

**ASSESSMENT OF EDUCATIONAL FACILITIES MAINTENANCE ON STUDENTS'  
ACADEMIC PERFORMANCE IN PUBLIC SECONDARY SCHOOLS  
IN KADUNA STATE, NIGERIA**

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ZARIA**

**MARCH, 2021**

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**A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES,  
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**DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND CURRICULUM,  
FACULTY OF EDUCATION,  
AHMADU BELLO UNIVERSITY,  
ZARIA-NIGERIA**

**MARCH, 2021**

## **DECLARATION**

I hereby declare that the dissertation entitled “Assessment of Educational Facilities Maintenance on Students’ Academic Performance in Public Secondary Schools in Kaduna State, Nigeria” has been written by me and it is a record of my own research work. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this project was previously presented or submitted anywhere either in part or whole for a Higher Degree.

Akomodi, Oyiza

\_\_\_\_\_

Signature

\_\_\_\_\_

Date



## **DEDICATION**

This research work is dedicated to my beloved husband Paulinus J. Unung, my son Fortress-Ithamar Paul Unung.

## ACKNOWLEDGEMENTS

My greatest appreciation goes to my God Almighty for granting me the special grace, opportunity and privilege to carry out this research work and makes all things possible from its beginning to this point.

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## OPERATIONAL DEFINITION OF TERMS

The following terms were defined within the context of the study in which they are used.

**Academic Performance:** This refers to the measure of what a learner has comprehended over a period of time during the teaching-learning process.

**Facilities Maintenance:** This refers to constant structures, facilities and equipment check, with the view to understanding their worthiness, services, and or replacement where necessary

**Educational Facilities:** Refer to all the physical properties of a school, consisting of the grounds, buildings, and the various facilities within the school grounds and inside the school buildings.

**Classroom:** This is a place where teaching, learning, acquisition of skills, as well as socialization is imbibed.

**Library:** This is created and maintained to serve and support the educational activities of the school.

**Laboratory:** This refers to an essential part of a school. This is the place where experiments are performed and hypotheses are tested and verified

**Infrastructural Facilities** These refers to the school plant, that is, the school buildings, classrooms, library, laboratories, toilet facilities, recreational, offices and other materials and infrastructures that would likely motivate students towards learning.

**Recreational facilities:** These are sport or game facilities that can bring about sufficient motivation, like ball, net, hockey stick and many more.

**Instructional Facilities** These are educational facilities used to improve students' knowledge, abilities, skills, to monitor their assimilation of information, and to contribute to their overall development and upbringing such as audio-visual, projector, micro films etc.

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## **ABBREVIATIONS**

ICT	-	Information Communication Technology
IFLA	-	The International Federation of Library Association
NPE	-	National Policy on Education
MDGS	-	Millennium Development Goals
MOE	-	Ministry of Education
AFFMSAPQ	-	Assessment of Educational Facilities Maintenance for Students Academic performance Questionnaire
SSCE	-	Senior Secondary Certificate Examination
WAEC	-	The West African Examination Council
NEIMS	-	National Education Infrastructure Management System



## ABSTRACT

*The main objective of this study is to investigate the Assessment of educational facilities maintenance on students' academic performance in public secondary schools in Kaduna state. To achieve the aim of this research, six objectives were formulated which include: the assessment of classroom facilities maintenance; assessment of library facilities maintenance; assessment of laboratory facilities maintenance; assessment of infrastructural facilities maintenance; assessment of recreational facilities maintenance and assessment of instructional facilities maintenance on students' academic performance, in-line with the objectives six research questions and six hypotheses were raised. Descriptive survey design was employed for this research. A self-structured design questionnaire was used for collection of data. The population of this study are principal (215), teachers 5305, and Ministry of Education Officials (MOE) (96). The sample size includes principals (65), Teachers (1592) and MOE officials (29), total of 1686 respondents were sampled for the study out of which 1660 responded to this study. Stratified sampling technique was adopted for the selection of sample size. The results of findings showed among others that there is no significant difference in the opinions of principals, teachers and MOE officials on the assessment of classroom facilities maintenance on students' academic performance. The study concludes and recommends that class room facilities such as projectors and smart screens should be well maintained for teaching purposes. and other facilities such as waste bins and rules or consequences should be posted in each class and be maintain in public secondary schools for student's academic performance. The school's management should maintain the available instructional facilities like cameras and micro-films.*

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

Schools exist for the purpose of teaching and learning. Human and material resources are deployed for this purpose. School facilities are the material resources provided for staff and students to optimize their productivity in the teaching and learning process. The realization that the transfer of knowledge does not only take place in the four walls of the classroom from the teacher to the students but rather that learning takes place through discovery, exploration, interaction with the internal and external environment has necessitated the creative and innovative development of teaching and learning facilities that reflect these changes.(Asiabaka, 2008) Schools exist to serve socio-economic and political needs of the ever-changing society, consequently, they are in constant interaction with their external environment. They receive inputs from the external environment in the form of human and material resources, processes them and empty same into the society as finished products and services.

Facilities maintenance is a collective responsibility of the Federal, State, Local Government Authorities, Staff and Students of the individual schools and the community where the school is located. The Federal Government through the Federal Ministry of Education provides the policies that guide the educational system and also oversees the implementation of these policies at the State level. On the other hand the State Government ensures the actual implementation of the National Policy on Education by providing the enabling environment for effective teaching and learning. Multipurpose facilities used for academic activities during school hours, may be available for community use during or after school hours. Such facilities may be used for continuing education programmes, social activities and recreation. Through appropriate

scheduling multipurpose facilities may be accessible to the community during school hours. This will eliminate the burden of duplication of such facilities as conference halls, gymnasium, library, theatre and sporting facilities. Such integrated effort is cost effective and brings the community closer to the school. Some buildings are over fifty years and therefore require modern facilities for teaching and learning. Renovation and modernization of old and dilapidated buildings should be carried out to ensure that facilities for team planning areas, office space, clerical space, workrooms, professional development libraries, faculty dining area, storage space, students conference areas, guidance services area for large group instruction, spaces for instructional media, library resource centers, science facilities, arts and music studios, individual study area and physical education facilities. Equipment and supplies are essential for the attainment of educational goals objectives and stimulates academic performance.

