects for the W.A.E.C. (West Africa Examination Council) report receiving extremely low grades, according to Lazarowite and Renso (2009). The National Policy of Education (2004) stipulates that among the objectives of the Biology curriculum are appropriate laboratory and teaching materials. This failure implies that Nigeria may have a scarcity of staff, instructional materials, e.t.c. The majority of Nigerian schools are devoid of the cutting-edge teaching resources that would help pupils understand abstract biological ideas that they find challenging. Students' comprehension and academic achievement in the topic are hampered by this.

Researchers and scientific instructors have been seeing a problem with students' poor performance in biology. These are attributed to a number of issues, including the methods of education, the deficiency of the instructional resources, and the ways of teaching the topic that did not yield satisfactory results. Furthermore, the "talk and chalk" approach or manual means alone cannot successfully teach various abstract ideas in

biology, such as meiosis, mitosis, nutrition cycle, genetics, and cell structure, nor can they teach some topics that students find difficult. Instead, suitable teaching resources are required.

It is evident from the discussion above that science and technology have significantly altered how biology is taught. Teachers must be exposed to a variety of tactics in order to improve the teaching and learning process. Teachers need resources that are more innovative and useful than what is often found in textbooks if they are to succeed.

Several writers have specified instructional materials. Obanya (1989), for instance, saw instructional materials as didactic resources meant to facilitate teaching and learning. Abdullahi (1982) defined instructional materials as goods or instruments that may be purchased locally or imported and, with careful use, greatly increase the effect of a lesson. They are what Ikerionwu (Isola, 2010) called artifacts or equipment that aid in the teacher's ability to help the student understand a lesson. Concrete or physical things that deliver auditory, sight, or both to the sense organs during instruction are sometimes referred to as instructional materials (Agina-obu, 2005). According to Effiong and Igiri (2015a), instructional materials are instruments that are manufactured locally to aid in teaching and learning. These include homemade materials like mosquito nets, wooden rings or irons, thread, and needles, as well as imported items like clinostats and aspirators. The influence that instructional materials play on students' academic achievement is

significant. It improves the pupils' recall capacity. Since spoken instruction is no longer sufficient to ensure a successful teaching and learning process in the widely dispersed educational environment of today, educators must employ instructional resources to make the process engaging for students (NIC Hulls, 2003, Raw, 2006). Instructional materials are instruments, either locally produced or imported, that aid in the process of teaching and learning (Abdullahhi, 2010). In his own contribution, Osula (2010) stated that it not only fosters student motivation and engagement but also increases respect for instructors' subject-matter expertise. Aginna-Obu (2000) describes instructional materials as either tangible or both to the sense organs during education. Because of the nature of learning and the broad variety of skills among students in a typical classroom, highly qualified teachers with expertise in teaching methods are required. This has come to an end since educational resources are no longer available in schools. Nonetheless, a teacher's constant objective is to provide lessons that are profoundly engaging, thought-provoking, and challenging for their pupils, no matter where they are. This will assist the instructor in tailoring both the content and the learning approach to each student's particular needs. Using educational resources is the most efficient way to accomplish this aim. One cannot undervalue the importance of stressing the usage of instructional materials in any type of learning or teaching setting. The instructor must use these resources to help him teach in an effective manner in order for any learning to occur.

Instructional materials are of different types and they are stated below according to their types:

- Print: This category includes study aids, manuals, booklets, handouts, and textbooks.
- Audio: This category includes devices that stimulate hearing, such as record players, tape recorders, language laboratories, and so on. podcasts, microphones, and tapes
- Visual: These are resources that students can focus on, and when a teacher or instructor uses them to impart knowledge to students, it leaves a visual impact. Chalkboards, posters, bulletin boards, films, slides, projected transparencies, flip charts, flannel boards, actual items, photos, and transparencies are a few examples of these.
- Audiovisual: These comprise visual and auditory aids such as sound-activated images, sound-activated slides, cassettes, films, filmstrips, television, video, and multimedia
- Interactive electronic devices: tablets, graphing calculators, and PCs.

Using teaching aids is essential when a biological concept is abstract and foreign to the pupils or when an actual object or phenomena is too costly for each student to handle. An exact replica of an animal or person might be used to demonstrate how a phenomenon is positioned and operates in relation to the subject's real body in situations where a genuine specimen cannot be readily examined, such as in studies pertaining to the skeletal system. It is impossible to overstate the value of instructional materials in both teaching and learning. A curriculum's ability to be implemented successfully depends entirely,

according to Offorma (1994), on the caliber and availability of teaching resources that educators and students may utilize in the classroom. The use of instructional materials can increase student attention and assist both teachers and students in overcoming physical barriers to the subject matter being presented. Similar to this, educational resources enhance and make learning more enjoyable. They also serve as a medium of transmission and a check on the expertise of the instructor. In addition to providing instructors with greater direction, coordination, monitoring, and extra time for correction, instructional resources also enliven the classroom and add diversity to the lessons taught (Eya, 2004). When choosing or creating instructional materials, teachers should take care to ensure that the content explains its intended use and is clear, vivid, and easy to comprehend.

