EFFECTS OF IMPROVED STUDENTS INSTRUCTIONAL MATERIALS ON SENIOR SECONDARY SCHOOL STUDENTS IN MINNA, NIGER STATE.

BY

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2016/1/61700BT

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A PROJECT SUBMITTED TO THE DEPARTMENT OF EDUCATIONAL TECHNOLOGY, SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR AWARD OF THE DEGREE OF BACHELOR OF TECHNOLOGY (B. TECH) IN EDUCATIONAL TECHNOLOGY

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ABSTRACT

This study aimed to determine the effect of instructional materials on the performance and retention of senior secondary school students in Minna, Niger State, Nigeria. Four specific objectives were established to investigate the socio-demographic characteristics of the respondents, the influence of gender and school location on the students' performance, and the effect of instructional materials. The study found that the use of instructional materials had a significant effect on the academic achievement and retention of students as compared to conventional teaching methods. It also revealed that there was no significant difference in the mean achievement scores between male and female students. Based on these findings, the study recommends that schools should prioritize the use of instructional materials in their teaching methods, provide training for teachers on effective use, regularly assess the effectiveness of instructional materials, and encourage collaboration between teachers to share experiences and ideas.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

The use of instructional materials in education has been widely recognized as an important factor in enhancing students' learning and academic performance. According to a study by Adebayo and Faturoti (2018), the use of improved instructional materials such as visual aids, audio-visual materials, and other interactive resources can lead to significant improvements in students' academic performance. The study, which was conducted in Minna, Niger state Nigeria, found that the use of improved instructional materials increased students' interest and motivation in learning. Another study by Olusola (2016) investigated the effect of multimedia instructional materials on the academic performance of senior secondary school students in Minna, Niger state Nigeria. The study found that the use of multimedia instructional materials had a positive impact on students' academic performance, particularly in the areas of science and mathematics. The study also found that the use of multimedia instructional materials increased students' engagement and motivation in learning.

Improvisation is the provision of alternatives to real things. Improvisation is the making of substitutes when the real equipment or material is not adequate or available (Okebukola, 2012). It is the art of providing and using alternative materials or resources in the absence of the real or factory made one. Oyediran (2010) also defines improvisation as the art of using materials or equipment obtained from local environment or produced by the teacher, and with the assistance of the local personnel to enhance instruction. In other to teach by inquiry method or use activity based instructions, improvisation is required since instructional materials seem not to be adequate (Okebukola, 2012). Bassey (2012) defined improvisation as the process of making equipment and

materials by the students or by engaging the services of others in the absence of real or manufactured ones. Generally, improvisation of instructional materials is an attempt to adapt and make use of local resources in the teaching/learning process when the ready- made materials are not available or are in shortfall or not within the reach of users. Esu (2014) 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. The use of improvised instructional materials for Biology teaching has been long advocated (Olumorin, 2014). For Olumorin (2014), the production of instructional materials had undergone several reviews and processes by experts from various fields. Improvisation serves the following purposes in the education system: It reduces the money spent on the purchase of equipment in educational institutions; ensures the realization of lesson objectives; helps in solving the problem of lack of equipment in educational institutions; gives room for a teacher to demonstrate his creative skills and gives room for the use of cheap local materials as alternatives to the expensive foreign ones (Olumorin, 2014).Also, gender may also influence student achievement in biology when taught using improvised instructional material. Gender has been defined as a cultural difference between women and men based on the biological division between male and female. According to Okeke (2011) gender refers to the social or cultural construct, characteristics, behaviours and role which society ascribes to males and females. Gender is a social or cultural determinant that varies from place to place or culture to culture. It is not universal, unlike sex which is biologically determined and universal too. In recent times gender related issues in science education has continued to receive serious attention judging by the quanta of studies done to that effect. For example Babajide (2010) opined that science subjects are given masculine outlook by educational practitioners. In addition to this, the studies by Ogunleye (2012) show that science achievement depends on gender.

But, Nwosu (2011) found that students' acquisition of science process skills are not gender specific. Also, the studies by Ogunleye & Babajide (2011) lend credence to non-significant gender effect in science achievement. However Agomuoh (2010) found that gender influences students' conceptual shift in favour of the male. Therefore, the researcher consider it worthwhile to investigate the influence of gender on achievement .Apart from the influence of gender, school location may also influence achievement of students when taught using improvised instructional material. School location means urban and rural schools. Urban schools are those schools located at satellite towns. They are schools situated at the major cities of a particular country. While rural schools are schools located at the villages or semi-villages. Studies indicate that students in urban school perform better in science than their counterpart in the rural schools (Owoeye, 2012). However, some researchers as Bosede (2010) and Ezeudu (2013) show that location have no effect on students' academic achievement Hence, the researcher therefore considers it worthwhile to investigate the influence of school location on the students' achievement when taught with improvised instructional materials

However, despite the potential benefits of improved instructional materials, their use in schools remains limited. A study by Adeyemo, D.O, (2019) found that many schools in Nigeria, especially in rural areas, lack the necessary resources and infrastructure to fully utilize improved instructional materials. This highlights the need for further research on the implementation and effectiveness of improved instructional materials in senior secondary schools in Minna, Niger state Nigeria. In light of the above studies, this research aims to examine the effects of improved instructional materials on the academic performance of senior secondary school students in Minna, Niger state Nigeria. The study will also explore the most effective ways to implement improved instructional materials in the classroom and the challenges faced in their use.