Facilities have a great impact on academic performances of students, and inadequate facilities translate to poor academic performance of students. According to(Oluremi & Olubukola, 2013)school facilities are buildings and grounds, parking lots, playing fields, sick bay and fixed equipment. It is the board's desire that the local taxpayers who provide the school should be able to obtain maximum use of the facilities, to the extent consistent with the primary educational function of the school. While school maintenance According to American Association of school Administration in(Jumare, 2016) is the process and activity that involves keeping ground (spaces)buildings and equipment's at their original conditions of completeness of efficiency, either through repairs or by replacement. Thus, maintenance in the school is making sure that all within the school system facilities, structure and equipment are given required attention through proper utilization and services for maximum benefit derivation, with respect to students, school facilities affect health, behavior, engagement, learning, and

growth in performance. Thus, researchers generally conclude that without adequate facilities and resources, it is extremely difficult to serve large numbers of children with complex needs. According to (Jumare,2016) school facilities maintenance could also be defined as constant structures, facilities and equipment check, with the view to understanding their worthiness, services, and or replacement where necessary. According to (Salisu., 2015).they define academic performance as the display of knowledge attained or skills developed in school subject designed by test and examination scored or marks assigned by the subject teacher Education is very important in any given society. It is a process by which abilities and capabilities of individual are developed. These abilities might be physical abilities, emotional abilities, social abilities and intellectual abilities. It is the actualizing of human potential so that the individual can become something more than what he was before. According to (Ugwuanyi, 2003) Education is the process by which society establishes to assist the young to learn and understand the heritage of the past, participate productively in the society and contribute meaningfully for the development of the society.

It is widely accepted that the process of education begins at birth and continues throughout life. Some believe that education begins even earlier than this, as evidenced by some parents' playing music or reading to the baby in the hope it will influence the child's development. Education is often used to refer to formal education. However, it covers a range of experiences, from formal learning to the building of understanding and knowledge through day to day experiences. Ultimately, all that we experience serves as a form of education. Individuals receive informal education from a variety of sources. Family members, peers, books and mass media have a strong impact on the informal education of the individual. Education can therefore be regarded as a social process whose purpose is to bring about certain desirable behavioral change

in the total development of the individual, in the whole world education has been given more regard while in Nigeria particularly education has been seen as the main vehicle for rapid development.

Furthermore, with the arrival of western education, the uses of facilities became in vogue. classrooms which came in small rooms now in form of schools which comprises of administrative blocks, offices with such facilities as chairs, tables, chalk and chalkboards. Textbooks were also provided to aid teaching, this ease the way knowledge was formally imparted to the students to prove for old stations system.

The no child left behind act 2001 is the latest federal approach in the improvement and closing of gaps in student academic performance. Traditionally, high schools have received much of the attention in the discussion of school reform. The assessment of the physical environment on education is not ignored in current research. The surroundings in which people function can greatly impact moods, satisfaction and self-worth. Facility appraisal should be one of the many roles assumed by educational leaders.

Classrooms are very vital in schools, the classrooms are constructed to suit the purpose of learning and also considering climate of the people. Much importance should be attached to facilities maintenance to enable successful achievement of educational programmes. This in short shows the importance of the provision of efficient and effective facilities to help enhance a smooth and conducive teaching and learning process to enable the production of effective manpower for the Nation. An aspect of school management that is generally overlooked is facilities maintenance. When new buildings are constructed and taken over by the appropriate authorities, practically no attention is paid to the maintenance of such buildings. Several school buildings that are over fifty years old have never undergo renovation or any form of

modernization in spite of the changes in the educational system. Facility maintenance is an issue that concerns all levels of the educational system ranging from the prekindergarten to the tertiary levels. Some of these facilities are architecturally obsolete and therefore cannot contribute to functional education. Maintaining the new buildings, renovating and modernizing the old ones require considerable expertise and commitment of human and material resources. Changes in weather conditions and lack of maintenance culture are responsible for the aging and deterioration of school buildings, grounds and equipment. School managers and teachers who constantly use school facilities lack knowledge of facilities maintenance planning. Consequently, they fail to integrate facility maintenance into the management of the school. The issue of facility maintenance is haphazardly addressed at all levels of the educational system. Repairs take place only when problems arise due to break down of the existing facility.

Certain types of maintenance should be adopted in the facility maintenance plan. These are preventive, routine, emergency repairs, and predictive maintenance. The school facilities consist of all types of buildings for academic and non-academic activities, equipment for academic and non-academic activities, areas for sports and games, landscape, farms and gardens including trees, roads and paths. Others include furniture and toilet facilities, lighting, acoustics, storage facilities and parking lot, security, transportation, Information Communication Technology (ICT), cleaning materials, food services, and special facilities for the physically challenged persons. (Asiabaka, 2008) These facilities play pivotal role in the actualization of the educational goals and objectives by satisfying the physical and emotional needs of students. Students' physical needs are met through provision of safe structure, adequate sanitary facilities, a balanced visual environment, appropriate thermal environment, and sufficient shelter space for his work and play. His emotional needs are met by creating pleasant surroundings, a friendly

atmosphere, and an inspiring environment. The educational system has undergone tremendous changes in the form of its philosophy, broadened goals and objectives, new approaches to service delivery and architectural design, quantum leap in school enrolment, multiplicity of curricula programmes and extra-curricular activities, introduction of information and communication technology (ICT) and expanded academic support services such as guidance services to students, teachers and the community, integration of the school and community(Asiabaka, 2008). The resultant effect of all these changes is the need for creative and innovative steps in the maintenance of school facilities. For example, research findings have shown that students learn better when a combination of methods and materials are employed during teaching.

Furthermore, emphasis has shifted towards giving individual attention to students as against teaching large classes which presupposes that all students in a class have the ability to learn at the same pace. The implication of the foregoing is that in designing school plant, maintenance should be made for individual, small group interaction and for large groups, for academic and social activities. (Fenker, 2004)observed that facility management is a process that ensures that buildings and other technical systems support the operations of an organization such as the school. School facilities are the material resources that are provided for staff and students to optimize their productivity in the teaching and learning processes.