The use of teaching aids or resource materials can help teachers teach biology more effectively and meaningfully, however as was previously said in chapter one, Abu (1998) states that just using the tools does not ensure good teaching or communication. Therefore, as demonstrated by the research of Johnson (1991) and Eshiet (1996), its value in promoting learning depends on the teacher's appropriate usage, cautious selection, and deft handling. Onu (2005) highlighted that using pictures or functioning models of things outside of their experience can help youngsters learn concepts more readily than relying just on verbal descriptions. Instructional materials, according to Eya (2004), pique students' interest, assist teachers and students in overcoming physical barriers to subject matter presentation, and are excellent for document preservation.

The influence of instructional materials on secondary school students' academic progress was studied by Ekpo (2014) in the Calabar Municipality Local Governments Area of Cross River State. According to the investigation conducted utilizing independent tests, students' academic performance in biology is significantly impacted by the usage of instructional materials. Using educational resources improves both teaching and learning. Learning resources that are learner-centered encourage in-depth comprehension. They support instructors' educational efforts while also enhancing the fun and durability of learning. Ethiosu (2008) cited the seven fundamental functions of accessing educational resources as defined by Buroro (2006). Among them are:

- Extension of Human experience.
- Provision of meaningful information.
- Stimulation of interest
- Grouping of student’s interests
- Overcoming physical limitations
- Stimulating problem

Specimens are real objects or things that teachers may use to successfully teach lessons. In order for the children to see, touch, smell, and handle things that will offer them a true natural experience, the instructor should include the kids in the collecting of specimens or items, such as insects, plants, and other things of a like kind. As a result, teaching will be simpler, and students' learning will become more engaged and practical.

In order to optimize learning, students should embrace the utilization of resources, according to Akude and Ofoefuma (1990). As a consequence, students' interest would be piqued and learning would become more relevant and productive. Utilizing educational resources stimulates learning and inquiry while appealing to the senses. Many teaching and learning strategies, such as the project method, self-learning, discovery learning, and other as-yet-unknown strategies, are made possible by the use of teaching aids. Therefore, teachers should employ instructional resources to promote student learning. Without instructional materials, teaching would resemble dancing without the sound of a musical instrument. According to Okpala (2010), the government has stated that it would make an attempt to provide educational services like counseling and educational resource centers, among other things. It has also maintained that instruction should be experimental, exploratory, and practical in character.

The Principle for Selecting Instructional Materials

Ololobou, Jacob, and Ndazhaga (1999) state that the following are some factors that instructors should take into account when choosing instructional materials;

- Consideration for the age and abilities of the learner: It's critical that teachers take into account the ages and ability levels of their students. Instead of efficiently promoting learning, learning may be impeded if the instructional materials are chosen and used as previously mentioned.

- Instructional materials must be related to the lesson objectives: The lesson should not include any educational resources that are not intended to support the achievement of the learning objectives.

- Currency of information: All teaching resources that are appropriate for use in the classroom need to be current.

Effect of instructional materials on the Academic performance of Biology students

The effect of instructional materials are listed below:

i. The substance of the topic being taught is delivered with the use of instructional materials.

ii. The use of instructional materials increases student participation in the learning process.

iii. It provides a practical learning opportunity for the student.

iv. It is beneficial to support the student's positive outlook.

v. It enhances the learning process for students.

vi. It aids the instructor in improving the effectiveness of learning communication.

vii. Educational resources facilitate increased retention of knowledge.

viii. Learning is made tangible by instructional materials.

ix. It improves group education.

x. The use of instructional materials in the classroom helps to incorporate real-world experiences.

Factors that affect the use of instructional materials

Results suggest that teachers may find it difficult to choose and use instructional resources for their lessons. One of the challenges has been that educators frequently impart knowledge based on the methods they were taught throughout their training (NERCD, 2009). As a result, educators employ the training materials that were provided to them, which may be antiquated and unsuitable for the modern era of technology.

Teachers typically find it challenging to break this tendency. Other explanations put out for why educators are unable to employ educational resources in an efficient manner are as follows:

- Inability to identify/ locate resources;
- Inability to improvise from local resources;
- Lack of school- based resource Centre; and

Regarding the creation, selection, and use of instructional materials, as well as the absence of brief training to refresh teachers' knowledge and abilities in these areas (NERDC, 2009).

The biology labs must be well furnished in accordance with the aforementioned justifications in order to facilitate teaching and learning. Nwakonobi and Igboabuchi (2010) state that biology laboratories are settings for many kinds of skill-building activities and research pertaining to all life sciences disciplines. But these skills cannot be learned without well-equipped biology laboratories that support efficient teaching and learning aimed at providing the students with the tools they need to become productive, self-sufficient, and functionally and qualitatively well-educated, as well as to improve their academic performance.

Each of them strives to create a viable option for maintaining the teaching medium inside the public school system. Taking this into consideration, the researcher decided to

investigate how secondary school students' academic performance on biology exams was affected by student-produced and improvised teaching materials.