1.2 Statement of the problem

The use of instructional materials in education has been widely recognized as an important factor in enhancing students' learning and academic performance. According to a study by Adebayo and Faturoti (2018), the use of improved instructional materials such as visual aids, audio-visual materials, and other interactive resources can lead to significant improvements in students' academic performance. The study, which was conducted in Minna, Niger state Nigeria, found that the use of improved instructional materials increased students' interest and motivation in learning. The study found that students who were taught using improved instructional materials scored significantly better in their exams than those who were taught using traditional methods. Another study by Olusola, (2016) investigated the effect of multimedia instructional materials on the academic performance of senior secondary school students in Minna, Niger state Nigeria. The study found that the use of multimedia instructional materials had a positive impact on students' academic performance, particularly in the areas of science and mathematics. The study found that students who were taught using multimedia instructional materials scored significantly better in their exams in science and mathematics than those who were taught using traditional methods. The study also found that the use of multimedia instructional materials increased students' engagement and motivation in learning. However, despite the potential benefits of improved instructional materials, their use in schools remains limited. A study by Adeyemo (2019) found that many schools in Nigeria, especially in rural areas, lack the necessary resources and infrastructure to fully utilize improved instructional materials. This highlights the need for further research on the implementation and effectiveness of improved instructional materials in senior secondary schools in Minna, Niger state Nigeria. The lack of resources and infrastructure in schools is one of the major challenges faced in the use of improved instructional materials. Many schools in Minna,

Niger state Nigeria, especially in rural areas, lack the necessary equipment and facilities to fully utilize improved instructional materials. For example, many schools lack the necessary technology such as computers, projectors and internet access that are required to use multimedia instructional materials. This makes it difficult for teachers to effectively use multimedia instructional materials in the classroom. Another challenge faced in the use of improved instructional materials is the lack of training and support for teachers. Many teachers in Minna, Niger state Nigeria, lack the necessary training and support to effectively use improved instructional materials in the classroom. This can lead to poor implementation of improved instructional materials and ultimately negatively impact students' academic performance. Teachers need training and support to understand how to use improved instructional materials effectively in the classroom.

In addition, there is a lack of research on the implementation and effectiveness of improved instructional materials in senior secondary schools in Minna, Niger state Nigeria. This lack of research makes it difficult to understand the most effective ways to implement improved instructional materials in the classroom and the challenges faced in their use. In light of the above studies, this research aims to examine the effects of improved instructional materials on the academic performance of senior secondary school students in Minna, Niger state Nigeria. The study will also explore the most effective ways to implement improved instructional materials in the classroom, and the challenges faced in their use. The research will be conducted in senior secondary schools in Minna, Niger state Nigeria, and will involve the use of surveys, interviews, and observations to collect data. The data will be analyzed to determine the effects of improved instructional materials on the academic performance of senior secondary school students and the most effective ways to implement improved instructional materials in the classroom. Furthermore,

the research will also explore the challenges faced in the use of improved instructional materials in senior secondary schools in Minna, Niger state Nigeria.

1.3 Objectives of the study

1.3.1 General objective

To examine the effects of students improved instructional materials on senior secondary schools students in Niger state Nigeria.

1.3.2 Specific objectives

- To determine the socio-demographic characteristics of the respondents
- To determine the effect of instructional materials on the performance of senior secondary school students in Minna Niger state, Nigeria
- To determine the influence of gender on secondary school students' performance when taught using improved instructional materials in Minna Niger state, Nigeria
- To determine the influence of school location on secondary school students' performance when taught using improved instructional materials in Minna Niger state, Nigeria

1.4 Research questions

- What are the socio-demographic characteristics of the respondents
- What are the effect of instructional materials on the performance of senior secondary school students in Minna Niger state, Nigeria
- Does gender has influence on secondary school students' performance when taught using improved instructional materials in Minna Niger state, Nigeria

- Does location has influence on secondary school students' performance when taught using improved instructional materials in Minna Niger state, Nigeria

1.5 Research Hypothesis

H_0 : There is no effect of instructional materials on the performance of senior secondary school students in Minna Niger state Nigeria

H_0: There is no the influence of gender on secondary school students' performance when taught using improved instructional materials in Minna Niger state, Nigeria

H_0: There is no influence of gender on secondary school students' performance when taught using improved instructional materials in Minna Niger state, Nigeria

1.6 Significance of the study

The proposed research on the effects of improved instructional materials on the academic performance of senior secondary school students in Minna, Niger state Nigeria, will have significant implications for the field of education. The findings of the study will provide valuable insights into the most effective ways to use improved instructional materials in the classroom and the challenges faced in their use. This information will be useful for educators, policy makers, and school administrators in developing strategies to improve the use of improved instructional materials in senior secondary schools in Minna, Niger state Nigeria. The study will also contribute to the existing body of literature on the use of improved instructional materials in education. The research will provide a comprehensive understanding of the effects of improved instructional materials on the academic performance of senior secondary school students in Minna, Niger state Nigeria. This information will be useful for educators and researchers in other locations to

understand how to use improved instructional materials to improve academic performance. Additionally, the study will provide insights into the challenges faced in using improved instructional materials in senior secondary schools in Minna, Niger state Nigeria, particularly in terms of resources and infrastructure, teacher training and support, and research. This information can be used to address these challenges and to improve the availability and utilization of improved instructional materials in senior secondary schools in Minna, Niger state Nigeria. In summary, the proposed research on the effects of improved instructional materials on the academic performance of senior secondary school students in Minna, Niger state Nigeria, will have significant implications for the field of education by providing valuable insights into the most effective ways to use improved instructional materials in the classroom and the challenges faced in their use. This information will be useful for educators, policy makers, and school administrators to improve the use of improved instructional materials in senior secondary schools in Minna, Niger state Nigeria.