## **1.2 Statement of theProblem**

Facilities maintenance will surely affect the smooth teaching and learning process in all schools. Thereare some problems encountered in schools as a result of inadequate facilities maintenance. It is known that the academic performance of each student depends to a large extent on the facilities exposed to while learning butwhen these facilities are not maintained some problems are faced.

The first noted, peculiar problem would be generated when there is no inclusive teaching and learning conduciveness. The un-conduciveness could be as a result of facilities not maintenance like tables, chair and chalkboard in the classroom, this can affect student's concentration. Students cannot be expected to achieve any of the objectives at the end of the lesson. The Students would be easily distracted among themselves and the class which is supposed to be actively involved in the learning process turns out to be appealing and there is enough discomfort for the day, this will discourage the interest of the students for the whole days' work.

Since the interest of the students are very low, they are going to also have a low level of understanding, knowledge to be imparted to the students would not be fully understood. There may also be limitation in understanding. Laboratories are not maintained in many schools and in some schools where they can be found reagents and equipment are not maintained, more so the maintenance of these facilities are poor. For instance, students in science class who always learn abstract concepts, that is without practical knowledge, of what the teacher is saying cannot have effective learning and this will automatically affect their academic performance. This non maintenance of laboratories has resulted to low interest in science-oriented subjects today, these have hindered students' performance academically and this has resulted in their low interest in most of the subjects offered in their various level in secondary schools in Kaduna State.

It is also observed that the students supply their acquired knowledge ineffectively since they have not been taught with the practical aspects but rather expressed to only theoretical aspects of their field of specialization, if they have been opportune to make use of facilities in different aspects, they would have been effectively appropriate. Insufficient funds have hindered the maintenance of infrastructural facilities, laboratory equipment, computers, power plants,



audio-visual aids and stationeries among other facilities that enhances the operation of the school. Lack of maintenance for these facilities frustrates school programmes and ultimately aborts educational goals and objectives.

Aliyu., (2018). opined that the financing of education is a collective responsibility of all stakeholders. The school principal is expected to complement government's effort by diversifying their income basis and utilizing the available funds judiciously for the attainment of educational goals, this will in a way help the school principal to maintain the existing educational facilities. The problem of maintenance of educational facilities in secondary schools in Kaduna State do not exclusively rest on funding as often depicted, rather the problems are most likely made complex due to poor maintenance of the existing facilities. Some of the principals are accused of lacking the necessary training required of facility managers while others are accused of imposing illegal levies on the students to fix the existing facilities, neglecting budgetary plans, delaying disbursement of funds for fraudulent purposes. This situation apparently creates a turbulent atmosphere for the success of teaching-learning process. The present state of some Secondary Schools in Kaduna State is quite deplorable, most books in the library are obsolete, they are outdated equipment's in the laboratories and school buildings are yearning for renovation. In view of these numerous problems the researcher intends to investigate on the assessment of school facilities maintenance on students' academic performance.

### **1.3 Objectives of the Study**

The main objective of this study is to investigate the Assessment of Educational Facilities Maintenance on Students' Academic Performance in Public Secondary Schools in Kaduna State. The specific objectives are to:

- 1) Find out the assessment of classroom facilities maintenance on students' academic performance in public secondary schools in Kaduna state;
- 2) examine the assessment of library facilities maintenance on students' academic performance in public secondary schools in Kaduna state;
- 3) find out the assessment of laboratory facilities maintenance on students' academic performance in public secondary schools in Kaduna state;
- 4) determine the assessment of infrastructural facilities maintenance on students' academic performance in public secondary schools in Kaduna state;
- 5) assess recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state; and
- 6) assess instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state.

#### **1.4 Research Questions**

The following research questions were formulated:

- 1) What is the assessment of classroom facilities maintenance on students' academic performance in public secondary schools in Kaduna state?
- 2) What is the assessment of library facilities maintenance on students' academic performance in public secondary schools in Kaduna state?
- 3) How does laboratory facilities maintenance impact students' academic performance in public secondary schools in Kaduna state?
- 4) What is the assessment of infrastructural facilities maintenance on students' academic performance in public secondary schools in Kaduna state?

- 5) How does recreational facilities maintenance impact on students' academic performance in public secondary schools in Kaduna state?
- 6) What is the impact of instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state?

### **1.5 Hypotheses**

The following hypotheses are postulated:

- 1 There is no significant difference in the opinions of principals, teachers and ministry supervisors on the assessment of classroom facilities maintenance on students' academic performance in public secondary schools in Kaduna state;
- 2 There is no significant difference in the opinions of the respondent on the assessment of library facilities maintenance on students' academic performance in public secondary schools in Kaduna state;
- 3 There is no significant difference in the opinions of the respondent on the assessment of laboratory facilities maintenance on students' academic performance in public secondary schools in Kaduna state;
- 4 There is no significant difference in the opinions of the respondent on the assessment of infrastructural facilities maintenance on students' academic performance in public secondary schools in Kaduna state;
- 5 There is no significant difference in the opinions of the respondent on the assessment of recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state; and

- 6 There is no significant difference in the opinions of the respondent on the assessment of instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state.

## **1.6 Basic Assumptions**

The study assumed that:

Adequate classroom facilities maintenance improves the academic performance of publicsecondary school students; in Kaduna State;

Library facilities maintenance will attract Students quality academic performance in public secondary schools in Kaduna State;

Laboratory facilitiesmaintenance improves effective teaching and learning performance of students in public secondary school in Kaduna State;

If the Federal government,State government and Local government supports the maintenance of infrastructural facilities in public secondary schools, students' academic performance will be encouraged and improved.

Adequate provision of recreational facilities maintenance will enhance and improved public secondary school students' academic performance in Kaduna State.

Sufficient supply of instructional facilities maintenance will encourage and improved public secondary school students' academic performance in Kaduna State.

## **1.7 Significance of the study**

This study is useful to educational policy makers, students, school, parents, community, School Administrators, Curriculum Developers, Publishers/Authors,Academia/Researchers and Teachers realize what problems students are subjected to since there is rapid desire for education due to Population increase in Nigeria, which have to be met with adequately.

The study is meant to identify the significant and how much impact it has on the academic performance of the students in public secondary schools in Kaduna state, since these

facilities exist to facilitate and stimulate the instructional program of the school system they should be provided and maintained.