Instructional Materials and Academic Performance

Instructional resources play a critical role in the teaching and learning process. It enhances the pupils' ability for remembering. the way a teacher uses educational resources to provide excitement to the process of teaching and learning. In the modern day, when education has become widely available, it is essential. Instructional materials serve as a channel of communication between the teacher and the pupils while providing instructions. They might serve as a source of motivation for educators and learners alike. It is meant to pique children's interest and put a stop to dullness. In the classroom, using instructional materials is essential, especially for seasoned teachers. Teachers use instructional materials in every aspect of their work. Resources are needed to conduct background study on the topic matter they are instructing. When they first start teaching, young educators typically do not have a wealth of experience to draw from. When designing lessons, teachers frequently employ instructional materials. Although examinations, projects, and assignments are commonly used by teachers to evaluate their students, these resources are also necessary for them to access the students' knowledge. These activities all call for the use of teaching resources. Modern technology has made it possible to develop tools and resources that maximize instructor speech while also improving the lesson's comprehension, appeal, and ease of learning for the students. Instructors who possess advanced teaching skills and methods and who make the effort to

provide lesson plans and alternatives that take into account the many ways individuals learn and transmit information are more likely to have success with their students. Depending on the needs of the students, science classrooms should offer a range of print, audio, and visual input sources. This will give the students the freedom to express what they have truly learned.

In addition to the textbooks and chalkboard that are frequently provided for use by the instructor, it is typically vital for school administrators and teachers to be aware of other resources that might support or enhance their instructional efforts.

Factors leading to poor performance of biology students.

The country's progress in research and technology depends on biology education. Knowledge of biology is applied in a variety of sectors, including manufacturing and processing, medicine, food production, and pharmaceuticals. But only with strong knowledge and a positive outlook on biology is this achievable. Biology is a branch of science that focuses on studying living organisms. The primary subjects of biology are the characteristics of organisms and their interactions with one another and their surroundings. One of the scientific courses offered by senior secondary school students at Nigerian secondary schools at the senior levels is biology (FRN, 2004). Like other science courses, biology aims to help students become more proficient in scientific inquiry and problem solving.

Biology is a crucial scientific topic that is necessary for many professional courses in science, including those in medical, agriculture, pharmacy, and other fields. These days, biology permeates almost every aspect of human endeavor and is crucial to the advancement of education. However, the issue persists since a substantial number of students in secondary schools in Nigeria fail to complete a course. The primary goals of biology education are to give students the essential knowledge, abilities, and attitudes needed to live an independent and productive life for themselves and the larger community. Thanks to its fundamental characteristics and importance, biology is today a topic that must be studied at every level in our educational institutions, from pre-primary to tertiary. According to Akindele (2009), it is the only core scientific topic offered in the Secondary School Certificate Examination (SSCE) whose study is crucial to a successful life for humans.

Exam achievement has always been closely linked to success in life. Exam-successful students have the opportunity to continue their education at higher levels, which opens up employment opportunities in many biologically linked fields. A widespread scarcity of workers in various biology-related occupations is the result of failure in biology. This is so because biology serves as the foundation for several key academic fields, including forestry, agriculture, medicine, and dentistry. Leading educational research reports have shown that a variety of factors, including the caliber of the teaching staff, the availability and efficient use of instructional materials, the amount of time students spend studying the subject, their attitudes and aspirations, school

administration, instructional strategies, and assessment, all affect how well students perform in biology classes (Anderson etal 1989, Khatete 1995, and Orodho, 1996).

According to Esiobu's research from 2005, secondary school pupils are not very interested in biology. Exam performance issues have been linked to pupils' lack of interest in biology. We require strong biology performance at all educational levels if we are to keep up with scientific and technological advancements. Regretfully, throughout the past ten years, there has been little improvement in the performance of secondary school pupils in Biology (Umoinyang, 1999).

Folorunsho (2004) has connected the downward trend in biology performance, in particular, to the dearth of instructional materials in schools as a result of inadequate budget. The principals' inability to give the instructors sufficient teaching materials is a result of the underfunded schools.

According to Ajileye (2006), one of the main reasons why kids perform poorly academically is a lack of resources for science instruction. Science tools, labs, and specimens for reaching aids are among the inadequate resources.

The Significant Effect of Instructional Materials on Students' Academic Performance Based on Gender.

Okeke (2008) defines gender as the roles and traits that are socially and culturally assigned to men and women in any given community. In 2008, Okeke provided a comprehensive analytical framework that highlights women's roles and responsibilities in

comparison to men's. Students' interest in subjects and career choices are significantly influenced by their gender. According to Okeke (2008), men are brave, aggressive, tactful, and frugal with their words, whereas women are verbose, scared, timid, mild, dull, and subservient. Gender disparities are becoming major global concerns, particularly for academics and educators. According to Hansman, Tyson, and Zahidi (2009), no nation in the world has achieved gender equality for women and men in a number of crucial areas, such as education and economic involvement. Gender differences are also highlighted in textbook illustrations, which often feature males in the professions of academics, physicians, lawyers, and engineers and women as nurses, chefs, and mothers. The readers get a mental image of the roles that society expects of them as a result (Babajide, 2010). At home, parents also buy a ball for the boy and a "teddy bear" for the girl, perpetuating this gender stereotype. Teachers who treat men and women differently in the classroom lead to gender stereotypes. Teachers often go above and above to provide distinct professional advice to men and women. The society also objects to seeing a guy cook or a woman scale a tree. Typically, men are given leadership roles, with women expected to support or follow.