1.7 Scope of the study

The study will focus on the effects of improved instructional materials on the academic performance of senior secondary school students in Minna, Niger state Nigeria. The research will be conducted in senior secondary schools located in Minna, Niger state Nigeria, with a specific focus on the use of visual aids, audio-visual materials, and multimedia resources as improved instructional materials. The study will adopt a combination of qualitative and quantitative research methods. The study will use questionnaires to gather quantitative data on students' academic performance and the use of improved instructional materials. The questionnaires will be administered to a sample of students from senior secondary schools in Minna, Niger state Nigeria. In addition to the administration of questionnaires, the study will also use qualitative research methods such as interviews and observations to gather data on the most effective ways to

implement improved instructional materials in the classroom and the challenges faced in their use. Interviews will be conducted with teachers and school administrators to gather their perspectives on the use of improved instructional materials in the classroom. The study will provide a comprehensive understanding of the effects of improved instructional materials on the academic performance of senior secondary school students in Minna, Niger state Nigeria, as well as the most effective ways to implement these materials in the classroom and the challenges faced in their use. The findings of the study will be useful for educators, policy makers, and school administrators in developing strategies to improve the use of improved instructional materials in senior secondary schools in Minna, Niger state Nigeria.

1.8 Chapter summary

This chapter summarizes the background of the study, the statement of the problem, significance of the study and Scope of the study.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Theoretical framework

This section focuses more on the extensive review of improved instructional materials, it uses and analysis in senior secondary schools, Minna, Niger state Nigeria.

2.2 Impact of Using Instructional materials

The impact of updated instructional materials on student achievement in senior secondary schools in Niger state has been a topic of interest in the field of education. Several studies have been conducted to investigate the relationship between instructional materials and student achievement in senior secondary schools. One study, conducted by Ahmed and Muhammad (2019) in Nigeria, found that updated instructional materials had a positive impact on student achievement in senior secondary schools. The study used a quasi-experimental design and found that students in the experimental group, who had access to updated instructional materials, had significantly higher achievement scores than the control group. The study also found that students in the experimental group were more motivated and engaged in the learning process. This suggests that updated instructional materials can enhance the teaching-learning process by making it more interactive and student-centered. Another study, conducted by Salau et al. (2018) in Nigeria, found that the use of updated instructional materials in senior secondary schools had a positive effect on student achievement in mathematics. The study used a randomized controlled trial and found that students in the experimental group, who had access to updated instructional materials, had significantly higher achievement scores than the control group. This highlights the importance of providing

students with up-to-date and relevant instructional materials in order to improve their achievement in specific subject areas.

A study by Kolo (2016) in Nigeria, found that the availability and use of updated instructional materials had a positive impact on student achievement in senior secondary schools. The study used a mixed-methods approach and found that students in schools with access to updated instructional materials had higher achievement scores than students in schools without access to these materials. This emphasizes the need for schools to have access to updated instructional materials as it can improve student achievement. A study by Adekunle and Adekola (2015) in Nigeria, found that the availability and use of instructional materials had a positive impact on student achievement in senior secondary schools. The study used a survey research design and found that students in schools with access to instructional materials had higher achievement scores than students in schools without access to these materials. This suggests that having access to instructional materials is important in order to improve student achievement. In addition to the studies conducted in Nigeria, research from other countries has also found a positive relationship between instructional materials and student achievement. A study by Mwamwenda (2016) in Tanzania found that updated instructional materials improved student achievement in science, technology, engineering, and mathematics (STEM) subjects. The study used a quasi-experimental design and found that students in the experimental group, who had access to updated instructional materials, had higher achievement scores than the control group. This highlights the importance of providing students with up-to-date and relevant instructional materials in order to improve their achievement in STEM subjects. Another study, conducted by Li and Fan (2017) in China, found that the use of multimedia instructional materials had a positive impact on student achievement in English language learning. The study used a randomized controlled trial and found that students

in the experimental group, who had access to multimedia instructional materials, had significantly higher achievement scores than the control group. This suggests that incorporating multimedia instructional materials can be effective in enhancing student learning in language subjects. In conclusion, the literature suggests that updated instructional materials have a positive impact on student achievement in senior secondary schools in Niger state. Studies have found that providing students with access to updated instructional materials can enhance their motivation and engagement in the learning process, and can lead to higher achievement scores in specific subject areas. However, it is important to note that while instructional materials are important, they are not the only factor that affects student achievement. Other factors such as teacher quality, class size, and school resources also play a significant role in student achievement.

2.3 Effects of digital instructional materials compared to traditional materials

The use of digital instructional materials in education has grown in recent years, with many schools and educational institutions incorporating technology into their curriculum. While digital instructional materials offer a number of benefits, such as increased engagement and interactive learning opportunities, there is ongoing debate about their effectiveness compared to traditional materials, particularly in senior secondary schools. One of the benefits of digital instructional materials is that they can make learning more engaging and interactive for students. For example, digital videos and animations can be used to explain complex concepts, while interactive simulations and games can be used to provide hands-on learning experiences. Additionally, digital instructional materials can be easily updated and customized to meet the needs of different students, which can help to improve student learning outcomes. Another benefit of digital instructional materials is that they can provide students with more flexibility in terms of when and where they access information. For example, digital materials can be accessed on a variety of

devices, such as laptops and tablets, and can be accessed from anywhere with an internet connection. This can be particularly beneficial for students who are unable to attend school regularly, such as those living in rural areas or those with disabilities.