The significance of the facilities maintenance to the students cannot be over emphasized. The students' academic performance will naturally increase because the facilities to aid teaching and learning are available and in good conditions. The interest to learn will increase; bringing about an achieve success in academic performance. The maintenance of these educational facilities should be encouraged.

The school on the other hand have great benefit from the maintenance of the school facilities when they are actually maintained. The number of student enrollment will be increased because of the good academic performance and also the awareness created to the students, this will encourage them to talk to other students to come to their school for the facilities are available, good, and well maintained. The students will have better grades in their test and examinations. Therefore, improving the school reports positively. Especially with national examinations.

Individual parents are excited when their children's academic performance improved. The parent become proud of the quality of school that the government provides for their wards.

Community development has always been a primary desire to the government. The public secondary schools with educational facilities such as social and recreational facilities, conference halls, library and others are always useful to the community. According to Ntukidem & Ntukidem,(2011), the school principals with his teachers must also decide whether school facilities should be available for public (community) use if there are no government directive against it. The use of this facilities by the community will contribute immensely to the promotion

of cordial relationships between the school and the community. The community can use the following facilities in several ways:

1. For conferences and exhibitions.
2. Opening the school library to the public
3. Where social and recreational facilities are lacking in the community, the school can fill in the gap by admitting members of the public to football matches, sports festivals, film shows, concerts and prize days.

### **1.8 Scope of the Study**

The study is limited to the Assessment of School Facilities Maintenance on Student Academic Performance in Public Secondary Schools in Kaduna State. The study is confined to public secondary schools in Kaduna state. The researcher is considering secondary schools, both day and boarding, mixed and single sexed, in order to know the impact of educational facilities maintenance on Students' academic performance of public secondary school students in Kaduna state.

This study covers the 12 (twelve) educational zones in Kaduna State the researcher hopefully sampled out some public secondary schools in Kaduna State and their opinion to determine the assessment of educational facilities maintenance on students' academic performance in public secondary schools in Kaduna state.

The scope is delimited to secondary schools' teachers, students and also MOE Officials. The study focuses on the below mentioned educational facilities:

Classroom facilities

Library facilities

Laboratory facilities

Infrastructural facilities

Recreational facilities and Instructional facilities

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.1 Introduction**

The conceptual framework of this study can be expatiated under the following headings: the concept of educational facilities, concept of maintenance, concept of academic performance, Classroom facilities, Library facilities, Laboratory facilities, Infrastructural facilities. Recreational facilities and Instructional facilities, assessment of classroom facilities maintenance in public secondary school, assessment of library facilities maintenance in public secondary school, assessment of laboratory facilities maintenance in public secondary school, assessment of infrastructural facilities maintenance in public secondary school, assessment of recreational facilities maintenance in public secondary school, assessment of instructional facilities maintenance in public secondary school, Empirical study and Summary.

#### **2.2 Conceptual Framework**

The conceptual framework of this study is composed of the following elements: concept of educational facilities, concept of maintenance, concept of academic performance,

##### **2.2.1 Concept of Educational Facilities**

Educational Facilities are valuable assets of the school that have to be given priority attention in terms of its establishment, procurement, development, improvement, maintenance, records keeping and accountabilities. These consist of sites, buildings and various educational facilities which are the major support system of the school to enhance the learning capabilities of



the students for the maximum development of their potentials, skills, talents and to become God-loving, law-abiding, value-laden and responsible citizens of this country.

The term “educational facilities” refers to all the physical properties of a school, consisting of the grounds, buildings, and the various facilities within the school grounds and inside the school buildings. Also known as the school plant or the physical facilities of a school; thus, the terms educational school facilities, school plant, and physical facilities may be used interchangeably. Educational facilities are the facilities provided to students so that they can use every opportunity to develop full potentials. educational facilities are building, fixtures and equipment’s necessary for the effective and efficient operation of the program of public education, classroom, libraries, rooms and spaces for physical education, spaces for fine art, restroom, specialized laboratories, cafeterias, media centers, building equipment, building fixtures, furnishings, related exterior facilities, landscaping and paving, and similar items which the State Board of Education may determine necessary. According to (Jumare, 2016) school facilities maintenance could also be defined as constant structures, facilities and equipment check, with the view to understanding their worthiness, services, and or replacement.

School facilities are the corner stone of educational system. They are essential ingredients in the effort to realize effective teaching and learning outcome. Ayodele ( 2004) have pointed out that the availability of adequate chairs , desks and other facilities are necessary for the accomplishment of any educational goals and objectives , they reveal the effective management of school facilities bringing about the development of educational programmes and facilitate educational process it also results in the boosting of the Morales of teachers and enhances the usefulness in the determination of teachers and students and enhances the usefulness in the determination of the worth of a school.



### 2.2.2 Concept of Maintenance

According to American Association of School administratorsin (Jumare, 2016) “maintenance involves those activities which are concerned with keeping grounds, buildings and equipment at their original condition of completeness of efficiency, either through repairs or by replacements.” it involves repairs and replacements in order to ensure that the physical plant, equipment, grounds, and service facilities are continuously useable. The essence of facility maintenance is to keep the plant functioning uninterruptedly in as near its original condition as possible. The use of good quality building materials and competent workmanship during the construction stage most often attracts low maintenance costs. Usman,(2016) Opined that maintenance of school facilities facilitates the delivery of effective and responsive services by school staff to students, community members and other people and agencies. Also among the purposes of school facility maintenance is to enhance the school’s culture and image. According to business dictionary, maintenance is an action necessary to retaining or restoring a piece of equipment, machine, or system to a specified operable condition to achieve its maximum useful life.

Renovation and modernization of old and dilapidated facilities must be carried out regularly to ensure that teachers and students are not depressed. Facilities decay and unavailability of facilities in the classroom is a disease that must be avoided. Available facilities in most classrooms are obsolete in terms of quality and quantity. These have relevance to varying number of student population which is invariably on the increase. Therefore collaborative efforts are needed to bring into facilities management new ideas and perspectives. Classroom managers in collaboration with school managers should emphasize that positive steps should be taken to save the situation when physical facilities available for academic and nonacademic activities are

grossly inadequate. Approaches to facilities management in the classroom is incomplete without facilities maintenance which involves renovation and modernization of old structures and materials. Human resources which include teaching and non-teaching staff also need maintenance to keep them functioning effectively. Facility maintenance plan should take the following approaches.