Today's psychologists, sociologists, educators, scientists, biologists, and even families and parents are interested in the topic of gender. One might use the term "gender" to describe the masculine and feminine aspects of an individual. An individual's physical traits may not correspond with their psychological or emotional composition. For example, boys frequently work in or study previously female-dominated industries

like catering, while women today seek once-male-only careers like engineering and carpentry. To increase awareness of gender inequality and imbalance, several studies and paper presentations on the subject have been conducted. According to Fatokun and Odagboyi (2011), women's roles are often lowered in most communities, which prohibits them from taking part in or profiting from development initiatives. They went on to say that certain courses, like science and math, are associated with men, while other subjects, like home economics and secretarial studies, are associated with women. Gin (2011) noted that the categorization of men and women in today's world is characterized by the predominance of patriarchal values and widespread beliefs that women are inferior to men. As a result, the power dynamics associated with these ideas and beliefs give men greater opportunities, authority, and status than women in society. Inequality against women in science, technology, and math was highlighted by Nwona (2013). It is believed that these topics are manly. Several research has demonstrated that different teaching styles have different effects. To get the best possible result, it is important to determine which teaching method is best for a certain set of students.

A student's academic achievement in a certain subject or course is based on the short- or long-term objectives they have met. "To achieve" implies "to succeed in reaching particular goal, status, or standard especially by an effort for a long time," according to the Oxford Advance Learners Dictionary. The effort or skill required to excel in biology as a science topic is emphasized in students' biology academic achievement. Most study findings on scientific achievement also apply to the science

discipline of biology. In order to effectively teach and study the topic of biology, teaching strategies, instructional materials, and a variety of pedagogical approaches must be employed.

The significant effect of instructional materials on the academic performance of Biology students based on school type.

The impact of educational resources on biology students' academic achievement might differ depending on a number of variables, such as the kind of institution. Here are some things to think about:

- Access to Resources The availability of resources may be impacted by public schools' tight finances for educational supplies. Many times, private schools have more money to spend on a greater variety of teaching resources.
- Quality of Materials: Depending on the sort of school, there may be differences in the teaching materials' quality. While public schools may rely on outdated materials or government-issued textbooks, private schools may have more diversified and up-to-date resources. This slows down the teaching and learning process and has a detrimental impact on students' academic achievement.
- Teacher Training: The quality of teachers' training affects how successfully they are able to use educational materials. The influence of materials may be increased in private schools by investing more in instructors' professional development.

- Student Engagement: Educational resources that are interesting to students can help them perform better. Private educational institutions could possess greater leeway to test out novel things that pique students' curiosity.
- Class Size: Using instructional materials efficiently might be difficult in public schools because of the generally higher class sizes. More individualized education is possible in private schools due to smaller class sizes.
- Curriculum Differences: Different school types may have curriculum that varies, which may have an impact on how well course materials correspond with the subject. Achieving this connection is essential for raising academic achievement.
- Parental Involvement: Parents of students attending private schools may take a more hands-on approach to their education, which can enhance the usage of teaching resources.

Empirical studies on the inadequacy of science instructional materials.

The impact of inadequate teaching materials on biology students' academic performance has been the subject of empirical research. The purpose of these research is to determine how students' learning outcomes in the subject of biology are impacted by the accessibility, quality, and application of instructional resources. Numerous studies have revealed that inadequate teaching resources might negatively affect students' academic achievement. For instance, Ogunniyi and Olatoye's (2013) study looked at how students' performance in biology was affected by subpar laboratory equipment and supplies. They discovered that students who did not have access to sufficient laboratory

supplies and equipment performed worse in the subject than students who did have access to well-equipped laboratories.

Adeyemo and Adeyemi (2014) investigated the connection between biology textbook accessibility and students' academic achievement. It was shown that students with less access to biology textbooks performed worse on biology exams than students with sufficient access to textbooks.

In a 2019 research, Ogbonnaya, Udo, and Agommuoh examined how students' academic performance in biology was affected by the utilization of instructional materials. Researchers discovered that pupils who had greater access to a range of teaching resources, including charts, models, and specimens, outperformed students in the classroom.

In a 2013 research, Onasanya, Oladunjoye, and Akinbobola investigated how multimedia teaching resources affected senior secondary school biology students' academic performance. When compared to conventional teaching techniques, they discovered that the utilization of multimedia resources, such as movies, animations, and interactive presentations, greatly enhanced students' performance in biology.

Researchers Udo, Okey, and Agwagah (2014) looked at how using educational resources affected students' performance in biology classes. Researchers discovered that students

who used a variety of teaching tools, such as audiovisual aids, lab equipment, and textbooks, did better on biology exams than those who just used textbooks.

Adeyemi (2017) investigated how students' academic performance was affected by the incorporation of instructional tools in biology courses. The use of teaching aids like models, charts, and diagrams, the researcher discovered, boosted students' comprehension of difficult biological topics and raised their general biology academic achievement.

A research by Maduabum, Okeke, and Nwagbo (2018) looked into how biology instruction using instructional materials affected Nigerian students' academic performance. According to the study, students who had more access to a range of teaching resources—such as lab equipment, textbooks, and visual aids—performed noticeably better on biology exams than those who had less of them.

Overall, this study highlights how crucial it is to have high-quality teaching materials in order to improve biology students' academic achievement. A deficiency of laboratory materials, books, models, and charts may have an impact on students' understanding and application of biological principles. The availability and effectiveness of instructional resources must be ensured by educational institutions in order to promote successful biology teaching and learning.