Despite these benefits, there is ongoing debate about the effectiveness of digital instructional materials compared to traditional materials. While some studies have found that digital instructional materials can improve student learning outcomes, others have found that there is no significant difference between the two. For example, a study by Adeyemi and Oludipe (2019) published in the Journal of Educational Technology Development and Exchange found that the use of digital instructional materials had a positive impact on the academic performance of senior secondary school students in Nigeria. The study, which involved over 500 students, found that students who used digital instructional materials scored significantly higher on tests than those who used traditional materials.

Another study by Nwosu and Nwosu (2018) published in the Journal of Emerging Trends in Educational Research and Policy Studies also found that the use of digital instructional materials had a positive impact on the academic performance of senior secondary school students in Nigeria. The study found that students who used digital instructional materials scored significantly higher on tests of reading comprehension, mathematics, and science than those who used traditional materials. In contrast, a study by Asikainen et al. (2019) published in the Journal of Computer Assisted Learning found that the use of digital instructional materials had no significant impact on the academic performance of senior secondary school students in Finland. The study, which involved over 300 students, found that students who used digital instructional materials performed similarly to those who used traditional materials on tests of reading comprehension, mathematics, and science. One possible explanation for the conflicting results of these studies is that the

effectiveness of digital instructional materials may depend on factors such as the specific materials used, the students' prior technology experience, and the teacher's level of technology integration. For example, a study by Gee and Hayes (2018) published in the Journal of Research on Technology in Education found that the effectiveness of digital instructional materials in improving student learning outcomes was directly related to the teacher's level of technology integration. Additionally, a study by Rieber and Noah (2019) published in the Journal of Educational Technology Development and Exchange found that the effectiveness of digital instructional materials in improving student learning outcomes was directly related to the students' prior technology experience. The study found that students who had more prior experience with technology were more likely to benefit from digital instructional materials than those who had less experience.

2.4 Instructional materials and Critical thinking Skills

The role of instructional materials in promoting critical thinking skills among senior secondary students in Niger state has been extensively studied in recent years. Research has shown that instructional materials, when properly designed and used, can have a significant impact on students' ability to think critically. One study, published in the Journal of Education and Practice, found that the use of visual aids in the classroom, such as images, videos, and diagrams, can help to improve critical thinking skills among senior secondary students. The authors of the study argue that visual aids can help to make abstract concepts more concrete and easier to understand, which in turn can promote critical thinking (Adeniyi, 2015). Another study, published in the International Journal of Educational Research, found that the use of interactive materials, such as games and simulations, can also help to promote critical thinking skills among senior secondary students. The authors of the study argue that interactive materials can help to engage students in active learning,

which can lead to deeper understanding and better critical thinking skills (Nwankwo, 2017). A study published in the Journal of Educational Psychology, found that the use of problem-based learning can significantly improve critical thinking skills among senior secondary students. The authors argue that problem-based learning can help to develop students' ability to analyze and solve complex problems, which is an essential component of critical thinking (Egbo, 2019).

A study in Journal of Educational Technology Development and Exchange, found that the use of technology-based instructional materials, such as computer-based simulations and online tutorials, can also help to promote critical thinking skills among senior secondary students. The authors argue that technology-based instructional materials can help to provide students with a more engaging and interactive learning experience, which can lead to better critical thinking skills (Dauda, 2020). Instructional materials play a vital role in promoting critical thinking skills among senior secondary students in Niger state. The use of visual aids, interactive materials, problem-based learning, and technology-based instructional materials have been found to be effective in promoting critical thinking. It is important to note that the use of these materials should be supported by appropriate teaching methods and assessment strategies. Furthermore, it is crucial to consider the cultural and socio-economic context of the students while designing and implementing these materials to maximize their effectiveness.

2.5 Instructional materials and student engagement in senior secondary schools

The relationship between access to instructional materials and student engagement in senior secondary schools in Niger state has been the subject of much research in recent years. Studies have shown that students who have access to high-quality instructional materials are more likely to be engaged in their learning and to achieve better academic outcomes. Instructional materials

are defined as any materials that are used by teachers to support the learning process. These can include textbooks, workbooks, videos, and interactive software programs, among others. The use of instructional materials in the classroom can have a significant impact on student engagement and academic achievement. According to a study by Ogunleye (2019), students who have access to instructional materials are more likely to be engaged in their learning and to achieve better academic outcomes. The study also found that students who had access to instructional materials were more likely to participate in class and to complete homework assignments. The availability of instructional materials in schools is an important factor that can affect student engagement and academic achievement. A study by Oladele (2018) found that the availability of instructional materials in senior secondary schools in Niger state was positively correlated with student engagement and academic achievement. The study also found that students who had access to instructional materials were more likely to report feeling motivated to learn and to feel that their teachers were providing them with the resources they needed to succeed in school. This suggests that increasing access to instructional materials in senior secondary schools in Niger state may be an effective way to improve student engagement and academic achievement. The use of instructional materials can also have a positive impact on student motivation. A study by Adebayo (2017) found that access to instructional materials was positively associated with student engagement in senior secondary schools in Niger state. The study found that students who had access to instructional materials were more likely to be motivated to learn, to participate in class, and to achieve better academic outcomes. This highlights the importance of providing students with access to high-quality instructional materials in order to promote engagement and motivation in the classroom.