1. Preventive maintenance
2. Routine maintenance
3. Emergency repairs and
4. Predictive maintenance.

1 *Preventive Maintenance:* is carried out to avoid breakdown and ensure optimal performance of the facility.

2 *Routine Maintenance:* is carried out periodically monthly, quarterly or even annually depending on the agreed schedule by the class/school manager, follow manufacturers guide to avoid breakdown.

3 *Emergency Repairs:* it takes place when a facility breaks down and urgent measures or steps had to be taken to remedy the situation. This normally occurs where people lack maintenance culture. It does require collective decision making because of limited time. It is expensive because the extent of damage may demand total replacement or high cost of repair.

4 *Predictive Maintenance:* Here computer software is used to predict equipment failure. This is based on age, user demand and performance measures.

### 2.2.3 Concept of Academic Performance

Academic performance is the ability in academic works, it may be either excellent or poor performance. The school as an institution of learning which also act as a second home for learners has been found to have a strong relationship with students' academic performance.

Academic performance according to the Cambridge University Reporter in (Andic, Kadic, Grujicic, & Malidžan, 2018) is frequently defined in terms of examination performance. It can be seen as how one performs in school or the level of attainment in an examination. Hence, the success of an individual in school is generally determined by his academic performance in all the subjects taken. Andic, Kadic, Grujicic, & Malidžan, (2018) opined that academic performance refers to the quantity and quality of knowledge, skills, techniques, positive attitudes, behavior and philosophy that learners achieve or acquire.

According to Usaini, M. I., Abubakar, N. B., & Bichi, A. A. (2015).the quality of the student's performance depends on the quality of the school in terms of availability of required and adequate infrastructural facilities in such a school. Schools with well-equipped facilities and well experienced personnel tend to produce brilliant students who show the ways for others students and lead them in various stages in Life. It could therefore be said that the performance of the students depends on the school facilities, which in returns determine their future lives. Parents and guardians should be encouraged to send their wards to schools with well-equipped facilities because it will result in better future for their children. This fact has been proven to be true as the performance of some students from well-equipped facilities schools differs from other students who are in school with less equipped facilities. Availability of required learning facilities in schools enhances students' academic performance.

When learning materials are provided, learning activities proceed at a very fast speed. In a situation where the learning environment is not conducive, academic activities proceed at a low

rate which then result in poor academic performance of students in promotional and certificate examinations. According to Salisu.,(2015).they opined that academic performance is the display of knowledge attained or skills developed in school subject designed by test and examination scored or marks assigned by the subject teacher. Alimi, Ehinola, & Alabi (2013). reported that, those students who mostly come from deprive socio-economic and education background perform relatively better than others coming from higher socio-economic and education areas. Aksoy and Link, (2000) pointed out that an increase in time spent on home/work/test has a positive effect on student's academic performance. Poor academic performance in Nigerian schools have been of concern according to (Ewetan and Ewetan, 2015) the controversy over the falling standards of education in Nigeria has been on the front burner of national discourse over the past decades and it is apparent that the debates will continue for some time to come. (Ewetan and Ewetan, 2015; Sunday & Olufunmilayo, 2008). Stated that, Poor academic performance has been linked to several factors which include high teacher-student ratio, shortage of good teaching staff, poor quality of educational leadership, political instability and politicization of educational programs, automatic promotion, age of the learners, and inadequate essential physical facilities and equipment .Thus the high percentage of unqualified teachers in public secondary schools is a major factor responsible for the poor students' academic performance".

A major feature of this poor academic performance is the dismal performance in Mathematics and English Language in the Senior Secondary Certificate Examination (SSCE) in Nigeria in the recent years which has been linked to a decline in the quality of teaching and learning (Akinsolu, 2010; Ewetan & Ewetan, 2015; Chhinh and Tabata, 2003). Hill & Epps (2010) stated that poor school facilities adversely assess teachers' effectiveness and also their performance. Consequently, it negatively affects student performance.



#### 2.2.4 Concept of Classroom Facilities

A room used for classes that is also not tied to a specific subject or discipline by equipment in the room or the configuration of the room. According to (Nwosu, & Uba, 2019) the classroom is an important place in the school, where the students are brought together, and given the opportunity of achieving the purpose of education and also learn to tolerate themselves. It is a place where teachers organize their work, carry out educational plans as well as a place where research findings are tested or tried out. In another view, (Okeke, 2013) define classroom as a place where pupils or students gather for teaching and learning purposes, it holds them together and gives them ample opportunity for group socialization through interacting with one another. The classroom is a common term associated with formal education. It could be seen and regarded as a power-house in which the success or failure of the learning process is generated and also sustained. opined by Okeke, (2013)

Jedo (2007) says a classroom is any place where one learns or gains experience. Classroom can be seen as a room in a school or college, in which classes are held. Structural and mechanical features of a classroom include foundation, walls, roofs, floors, ceilings and electrical wiring. Structure should meet or exceed all barriers both externally and internally. Foundations should be strong and stable. Roofs should be structurally sound and well-maintained ceilings should be ensured to adequately prevent sound. Windows, doors and walls should be of good finish materials that require minimum maintenance, ceilings and walls should be the kinds that are easily cleaned and resistance to stain. Classroom floor coverings should be the type which requires minimum care. Classroom Includes rooms generally used for scheduled instruction that require no special, restrictive equipment or configuration. These rooms may be called lecture rooms, lecture- demonstration rooms, seminar rooms, and general-purpose classrooms. A



classroom may be equipped with tablet armchairs (fixed to the floor, joined in groups, or flexible in arrangement), tables and chairs (as in a seminar room), or similar types of seating. These rooms may contain multimedia or telecommunications equipment. A classroom may be furnished with special equipment (e.g., globes, pianos, maps) appropriate to a specific area of study, if this equipment does not render the room unsuitable for use by classes in other areas of study. Classroom cannot be discussed without discussing classroom management

Hence, classroom management is an ongoing interaction between teachers and their students. (Brophy, 2006) presents a similar definition: “Classroom management refers to actions taken to create and maintain a learning environment conducive to successful instruction (arranging the physical environment, establishing rules and procedures, maintaining students' attention to lessons and engagement in activities)” (p. 17). These definitions emphasize the importance of actions taken by the teacher to facilitate learning among the students

### 2.2.5 Concept of Library Facilities

Advanced definitions of library however as described by (Ogar & Dushu, 2018) is a learned institution equipped with treasures of knowledge maintained, organized, and managed by trained personnel to educate the children, men and women continuously and assist in their self-improvement through an effective and prompt dissemination of information embodied in the resources. According to the author, is an instrument of self-education, a means of knowledge and factual information, a Centre of intellectual recreation, and a beacon of enlightenment that provides accumulated preserved knowledge of civilization which consequently enriches one's mental vision, and dignifies his habit behavior, character, tastes, attitude, conduct, and outlook on life.