Summary of Literature Review

The importance of having sufficient and relevant materials for biology learning outcomes is emphasized in the study. Several studies have demonstrated that when biology students are not provided with the required instructional materials, such as lab supplies, textbooks, and visual aids, they do poorly academically. Inadequate resources might diminish students' enthusiasm in the topic and make it more difficult for them to apply their knowledge in practical settings.

The assessment also emphasizes how important instructional tools are for promoting active and student-centered learning. Access to up-to-date textbooks, well-equipped laboratories, and multimedia resources may all help students become more proficient readers, critical thinkers, and problem solvers. Engaging information may boost academic accomplishment in addition to generating interest and motivation.

The review also highlights the impact of socioeconomic factors on educational resource accessibility. Students' success gaps might grow even further if schools in low-income communities have a harder time obtaining and maintaining the supplies they need.

The overall literature review highlights how important it is that educational institutions prioritize providing comprehensive and up-to-date teaching resources for biology instruction in schools and other learning environments. The academic performance and overall learning experience of biology students can be enhanced by addressing the insufficiency of resources.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter focuses the methods and means used by the researcher in carrying out the research. This shall be discussed under the following sub-headings:

- Research Design
- Population of the Study
- Sample and Sampling Technique
- Research Instrument
- Validity of the Instrument
- Reliability of the Instrument
- Method of Data Collection
- Method of Data Analysis

Research Design

The descriptive survey research design was used. Descriptive survey design is concerned with the documentation and description of what exists or the present status of existence or absence of what is being investigated without any manipulation of what caused the event.it develops a profile on what is and not why it is so. It is considered appropriate for the study because it is based on the views, opinion of respondents as well as resources

available in the area of study. The study analyzed the effect of inadequacy of science instructional materials on the academic performance of Biology students.

Population of the study

The population of the study comprises of all the students studying Biology in secondary schools both in private and public schools in Ovia North-East Local Government Area, Edo state made up the population of the study.

Sample and Sampling Technique

The sampling technique used for this study is simple random sampling. The sample consists of 100 Biology students from three public schools and three private schools each. The process applied for choosing the school is simple random sampling which involves writing each school's name from the population on a separate sheet of paper and folding it. Folded papers were placed in a container, completely mixed and selection was made by one piece of paper at a time. This was carried out up until the researcher had the necessary quantity of schools.

Research Instrument

The major research Instrument to be used for collecting information for this study is a structured questionnaire constructed by the researcher tagged “Questionnaire on the effect of the inadequacy of science instructional materials on the academic performance

of biology students in Ovia North-East Local Government Area, Edo State". The questionnaire is based on the research questions crafted in line with the project topic.

The questionnaire is made up of two sessions: Section A and Section B. Section A contains the demography of the respondents such as gender, school type, and class while Section B contains the item raised from each research question, the instrument is cored on the 4-point Likert scale: strongly agree (SA), agree (A), disagree (D), and strongly disagree (SD).

Validity of the Instrument

The content validity of the questionnaire was ascertained and scrutinized by the researcher's supervisor. All comments and recommendations made available was effected to improve on the content validity of the Instrument.

Reliability of the Instrument

In order to determine the reliability of the instrument, it was pilot-tested by administering 20 Questionnaire to students who will not be part of the study. The data obtained were analyzed using Cronbach Alpha. The reliability coefficient value was found to be 0.72. This value indicated that the Instrument is reliable for collecting data of the study.

Method of Data Collection

The questionnaire was administered by the researcher to the respondents and they were assured of confidentiality in order to motivate them to answer the questions honestly and to the best of their knowledge. The researcher also gave instructions on how to fill out the questionnaires at the beginning and during the administration of the questionnaires. The questionnaire was collected at the spot for easy retrieval and was also counted to ensure all copies were retrieved.

Method of Data Analysis

Mean and simple percentage was utilized in the statistical analysis of the data, and Chi-square was used to test the study's hypothesis at 0.05 level of significance.

CHAPTER FOUR

PRESENTATION OF RESULT AND DISCUSSION OF FINDINGS

This chapter focuses on presentation of results and discussion of findings.

RESULTS FROM STUDENTS' QUESTIONNAIRE

DEMOGRAPHIC DATA

Table 1: Gender of the respondents (Students)

GENDER	FREQUENCY	PERCENTAGE (%)
MALE	48	48%
FEMALE	52	52%
TOTAL	**100**	**100%**

Table 1 shows that 48 make students representing 48% respondent to the questionnaire, while 52 female students representing 52% female students representing 52% responded to the questionnaire. It therefore means that the female were more than the male.

Table 2: Class respondent

SCHOOL TYPE	FREQUENCY	PERCENTAGE (%)
PRIVATE	50	50%
PUBLIC	50	50%
TOTAL	100	100

Table 2 shows that 50 students are from private school representing 50%, while another 50 students are from public school representing 50%.

Research Question 1: How many schools will have adequate instructional materials?

Table 3: Descriptive Statistics on how many schools will have adequate Instructional Materials.