Instructional materials can also play an important role in supporting students with diverse learning needs. For example, students with learning disabilities may benefit from the use of instructional materials that are designed to support their specific needs. Similarly, students who are English language learners may benefit from instructional materials that are specifically designed to support their language development. A study by Abubakar (2019) found that students who were English language learners in senior secondary schools in Niger state and had access to instructional materials that were tailored to their language development needs, performed better academically than those who did not have access to such materials. In addition to the academic benefits, access to instructional materials can also have a positive impact on students' self-esteem and self-efficacy. A study by Iyamu (2018) found that students in senior secondary schools in Niger state who had access to instructional materials were more likely to report feeling confident in their ability to succeed in school and to feel that they had the resources they needed to succeed. This suggests that providing students with access to instructional materials may be an effective way to promote positive self-esteem and self-efficacy. However, despite the numerous benefits of instructional materials, access to these resources remains a challenge in many schools in Niger state. A study by Olatunji (2021) found that many senior secondary schools in the state had limited access to instructional materials, particularly in rural areas and disadvantaged communities. This lack of access to instructional materials can have a negative impact on student engagement and academic achievement. The study suggests that increasing access to instructional materials in senior secondary schools in Niger state, particularly in disadvantaged communities, may be an effective way to improve student engagement and academic achievement

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the procedure that will be used for the collection of the data for the study. Therefore, this chapter was discussed under the following sub-headings; Research design, Population of the study, sample and sampling technique research instruments, validity and reliability of research instruments, method of data collection, and method of data analysis.

3.2 Research Design

The study adopted a Quasi Experimental design, in which non-equivalent control group: pretest-posttest design type was used. Quasi Experimental design seeks to establish cause/effect relationship between two or more variables. The researcher intends to determine the effective use of improved instructional materials which is an independent variable on Students' performance (dependent variable) in Minna Secondary schools. All the groups were subjected to pretest and posttest; experimental group was taught using instructional materials while the control group taught using the conventional method.

3.3 Population of the Study

The population for this study was made up of all the secondary school students of the secondary schools in the (10) wards of Bosso Local Government Area of Niger State with a total population of (2170) students which constitute the population of the study

3.4 Sample and Sampling Techniques

The sample of this research study consist of nineteen (19) students in experimental group and twenty-nine (29) in the control group, making a total sample size of forty (48) students for the research study. The sample size was generated from two (2) secondary schools, from Bosso Local

Government Area, using the intact classes. The students were selected from throughout the classes. Therefore, the two schools that were selected are as follows

S/N	School	Male	Female	Population
1	Government Day Secondary school	10	9	19
2	Bosso Day Secondary school	12	17	29
	Total	**22**	**26**	**48**

3.5 Research Instrument

There are two instruments, treatment instrument (instructional material) and test instrument; Students Performance Test (SPT) used for data collection. The data collection for this research study was through the use of researchers developed test titled: Students Performance Test (SPT) that involved series of problems and solutions on their subjects. Lesson Plans. lesson notes. and marking schemes were prepared for a period of six (6) weeks. The instrument used in the research was an achievement test which consist of two (2) sections in multiple choice questions with four (4) options (A-D) out of which one serves as the correct answer based on the topic taught. However, at the second face (post-test) the options were interchange likewise the numbering method (reshuffled). Each scores per correct answer is (1 mark). The items were constructed to reflect the objectives of the lesson on the basis of the instruction used to draw evidence on the student's performance.

3.6 Procedure for Developing SPT (Student Performance Test)

The researcher designed and developed the treatment instrument (**SPT**) using an past questions for each year starting from JSS 1 to SS 3. The questions were multiple choice and were asked on a general level covering all of their subjects in a year.

3.7 Validity of the Research Instrument

The face and content validity for the research instrument was done by two principal teachers in Governement Day secondary school Minna, two lecturers in Educational Technology Department of the Federal University of Technology, Minna. Useful constructive suggestions lead to the reconstruction of some items in the objectives questions.

3.8 Reliability of The Research Instruments

A test-retest method was used during the pilot test to determine the reliability of Students Performance Test (SPT), A pilot test was constructed in U B E Model Junior Secondary School, Tudun Fulani, Minna, which is not part of the target population of the study. A pilot test was carried out to refine the test items and also to assess the reliability of the instrument. The reliability of the instrument was pilot tested on 20 randomly selected students of the above-mentioned school and the response of the subjects were scored after the first and second administration of the test. The data were collected and analyzed by using Pearson product Moment Correlation Co-efficient (PPMC) to obtain the value of reliability coefficient (r) to be 0.78.

3.9 Method of Data Collection

The researcher visited the selected schools seeking official permission from the authority to use the school and facilities as well as seeking the cooperation of staff and students in the selected schools. The teachers from the various schools were used as research assistants. The first week of experiment was used for the administration of the pre-test to the selected groups to check for the student's entry behaviour. The test was administered to the two schools using for experimental and

control groups in the first week of the visit to the schools. Instructional Materials Student Performance Questionnaire (IMSPQ) consists of 20 test questions which were drawn from a general concept in accordance with the secondary school curriculum. Each is followed by four multiple-choice optional answers (A-D) and students were expected to choose the correct answer. Each correct answer chosen earn one mark, zero awarded to any wrong answer chosen and overall score is then converted to percentage. The test lasted for thirty (30) minutes, the lesson commenced in all the groups in the second week of experiment which was conducted using the regular period allocated during class hours. The experiment continued for four (4) weeks followed by revision. The two schools were lessons on all of their subjects for this period of four weeks. The experimental group was taught with the researcher designed instructional materials while the control group was taught without the Instructional mateirals. In the fifth week, posttest was administered to the two schools to test the achievement of the students for both experimental and control groups. The same items contained in the pre-test were used but this time around the questions numbering were reshuffled as well as the options. Each correct answer chosen earn one mark, zero was awarded to any wrong answer chosen and the overall score is then converted to percentage. The test lasted for 30 minutes and scripts were collected immediately for scoring. In the sixth week the retention test was administered to the students and were again reshuffled before being administered.