The Gelfand, (2006) observed that International Federation of Library Association (IFLA) observed that public libraries are organization established supported and funded by the government either through local, regional or national government or through some other forms of community organization. IFLA further explained that library provides access through a range of resources and services and it is equally available to all members of the community regardless of race, nation, age, gender, religion, language, disability, economic and employment status and educational attainment.

Writing about library, (Isebe., 2015) perceives it as a collection of books, services and non-book materials for the purpose of reading and consultation. Alokun (2003) also perceives library as a place, building or room where a collection of books and other materials are properly arranged for the promotion of human knowledge. Alokun (2003) further adds that libraries exist as dynamic instrument of education to enable their parent institutions discharge their teaching and research functions. Babayi, Abubakar, & Mohammed (2019) in agreement asserts that, libraries are store houses of information or record of human experience to which a researcher can turn to for information. This implies that such libraries can make materials available and accessible to their clientele. Babayi, Abubakar, & Mohammed (2019) further emphasized that the competences of libraries enable the researcher to avoid duplicating what has already been done or is being investigated by other individuals as well as knowing whether the available library facilities are adequate for the type of investigation. In academics, libraries provide necessary information to lecturers, students of different categories, resources and community services. It is in view of the above assertion that (Ekwom, 2016) informs that library encourages the advancement of learning and provides facilities for useful and meaningful research. The Ladule's assertion shows that library has a role of making available organized materials that will

enable the institution to achieve its set objectives. This agrees with (Nelson, 2003) when he describes the university library as the nerve center, the central and primary place of the institution academic activities. Maidabino (2010) views academic library as the library attached to institution of higher learning such as the university, polytechnics and colleges. The author further explains that academic library is a power house for knowledge to students, teachers, researchers and members of the university community, and has a number of collections ranging from printed, non-printed, and to computerized data-bases which forms the bulk of resources accessed by its users.

The libraries remain a major source of information and knowledge to all their users, the students, teachers and researchers as well as users. That is why (Maidabino, 2010) emphasized that academic libraries today not only provide support to education, learning and research activities to their users but also assist users with exceptional needs in the provision of knowledge, intellectual, personal, social as well as economic development. Gelfand., (2006). identified some of the services rendered by libraries to users with special needs as special support, such as mobile libraries, book and other forms of transport to serve those living in isolated areas. services for those confined by institution such as prisoners and those hospitalized, special material for people with learning difficulties such as easy-to read materials and cassettes, electronics communication such as internet as well as special equipment and reading materials.

Library facilities are the materials needed in the library to facilitate learning. Such facilities include building, photocopying and ICT network materials, computers, micro film readers/ printers. (Gama, 2007) categorized ICTs by medium into five groups viz: computing facilities and services, film /tape-based facilities –microfiche reader, micro card reader, video machine, reproduction facilities- photocopying machine, duplicating machine,

telecommunication facilities- telephone, GSM, Telex, telegram, Fax machine, satellite, broadcasting facilities- radio, television, cable transmission. Ekwom, (2016) noted that the characteristics of library facilities utilized by learners include in-house memo and a personal contact of government documents, newspaper and magazines. The authors further added that there is progressive increase in the number of books borrowed and consulted from session by session. The progressive increase in the utilization of library facilities is an indication that library is meeting its primary role of supporting the objectives of its parent institution. The provision of study facilities is part of the key role the Library plays to strengthen the learning and research activities of students and staff of the school. It supplements the provision of scholarly resources and research skills development programs by Library staff.

The libraries offer:

- Specialized study spaces, including postgraduate accommodation and discussion rooms
- Desks fitted with power points for use with your laptop (at the larger libraries)
- Computer workstations equipment for printing, copying and scanning.

Some libraries have specialized facilities for users with a disability. (Halima, 2015)

#### 2.2.6 Concept of Laboratory Facilities

One of the most effective vehicles by which the process of inquiry can be learnt is the laboratory where the student experiences first hand, the inquiry process (National Association of science Teachers, 2005). Science laboratory activities are hands-on experiences which emphasis process skills which (Omananyi., 2005) posited as motor skills that help the scientists to find answers to problems and enhance the learning of science.

Laboratory activities also encourage students to construct knowledge by interaction with laboratory materials as they solve problems. Fakorede., (2020) further opined that it is very

necessary that students manipulate materials and equipped in learning of sciences through equipment; this will help them not only to acquire science process skills and new knowledge but also scientific attitude such as honesty, open-mindedness and cooperation as moralities of science and enhance understanding and retention of difficult concepts and procedures. Laboratory facilities give students some basic insight into scientific concepts and leave them with feeling of the reality of science which in turn improves their academic performance in examinations (Ngozi & Halima, 2015). Yet studies have shown that science laboratories in Nigeria senior secondary schools are poorly or inadequately equipped (Cirfat and Zumyil, 2000; Adeyemi, 2011; Adeyemi, 2008; Fakorede., 2020; Lakpini and Atadoga, 2012) which are consistent with those of other countries. Adeyemi, (2010) surveyed teacher provision in sciences in many other countries and also found that 45% of the schools indicated insufficient laboratory facilities. Thousands of schools in South Africa for instance lack the infrastructure necessary to provide learners with the quality education which they are legally entitled to receive.