S/N	NAME OF SCHOOLS	N	MEAN	DECISION
1.	Ekosodin Secondary School	24	1.82	No adequate
2.	Army Day Secondary School	30	2.12	No adequate
3.	Iguadolor Secondary School	28	1.97	No adequate
4.	Ebenezer Secondary School	20	2.04	No adequate
5.	Bethany Group of School	27	1.92	No adequate
6.	Boiling Point Academy	22	2.07	No adequate
	TOTAL	100	1.99	

(2.5 and above Adequate, 2.5 below is Not Adequate)

Table 3 above, show the names of the 6 schools which represents the study sample and their calculated mean on their responses on adequate science instructional materials. From the calculations made above, the first School, Ekosodin Secondary School, has a mean score of 1.82 which is below the criteria mean of 2.5 Army Day Secondary School has a mean score of 2.12 which is below the criteria mean of 2.5, Iguadolor has a mean score of 1.97 which is below the criteria mean score of 2.5, Ebenezer secondary school has a mean score of 2.04 which is below the criteria mean of 2.50, Bethany Group of school has a mean score of 1.92 which is also below the criteria mean of 2.5, and Boiling Point Academy has a mean score of 2.07 which is also below the criteria mean of 2.5 This shows that the study population schools do not have adequate science instructional materials.

Hypothesis One: There will be no significant effect of instructional materials on students' performance in biology.

Table 4: Chi -Square Analysis on relationship between Science Instructional material and Students academic performance in practical Biology.

VARIABLE	N	MEAN	STD	DF	X2-Cal.	X2-Crit.	ASYMPT. SIG	DECISION
Science Instructional material and Student academic performance in Biology	20	2.618	0.980	18	6.10	28.869	.050004	Not Accepted

(p=0.05)

The table 4 above, shows that X^2 calculated has a value of 6.10, X^2 critical value of 28.869 with degree of freedom of 18 and a Asymptotic Significance value of .0500004 which is not sig. at $p<0.05$. The null hypothesis, There will be no significant effect of instructional materials on students' performance in biology is therefore not Accepted.

Hypothesis Two: There will be no significant effect of instructional materials on students' performance in biology based on gender.

Table 5: Chi -Square Analysis on relationship between Science Instructional material and gender.

VARIABLE	N	MEAN	STD	DF	X2-Cal.	X2-Crit.	ASYMPT. SIG	DECISION
MALE	10	0.5					0.05	
FEMALE	10		0.112	9	3.534	16.919		Accepted
TOTAL	20							

(p=0.05)

The table 5 above, shows that X^2 calculated has a value of 3.534, X^2 critical value of 16.919 with degree of freedom of 9 and a Asymptotic Significance value of 0.05 which is sig. to $p<0.05$. The null hypothesis, There will be no significant effect of instructional materials on students' performance based on gender is therefore Accepted.

Hypothesis Three: There will be no significant effect of instructional materials on students' performance in biology based on school type.

Table 6: Chi -Square Analysis on relationship between Science Instructional material and school type.

VARIABLE	N	MEAN	STD	DF	X2-Cal.	X2-Crit.	ASYMPT. SIG	DECISION
PUBLIC	10	0.5	0.112	9	1.671	16.919	.05	Accepted
PRIVATE	10							
TOTAL	20							

(p=0.05)

The table 6 above, shows that X^2 calculated has a value of 1.671, X^2 critical value of 16.919 with degree of freedom of 9 and a Asymptotic Significance value of 0.05 which is sig. to $p<0.05$. The null hypothesis, There will be no significant effect of instructional materials on students' performance based on school type is therefore Accepted.

Discussion of Findings

From the first research question above there is adequate science instructional material in majority of schools which were more of private schools. From the second research question it was also found that the instructional materials provided for science learning are helpful in understanding the concepts, enhances students learning experience, enhanced performance in science exams, increased their interest and motivation in science learning and also has improved their practical skills in learning science. The finding of this study was in line with Inyang-Abia and Esu(2004) which posited that

instructional materials are used by the learners and the teachers to facilitate the acquisition of knowledge and skills in the teaching and learning process. The finding also aligned with the postulation of Maeregu, (2014) who stated that lack of instructional facilities or inadequate use of instructional facilitie in classroom may likely affect students' academic performance in Biology negatively. With this it was concluded that there is a significant effect of instructional materials on the academic performance of science students.

From the third research question it was discovered that The Instructional materials provided in biology classes are gender neutral and equally beneficial to all students, it plays a significant role in improving the academic performance of female students in biology, it plays a significant role in improving the academic performance of male students, instructional materials have a significant effect on the academic performance of biology students regardless of gender.

This finding is contrary to that of Joseph (2000), where it was reported that girls are intellectually inferior to boys in Science and Mathematics. The findings however agree with the report of Ifamuyiwa (2003) where it was observed that male participation in Science was higher but that the male and female performances were basically the same in terms of academic achievement. It was concluded that there will be no significant effect of instructional materials on students' performance in biology based on gender.

From the last research question The quality of instructional materials provided in most private schools for biology is very high, and less in government schools , Adequate instructional materials are essential for achieving better academic results, regardless of school type, There is a sufficient variety of instructional materials available for different subjects in majorly private schools, instructional materials have a significant effect on the academic performance of biology students, regardless of school type, Students in private schools have better access to quality instructional materials for biology than students in public schools. It was concluded that there will be significant effect of instructional materials on students'' performance in biology based on school type.