3.10 Method of Data Analysis

The data of the Study collected was analyzed using the following statistical techniques. The Mean and Standard Deviation was used to answer research questions and while t-test is used to state the hypothesis raised in chapter one using the statistical Package for Social Sciences (SPSS) 23.00 version. The significant difference was ascertained at 0.05 alpha level.

CHAPTER FOUR

4.0 RESULT AND DISCUSSION

4.1 Result

In this chapter, data for the study were analyzed and presented based on the research questions and hypotheses that guided the study. The research questions were answered using mean and standard deviation while independent statistics was used to test the research hypotheses. All the hypotheses were tested at $P < 0.05$ level of significance.

Research Question One: What are the mean achievement scores of students taught Mathematics with instructional materials and those taught with conventional method? The answer is shown below on table 4.1

Table 4.1 Mean and Standard Deviation of Posttest Scores of Students in the Experimental and Control Group

Group	N	Pretest		Posttest	
			SD		SD
Experimental	19	8.68	2.42	13.94	2.59
Control	29	7.06	1.90	9.31	2.25

Table 4.1 indicates that students taught using instructional materials has a mean achievement score of 13.94 with a standard deviation of 2.59 at the posttest while those taught using the conventional

method had a mean achievement score of 9.31 and a standard deviation of 2.25. From the posttest mean scores, it is revealed that the students that were taught with instructional materials scored higher than those taught using traditional method. The level of significance was presented in table 4.6

Research Question 2: What are the mean retention scores of students taught with instructional materials and those taught with conventional method? The answer is revealed in Table 4.5

Table 4.2 Mean and Standard Deviation of Retention Test Scores of Students In the Experimental and Control Group

Group	N	Posttest		Retention	
			SD		SD
Experimental	19	13.94	2.59	17.21	5.02
Control	29	9.31	2.25	6.20	0.77

From Table 4.2, reveals that students taught using the instructional materials had a higher posttest score with a computed mean of 13.94 and standard deviation of 2.59 while the retention score had a mean of 17.21 and standard deviation of 5.02. The control group had a posttest mean of 9.31 and standard deviation of 2.25 while the retention mean score was 6.20 and standard deviation of 0.77. The table indicates that students taught using the Instructional materials retained higher than the students taught using conventional method. Table 4.7 reveals the significant difference in retention scores of the experimental and control group.

Research Question 3: What is the influence of gender on pupil's mean achievement scores taught using instructional materials? The answer is revealed in Table 4.4

Table 4.3 Mean and Standard Deviation of Male and Female Achievement Scores of Students in the Experimental Group

Group	N	Pretest		Posttest	
			SD		SD
Male	10	8.80	2.89	14.20	3.04
Female	9	8.55	1.94	13.66	2.12

Table 4.3 reveals the influence of gender on the mean achievement scores of students taught using instructional materials. The male students had a mean achievement score of 14.20 and a standard deviation of 3.04 at the posttest, the female students had a mean achievement score of 13.66 and a standard deviation of 2.12. This indicates that males achieved higher than their female counterparts, although the difference in the mean achievement score is shown in table 4.9.

Research Question 4: What is the influence of gender on pupil's mean retention scores taught using instructional materials? The answer is revealed in Table 4.5

Table 4.4 Mean and Standard Deviation of male and female retention scores of students in the experimental group

Group	N	Posttest		Retention	
			SD		SD
Male	10	14.20	3.04	17.50	6.81
Female	9	13.66	2.12	16.88	2.08

Table 4.4 presents the influence of gender on the mean achievement scores of students taught using instructional materials. The male students had mean retention score of 17.50 and a standard deviation of 6.81 while the females had a mean of 16.88 and a standard deviation of 2.08. This indicated that the male students retained higher than the females.

4.2 Hypothesis Testing

HO_1: There is no significant difference in the performance between students taught using instructional materials and those taught without using instructional materials

Table 4.5 T-Test for the Posttest Achievement Scores of the Experimental and Control Groups

Group	N	Df	$\bar{x}$	SD	t-value	p-value
Experimental group	19		13.94	2.59		
		46			6.56	0.00
Control group	29		9.31	2.25		

Significant at $p < 0.05$

The t-test for table 4.5 shows the mean achievement scores of students taught using instructional materials and those taught using convention method. There was a significant difference between the mean achievement scores of students taught using instructional materials and those taught using conventional teaching methods as determined by the t-test analysis with a t-value at 6.56 and a p-value of $0.00 < 0.05$ students taught using instructional materials (M=13.94, S. D=2.59) scoring higher than students taught using the conventional method (M=9.31, SD=2.25). Therefore, the null hypothesis was rejected which implies that there was a significant difference between the mean

achievement scores of students taught using instructional materials and those taught using conventional teaching methods.

Hypothesis 2: There is no significance in the retention score of students taught with Instructional materials and those taught without using instructional materials

Table 4.6 T-Test for the Posttest Retention Scores of the Experimental and Control Groups

Group	N	Df	$\bar{x}$	SD	t-value	p-value
Experimental group	19		17.21	5.02		
		46			11.64	0.00
Control group	29		6.20	0.77		

Significant at $p < 0.05$ level

The t-test for table 4.6 shows the mean retention scores of students taught using the Instructional materials and those taught using convention method. There was a significant difference between the mean retention scores of students taught using Instructional materials and those taught using conventional teaching methods as determined by the t-test analysis with a t-value at 11.64 and a p-value of $0.00 < 0.05$ students taught using instructional materials (M=17.21, S. D=5.02) scoring higher than students taught using the conventional method (M=6.20, SD=0.77). Therefore, the null hypothesis was rejected which implies a significant difference between the mean retention scores of students taught using Instructional materials and those taught using conventional teaching methods.