The National Education Infrastructure Management System (NEIMS) Report published in 2011, which provided detailed statistics on the lack of resources at public schools across the country revealed that of the 24,793 public ordinary schools, 21,021 do not have any laboratory facilities while only 1,231 have stocked laboratories. These lead to poor performances by the students. Students' performance in the Secondary School Certificate Examination (SSCE) is one of the criteria for measuring and establishing the effectiveness of Nigerian secondary schools.

The poor performance of senior secondary students in sciences including Biology, Physics, Chemistry, has been persistent over the years. The West African Examination Council (WAEC) reports for May/June 1997 gave the percentage pass at credit level in physics, chemistry and biology as 10.03%, 25% and 16.76% respectively (Udu, 2018). WAEC Reports (2002) still

showed that the performance of students in the SSCE is on the decline. Alimi, Ehinola & Alabi, (2012) further observed that 2009 was another year of poor results across all states of the federation. Though many other factors have been attributed to the poor performance such as quality of instruction as teachers still use the traditional pedagogical approach of ‘stand and deliver’ method where students would sit in their seats and passively receive information, learning environment, population explosion, teacher factor, lack of incentive/staff welfare, poor attitude of students to work to mention but a few, available statistics from WAEC and NECO on senior secondary students performance in biology reveal very poor results in laboratory practical. This is due to poor acquisition of science process skills by students because their teachers were unable to conduct practical lessons as they would like to in (Keister., 1990). Teachers and students are struggling to teach and learn with inadequate and antiquated facilities (Ukwoma & Dike, 2017). This is at-variance with the tenets of education in Nigeria which stipulates that education should aim at helping the child acquire appropriate skills, abilities and competences both mental and physical as equipment for individual not only to excel in school but to live and contribute to the development of his society.

#### 2.2.7 Concept of Infrastructural Facilities

Maphoso, & Mahlo,(2014).opined that student performance and achievement depended upon the age, design, and condition of the school facility. Gershberg (2014) stated that Poor and insufficient school infrastructure negatively influences student learning and schooling outcomes. According to (Akhihero, 2011) Educational facilities or school infrastructure are those material things that facilitate teaching and learning processes in schools. These include: school buildings, equipment which include teaching aids, books, typewriters, computers science and laboratory equipment, etc. In this regard, notable problems have continued to militate against the effective

provision of infrastructural facilities in schools and colleges, such as: poor electricity power supply, criminal wastages of resources by many leaders, poor funding, and so on, in such a way that students gain next to nothing in their quest for education. This paper recommends, among others, that concerted efforts should be made by Nigerian leaders to place more emphasis on the provision of good electricity power supply, shunning all forms of corruption, purposeful funding of education including other basic infrastructure in schools (e.g.: school buildings, tables, desk, and teaching materials). Otherwise, the much-needed teaching and learning in schools would be a mirage. In Nigeria, a study by (Asiyai., 2012). opined that the physical infrastructure in secondary schools were poor and would continue to adversely affect the contributions of secondary education to the Millenium Development Goals (MDGs). The extent to which these infrastructures could enhance quality education depends on their location, their structures and facilities available in them. It is not unlikely that well planned learning infrastructures in terms of location, structures and facilities will facilitate teaching and learning process and as well as enhance good academic performance of the students (Ayaji, 2006).

In East African especially in Tanzania, poor physical infrastructure is a common feature in many educational institutions. Most schools are characterized by ramshackle infrastructure. In addition, new programs and expanded intake have been suggested without matching development of the physical infrastructure (Stephens& Schaben, 2002).

In Kenya, conditions in Nairobi create hurdles for children to get quality education and form barriers to school planning. Most schools rarely meet the basic standards of health and inspection, because they are poorly planned. Dudek, (2000) The Free Primary Education was aimed at reducing illiteracy levels in the country, it aims that by 2015 every Kenyan will be able to read and write (Universal Primary Education and Education For All) by the year 2015. This

policy has however worsened the quality of education due-to high enrollments with limited physical infrastructure such as classrooms. power supply, water supply etc.

#### 2.2.8 Concept of Recreational Facilities

The provision of adequate facilities, supplies and equipment are as important as providing adequate incentive for the athletes, but the maintenance of such adequate facilities, supplies and equipment use by many often constitute a managerial problem. Traditionally, at the secondary school's level, facilities, supplies and equipment management are usually the responsibilities of those persons who are in-charge of physical education and sports program. The facilities for which they are responsible include outdoor facilities – such as playgrounds, pools, skate parks, courts and fields – and indoor facilities – such as locker and shower rooms, natatorium, racket, sport courts, weight and exercise rooms, arenas, climbing walls, and gymnasiums, their supplies and equipment. Facilities, supplies and equipment management includes not only the effective scheduling, operation, and maintenance of such facilities, supplies and equipment but also, at times, planning new structures to keep pace with the demand for participation in physical education and recreational programmes of the school. (Crompton,1995).

The secondary school physical education program is characterized by individual and lifetime sports as well as by team game activities. This emphasis, together with the popularity of recreational and interscholastic sport, and the fact that facilities, supplies and equipment are typically needed for recreational use. The cost of materials and labor is rising as a result of inflation, making it very difficult for new capital building projects to go forward. High interest rates make it difficult to get bond issues for facility construction. Energy conservation and sustained maintenance and repair costs must also be taken into consideration. Supplies are those materials that are expendable and have to be replaced at frequent intervals such as shuttle cocks,



tennis balls, while physical education equipment refers to those items that are not considered expendable, but are used for a period of years, such as parallel bars, volleyball standards, soccer goals, strength training equipment are need all needs to be considered in the managerial budgeting of the sports administrator.

### *Recreational facilities and Secondary School Students*

Franca & Haruna, (2020).opined that Recreational facilities are therefore those materials put in place during teaching learning process that could also be interact with by the staffs and students during there leisure hours in the school premises. The recreational facilities necessary for effective teaching processes include laboratory, Gymnasium, library, computer set, and Cyber cafe. Osuji, Elegonye & Jeremiah (2020) defined recreational facilities as type of the instructional material and other infrastructural facilities such as building tools, equipment and other teaching-learning aids that are necessary for the students to learn at leisure hours. The author however described recreational facilities as materials that are necessary for the students teaching and learning process. The author describes recreational facilities as an aid to effective students' academic performance, is to empower people with the necessary skills, value and attitudes needed to improve their quality of life, to enhance high productivity and developing their intellectuals needed to meet up with the global challenges. Ogundele (2007) also observed that everyone has right to education, and it is a social responsibility that everybody should enjoy as member of the society. In Nigeria education is ranked high among other sectors in the country. Every parent wants quality assurance in their children education. They also regarded education as major way of instilling a sense of direction and purpose. It should be noted that no amount of adaptation would compensate adequate facilities in maximizing teaching learning experience.