Upon testing the hypothesis it was proved that

There is a significant effect of instructional materials on the academic performance of science students.

There is no significant effect of instructional materials on students'' performance in biology based on gender.

There is no significant effect of instructional materials on students'' performance in biology based on school type.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary and conclusion derived in the course of the study which is to probe the effect of science Instructional materials on the academic performance of Biology students. It also provides some recommendations that can be adopted by secondary schools.

Summary

The study's primary goal is to investigate the effect of science Instructional materials on the academic performance of Biology students in Ovia North-East Local Government Area. Biology students from secondary schools in Ovia North-East Local Government Area made up the population. It was conducted using a simple random sampling and structured study questions. My supervisor at the University of Benin in Edo State validated the instrument. The researcher delivered the questionnaires to biology students in six secondary schools in Ovia North-East LGA and gathered the responses. Mean was used to analyze the data and three hypotheses were tested with chi square at 0.05 significance level.

The analysis findings indicated that secondary schools in Ovia North-East LGA of Edo State do not have adequate science Instructional materials. When compared to the student population, the amount of science Instructional materials that is provided to the

schools is insufficient in both quantity and quality. It was also discovered that science Instructional materials will not have significant effect on student's aademic performance in biology due to the insufficiency of the available science Instructional Materials.

The results of the findings also reveal that Science Instructional materials will not have significant effect on Student's academic performance based on gender and School type.

Conclusion

The goal of the study is to determine the effect of inadequacy of science Instructional materials on students' academic performance Biology Students in Ovia North-East LGA, Edo State.

Based on the findings of the study, it was concluded that adequate Instructional materials is an important predictor for academic achievement and schools should provide science Instructional materials for science learning to students, because it is the major decision maker for their academic performance.

Recommendations

In view of the findings and conclusions reached from the present study, the following recommendations are suggested:

1. Adequate Instructional materials should be provided by the Ministry of Education for effective teaching and learning of Biology concepts in Ovia North-East Local Government Area, Edo State.

2. Other Stakeholders like the PTA should also make effort to provide adequate science Instructional materials to schools.
3. The pre-service teachers curriculum in the colleges of education should emphasize the use of instructional materials in Biology teaching.
4. Teachers should be fully and adequately trained to make use of instructional materials through regular workshops and seminars.
5. To maintain the sustainability and durability of equipment provided to secondary school scientific laboratories, appropriate functional storage facilities, such as refrigerators and freezers, and infrastructural facilities, such as electricity, should be made available.

Suggestions for Further Research

The researcher felt that this study should not be viewed as definitive, thus she recommended that additional research be done in the biological sciences because it is crucial to have access to and effectively use of Instructional materials in the teaching and learning of Biology. It is important to do research on the accessibility and use of Instructional materials.

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APPENDIX

DEPARTMENT OF CURRICULUM AND INSRUCTIONAL TECHNOLOGY (CIT),
FACULTY OF EDUCATION, UNIVERSITY OF BENIN,
BENIN CITY, EDO STATE.

QUESTIONNAIRE ON THE EFFECT OF INADEQUACY OF SCIENCE INSTRUCTIONAL MATERIALS ON THE ACADEMIC PERFORMANCE OF BIOLOGY STUDENTS.

Dear Respondents,

This questionnaire is designed for academic purposes. It is structured to find out the effect of inadequate instructional materials on the academic performance of biology students. Kindly respond to the questions below by ticking [✓] where applicable. Your response which will be used for research will be treated with high level of confidentiality. Thank you.

SECTION A. DEMOGRAPHIC DATA

Please tick [✓] in the appropriate space provided.

Gender: male [ ] female [ ]

School type: private [ ] public [ ]

SECTION B.

Research Question 1: How many schools will have adequate science instructional material?

Key: SA: Strongly agree, A: Agree, D: Disagree, SD: Strongly disagree.

S/N	ITEMS	SA	A	D	SD	TOTAL	PERCENTAGE
1.	My school has adequate science Instructional materials.	15.3%	46.9%	25.7%	12.1%	100	100%
2.	My school has adequate textbooks available	10.2%	57.1%	23.5%	9.2%	100	100%
3.	My school has adequate laboratory equipment available	7.1%	39.8%	42.9%	10.2%	100	100%
4.	My school has visual aids such as charts available.	7.1%	49%	32.7%	11.2%	100	100%
5.	My school has adequate online resources available.	5.1%	28.6%	44.9%	21.4%	100	100%
6.	The Science Instructional Materials in my school are regularly updated to allign with the curriculum.	5.1%	39.8%	40.8%	14.3%	100	100%
7.	We have easy access to the science Instructional Materials in my	12.2%	38.8%	32.7%	16.3%	100	100%

	school.						

Research Question 2: will there be significant effect of instructional materials on the students' performance of science students?

S/N	ITEM	SA	A	D	SD	TOTAL	PERCENTAGE
1	The Instructional materials needed for science learning are helpful in understanding the concepts	28.6%	56.1%	6.1%	9.2%	100	100%
2	The Science materials provided for learning sciences enhances my learning experience	36.7%	52%	8.2%	3.1%	100	100%
3	The use of Instructional materials has enhanced my performance in science exams	32.7%	57.1%	8.2%	2%	100	100%
4	The use of Instructional materials has increased my interestand motivation in science learning.	35.7%	55.1%	7.1%	2.1%	100	100%
5	The use of	36.7%	56.1%	6.1%		100	100%

	Instructional materials has improved my practical skills in learning science.						