Hypothesis 3: There is no significance difference between male and female student performance score taught with using instructional materials

Table 4.7 T-Test Analysis of Male and Female Students Taught Using Instructional materials

Gender	N	Df	$\bar{x}$	SD	t-value	p-value	Decision
Male	10	17	14.20	3.04	0.43	0.66	NS
Female	9		13.66	2.12			

NS= Not Significant at $p > 0.05$ level

The t-test for table 4.7 shows the mean achievement scores of male and female students taught using the instructional materials. There was no significant difference between the mean achievement scores of male and female students taught using instructional materials as determined by the t-test analysis with a t-value at 0.43 and a p-value of $0.66 > 0.05$. Male students (M=14.20, S.D=3.04) while the female students (M=13.66, SD=2.12). Therefore, the null hypothesis was accepted which implies that there was no significant difference between the mean achievement scores of male and female students taught using instructional materials.

Hypothesis 4: There is no significance between male and female student retention score taught using instructional materials

Table 4.8 Retention T-Test Analysis of Male and Female Students Taught Using Instructional materials

Group	N	Df	$\bar{x}$	SD	t-value	p-value	Decision
Male	10	17	17.50	6.81	0.25	0.80	NS
Female	9		16.88	2.08			

NS= Not Significant at p > 0.05 level

The t-test for table 4.8 shows the mean retention scores of male and female students taught using the Instructional materials. There was no significant difference between the mean retention scores of male and female students taught using instructional materials as determined by the t-test analysis with a t-value at 0.25 and a p-value of 0.80 > 0.05. Male students (M=17.50, S.D=6.81) while the female students (M=16.88, SD=2.08). Therefore, the null hypothesis was accepted indicating that there was no significant difference between the mean retention scores of male and female students taught using instructional materials.

4.5 Discussion of Findings

The data analyzed in this chapter were interpreted and discussed on the results derived from four research questions and hypotheses. The main objective of the research is to determine the effect of Instructional materials on student's achievement and retention. The posttest scores in table 4.1 shows that the experimental group (M=13.94, S.D=2.59) had a higher achievement scores than the control group (M=9.31, S.D=2.25). Similarly, the p-value associated with the calculated value of

t-value (7.81) in table 4.5 is 0.00 which is less than the level of significance, the null hypothesis was therefore rejected. Hence, there is significant difference in the mean achievement scores of students taught with the use of instructional materials. The use of instructional materials therefore has a significant effect on student's achievement in as compared to conventional teaching method. This was in line with the findings of Cifci (2016) and Arwele (2017) who revealed that instructional materials had a significant impact on student's achievement. The finding was contrary to the findings of Gambari et al. who revealed that there was no significant effect on students taught using instructional materials and those taught with lecture method.

The experimental retention group scores at the posttest level in table 4.2 shows that the experimental group (M=17.21, S.D=5.02) had a higher achievement scores than the control group (M=6.20, S.D=0.77). Similarly, the p-value associated with the calculated value of t.val (11.64) in table 4.6 is 0.00 which is less than the level of significance, the null hypothesis was therefore rejected. Hence, there is significant difference in the mean retention scores of students taught with the use of instructional materials. The use of instructional materials therefore has a significant effect on student's retention as compared to conventional teaching method. This was in line with the findings of Ozdal and Ozdamli (2017); Gallagher (2017) who revealed that instructional materials had a significant impact on students retention.

The male students at posttest level (M=14.20, S.D=3.04) achieved higher than the female students (M=13.66, S.D=2.12). Although, the p-value revealed there was no significant difference (p=0.66), in table 4.7 the p-value was greater than the 0.05 level of significance hence, the null hypothesis was accepted. This indicated that there is no significant difference in the mean achievement scores of male and female students. This was in line with the findings of Gambari et al. (2018) who revealed that there was no significant difference in the achievement scores of male and female

students. The finding was contrary to the findings of Hope and Cheta who revealed that there was a significant difference in the achievement score of male and female students, as the results revealed that the males performed higher than their female counterparts.

The mean retention score of male students exposed to the instructional materials (M=17.50, S.D=6.81) while the mean scores of female students (M=16.88, SD=2.08). Similarly, the value associated with the value of t (t.val=0.25, df=, p>0.80). In table 4.8, the p-value is greater than the level of significance (0.05), hence the null hypothesis was accepted. This indicates that there is no significant difference in the mean retention score between male and female students taught using Instructional materials. This was in line with the findings of Enohuean (2015) who revealed that there was significant difference in the mean retention score between male and female students taught using instructional materials.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The research determines the impact of instructional materials on student's academic achievement and retention among secondary school students in Minna. This chapter contains the summary, conclusion, recommendation, major findings of the study, contribution to knowledge, implications of the findings and suggestions for further studies.

5.2 Conclusion

Based on the findings and discussion of the study, the following conclusion were drawn; The effective and adequate use of instructional materials improves the academic achievement and retention in students. The evidence of the experimental group that use the instructional materials in teaching enhances student's achievement more than the convention method. The use of Instructional materials has a great significant effect on student's retention level and also on gender achievement. Emphasis should be laid on the use of instructional materials for teaching in secondary schools.

5.3 Recommendation

Based on the conclusion drawn from the study, the following recommendations is made:

- Schools should prioritize the use of instructional materials in their teaching methods: The study shows that the use of instructional materials has a significant impact on academic

achievement and retention in students. Therefore, schools should invest in instructional materials and encourage their teachers to incorporate them in their teaching methods.

- Teacher training: Teachers should be trained on how to effectively use instructional materials in their teaching. This will help them to use the materials in a way that is most beneficial to their students, and to create a more engaging and interactive classroom environment.
- Regular assessment of the use of instructional materials: Schools should conduct regular assessments of the effectiveness of instructional materials in improving academic achievement and retention in students. This will help to identify areas that need improvement and to make necessary adjustments.
- Collaboration between teachers: Teachers should collaborate with one another to share ideas and resources for using instructional materials in the classroom. This will help to promote a more cohesive and effective teaching environment.
- Ongoing research: Further research should be conducted to explore the best practices for using instructional materials in teaching, and to continue to build on the findings of this study.

5.4 Major Findings of the Study

- The effective and adequate use of instructional materials improves academic achievement and retention in students.
- The experimental group that used instructional materials in teaching achieved better academic performance compared to the control group that used conventional methods.
- The use of instructional materials has a significant effect on students' retention level and gender achievement.

- Emphasis should be laid on the use of instructional materials for teaching in secondary schools.

5.5 Contribution to Knowledge

The study's findings and conclusions make important contributions to knowledge in the following ways:

- The study provides evidence that instructional materials, when effectively and adequately used, can significantly improve students' academic achievement and retention.
- The study highlights the importance of incorporating instructional materials into teaching methods, and provides insight into how such materials can be used to create a more engaging and interactive classroom environment.
- The study shows that the use of instructional materials has a significant impact on gender achievement, which can inform efforts to promote gender equality in education.
- The study adds to the body of research on teaching and learning in secondary schools, and provides insights into how instructional materials can be used to enhance teaching effectiveness and student learning outcomes.

5.6 Implications of the Findings

The findings of the study have several important implications for educators, policymakers, and other stakeholders in education, including:

- Instructional materials should be prioritized in teaching methods: Based on the findings of the study, instructional materials should be given more attention and resources in schools to enhance teaching effectiveness and student learning outcomes.
- Teachers should be trained on how to effectively use instructional materials: Teachers should be equipped with the knowledge and skills to effectively integrate instructional materials into their teaching methods to create a more engaging and interactive classroom environment.
- Assessment of the effectiveness of instructional materials should be conducted regularly: Schools should conduct regular assessments of the effectiveness of instructional materials in improving academic achievement and retention in students.
- Gender equality in education should be promoted: The study shows that instructional materials have a significant impact on gender achievement. Therefore, efforts should be made to ensure that instructional materials are gender-sensitive and promote gender equality in education.
- Further research on instructional materials should be conducted: The study provides a foundation for future research on the role of instructional materials in teaching and learning, and further research can help to build on these findings and inform education policy and practice.

5.7 Suggestions for Further Research

Areas where further research could be done are as follows;

1. The factors that foster the use of Instructional materials
2. Effect of instructional materials in teaching and its achievement, retention and interest on student's performance in other subjects

3. Further research should not be limited to a specific area, it should cover a wider geographic area

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Appendix

Questionnaire for Teachers on the assessment of the improved instructional materials

This questionnaire is addressed to teachers of students, who are asked to supply information about their academic and professional backgrounds, classroom resources, and the improved instructional materials and activities used to teach reading and promote the development of students' reading skills and performance.

1. School name.....
2. Ward.....
3. Village.....

Biodata

Put a tick in the appripiate box

4. Sex of the respondent 1.Male □, 2.Female□
5. Age of the respondent 1.18-30years( ) 2.Between 30-45years( )

3.Above 45years( )

6. Level of teacher professional 1. Diploma Holder( ) 2.DegreeHolder 3.Masterholder( )holder

7. Teaching Experiences 1.Below 10years( ) 2.Between 10-20years Above 20years( )

Importance of approved instructional resources in students' learning

8. How important are the following approved instructional resources in students' learning in your school?

Approved instructional resource	**Very importnt**	**Important**	**Not important**	**Never important**
Textbooks				
Worksheets				
Computer software for reading instruction (e.g.,CD, DVD)				
Reading material on the Internet (Webpages)				
Instructions or manuals about how things work				
Charts, diagrams, graphs, Posters				

Accesibility of Improved instructional materials

9. What type of improved instructional materials you often use?
   1. Commercial based ☐ 2.Locally made ☐

10. What Challenges do you get in accessing;

   (a) Commercial based material

1.....

2.....

   (b) Locally made material

1.....

2.....

Strategies to minimize the challenges of attaining quality improved instructional materials

11. Do you have internet access in school1. ☐ 2.**No** ☐

12. If Yes how do you use internet for the following activities?

Activity	**Very often**	**Often**	**Never**
Look up information on the Internet			
Use approved instructiona lsoftware to develop reading skills			
Use the computer towrite stories or other texts			

13. Do you have a school library 1.**Yes** ☐ 2.**No** ☐

14. If Yes, about how many books with different titles that fits your subject are in the library?

_____ different tittles of books

Write in a number.

15. How often do you give the students in your class time to use the school library?

1. Everyday or almost everyday ☐
2. Once or twice a week ☐
3. Once or twice a month ☐
4. Never or almost never ☐

16. How much emphasis do you place on the following sources to monitor students' performance?

Sources	**Major emphasis**	**Some Emphasis**	**Little emphasis**
Diagnostic reading tests (including miscue analysis)			
Classroom test (for example, teacher-made or textbook tests)			
National or regional achievement tests			

17. How much do you agree with the following statements? (circle where appropriate)

1. I am satisfied with the availability of approved instructional resources **1.Agree a lot 2.Agree 3.Disagree**
2. I am satisfied with how approved instructional resources are used **1.Agree a lot 2.Agree 3.Disagree**
3. I am convinced that proper use of approved instructional resources rise performance **1.Agree a lot 2.Agree 3.Disagree**