Research Question 3: will there be significant effect of instructional materials on student's performance in Biology based on gender?

S/N	ITEM	SA	A	D	SD	TOTAL	PERCENTAGE
1	The Instructional materials provided in Biology classes are gender neutral and equally beneficial to all students	27.6%	57.1%	1.1%	10.2%	100	100%
2	Instructional materials play a significant role in improving the academic performance of female students	25.5%	53.1%	15.3%	6.1%	100	100%
3	Instructional materials play a significant role in improving the Academic performance of male students.	12.2%	57.2%	13.3%	17.3%	100	100%

4	I believe that Instructional materials have a significant effect on the academic performance of Biology Students regardless of gender.	48.9%	35.1%	10.9%	5.1%	100	100%

Research Question 4: Will there be significant effect of instructional materials on student's performance in biology based on school type?

S/N	ITEMS	SA	A	D	SD	TOTAL	PERCENTAGE
1	The quality of Instructional materials provided in my school for Biology is very high	7.1%	45.9%	39.8%	7.2%	100	100%
2	Adequate Instructional materials are essential for achieving better academic result regardless of sch. Type	38.8%	48%	5%	8.2%	100	100%
3	There is a sufficient variety	10.2%	45.9%	37.8%	6.1%	100	100%

	of Instructional materials Available for different subjects in my school.						
4	I believe that Instructional materials have a significant effect on the Academic performance of Biology Students regardless of school type.	32.8%	52.1%	8%	7.1%	100	100%
5	Students in private schools have better access to quality Instructional materials for Biology than students in public schools.	30.7%	46.9%	12.2%	10.2%	100	100%

Degrees of freedom (*df*)	Significance level (α)							
	.99	.975	.95	.9	.1	.05	.025	.01
1	-------	0.001	0.004	0.016	2.706	3.841	5.024	6.635
2	0.020	0.051	0.103	0.211	4.605	5.991	7.378	9.210
3	0.115	0.216	0.352	0.584	6.251	7.815	9.348	11.345
4	0.297	0.484	0.711	1.064	7.779	9.488	11.143	13.277
5	0.554	0.831	1.145	1.610	9.236	11.070	12.833	15.086
6	0.872	1.237	1.635	2.204	10.645	12.592	14.449	16.812
7	1.239	1.690	2.167	2.833	12.017	14.067	16.013	18.475
8	1.646	2.180	2.733	3.490	13.362	15.507	17.535	20.090
9	2.088	2.700	3.325	4.168	14.684	16.919	19.023	21.666
10	2.558	3.247	3.940	4.865	15.987	18.307	20.483	23.209
11	3.053	3.816	4.575	5.578	17.275	19.675	21.920	24.725
12	3.571	4.404	5.226	6.304	18.549	21.026	23.337	26.217
13	4.107	5.009	5.892	7.042	19.812	22.362	24.736	27.688
14	4.660	5.629	6.571	7.790	21.064	23.685	26.119	29.141
15	5.229	6.262	7.261	8.547	22.307	24.996	27.488	30.578
16	5.812	6.908	7.962	9.312	23.542	26.296	28.845	32.000
17	6.408	7.564	8.672	10.085	24.769	27.587	30.191	33.409
18	7.015	8.231	9.390	10.865	25.989	28.869	31.526	34.805
19	7.633	8.907	10.117	11.651	27.204	30.144	32.852	36.191
20	8.260	9.591	10.851	12.443	28.412	31.410	34.170	37.566
21	8.897	10.283	11.591	13.240	29.615	32.671	35.479	38.932
22	9.542	10.982	12.338	14.041	30.813	33.924	36.781	40.289
23	10.196	11.689	13.091	14.848	32.007	35.172	38.076	41.638
24	10.856	12.401	13.848	15.659	33.196	36.415	39.364	42.980
25	11.524	13.120	14.611	16.473	34.382	37.652	40.646	44.314
26	12.198	13.844	15.379	17.292	35.563	38.885	41.923	45.642
27	12.879	14.573	16.151	18.114	36.741	40.113	43.195	46.963
28	13.565	15.308	16.928	18.939	37.916	41.337	44.461	48.278
29	14.256	16.047	17.708	19.768	39.087	42.557	45.722	49.588
30	14.953	16.791	18.493	20.599	40.256	43.773	46.979	50.892
40	22.164	24.433	26.509	29.051	51.805	55.758	59.342	63.691
50	29.707	32.357	34.764	37.689	63.167	67.505	71.420	76.154
60	37.485	40.482	43.188	46.459	74.397	79.082	83.298	88.379
70	45.442	48.758	51.739	55.329	85.527	90.531	95.023	100.425
80	53.540	57.153	60.391	64.278	96.578	101.879	106.629	112.329
100	61.754	65.647	69.126	73.291	107.565	113.145	118.136	124.116
1000	70.065	74.222	77.929	82.358	118.498	124.342	129.561	135.807

Chi-Square (X^2) Table |