Ogundele.,(2007)observed that children learn best when they can actively explore an environment that is rich in materials. In the school environment, the available education facilities include school plants, which comprise semi-structure and structures that are put in place towards enhancing effectives learning processes. Educational facilities are recreational facilities are sporting facilities like indoor, outdoor games, simulation and games, tourism. There are methods that are used to complement the use of recreational facilities for effective teaching learning process in the school system, such methods include; play way, experimentation, dramatization, demonstration, and questioning .It should be noted that any type of recreational activities and methodologies adopted demand effective use of recreational facilities.

#### 2.2.9 Concept of Instructional Facilities

Effiong& Igiri (2015) opined that Instructional materials are print and non-print items that are rested to assess information to students in the educational process. Instructional materials include items such as: kits, textbooks, magazines, newspapers, pictures, recording videos etc.

Instructional materials play a very important role in the teaching and learning process. It enhances the memory level of the students. At this time that education has spread wide and entirely, oral teaching cannot be the key to successful pedagogy; therefore, the teacher has to use instructional materials to make teaching and learning process interesting. According to (Effiong& Igiri, 2015) instructional materials are tools locally made or imported that help to facilitate the teaching/learning process. Okon (2006) view them as materialswhich are used to make tremendous enhancement of intellectual use of the instructional materials. Effiong & Igiri (2015) summarized the role of teaching aids as follows:

It promotes meaningful communication and effective learning.

They ensure better retention, thus making learning more permanent.

They help to overcome the limited classroom by making the inaccessible accessible.

They provide a common experience upon which late learning can be developed. They

Stimulate and motivate students to learn.

They encourage participation especially if students are allowed to manipulate materials used.

Aliyu, (2018). in his own contribution said it does not only help to motivate and develop interest on the part of the student, but also help to bring about an enhance respect for teacher's knowledge of the subject. Instructional materials are also described as concrete or both to the sense organs during teaching. However, a common goal a teacher carries wherever he is, is to make lesson presentation vitally fresh, stimulating and testing for their students. This will help the teacher to individualize the learning method as well as the content and also working according to the student's need. This goal can be reached most effectively through the use of instructional materials

The need to emphasis on the use and importance of instructional materials in any learning and teaching environment cannot be underestimated. For any learning to take place, the teacher has to make use of these materials that would enable him to teach effectively. Equipment and other instructional materials to some extent determine the method the teacher uses in teaching biology (Aliyu., 2018). . The method adopted could be demonstration, experimental, discussion etc. It is generally agreed by both teachers and school administrator that apart from the chalkboard and textbooks which are often available for the teacher to use, there are other materials that aid or are capable of complementing the teacher's effort in teaching/learning process. Those materials are commonly called "instructional materials". One of the reasons why students in our secondary schools sometime find it difficult to comprehend immediately what is being taught by the teacher is the non-availability of instructional materials that can easily

convey the message of the lesson to the learners. Teaching aid is “the guidance of learning activities” that “a teacher uses to motivate and arouse student’s desire to learn” (Effiong& Igiri, 2015).

### **2.3 Assessment of Classroom Facilitiesmaintenance on students’ academic performance in Public Secondary Schools in Kaduna State**

From Global point of view, classroom is a place where teaching, learning, acquisition of skills, as well as socialization is imbibed. In other words, the expectation and objectives of formal education are normally accomplished in the classroom (Okeke, 2013). The greatest amount of educational activities in the school, and even in the society take place in the classroom. It is where government policies on education are implemented to foster desirable behavior and attitudes and develop problem solving skills.

According to ((Nwosu, & Uba, 2019)) the classroom is an important place in the school, where the students are brought together, and given the opportunity of achieving the purpose of education and also learn to tolerate themselves. It is a place where teachers organize their work, carry out educational plans as well as a place where research findings are tested or tried out. In another view, (Okeke, 2013) defined classroom as a place where pupils or students gather for teaching and learning purposes, it holds them together and givesthem ampleopportunity for group socialization through interacting with one another.

There are different types of classroom which may include -

- (1) Specially designed room
- (2) An art gallery
- (3) A studio

- (4) Museum
- (5) Workshop or exhibition Centre
- (6) Laboratory

### 2.3.1 Facilities Needed in the Classroom

To promote a proper atmosphere for effective teaching and learning, the physical environment of the classroom must be harnessed. The physical environment is made up of desks, chairs, tables, space, instructional materials, lighting and ventilation as well as the latest Information communication Technology (ICT) equipment's & library. Others include chalkboard, projection screen, time table power supply gadget, students and teachers who have come together for the purpose of teaching and learning. Classroom as a facility is one of key measures of quality as it determines the student-teacher ratio of any educational system.

The availability and state of the classroom plays a key role in facilitating or engendering the teaching-learning process (Ahunanya & Ubabudu, 2006). Starting from the facility need of the student such as writing and reading materials, to that of the teacher's need to carry out class" activities, a lot of money will need to be spent for the facilities required for quality learning. School/Classroom facilities are among the resources required in the realization of educational aims and objectives. Therefore, the process of achieving educational goals and objectives depends on school plants planning as well as maintenance (Adegbesan. 2007).

### 2.3.2 Provision and Maintenance of Facilities in the Classroom

Facilities management is a process of ensuring that buildings and other technical systems support the operations of an organization (Fenker, 2004). The International Facilities Management Association (2002) described facilities management as the practice of coordination

of the physical workplace with the people and the work of the organization; it integrates the principles of business administration, architecture and the behavioral and engineering sciences (Asiabaka,2008). Classroom/School facilities management is the application of scientific methods in the planning, organizing, decision-making, coordination and controlling of the physical environment of learning for the actualization of the educational goals and objectives. Human and materialresources are deployed for this purpose. School/Classroom facilities are the material resources provided for staff and students to optimize their productivity in the teaching and learning process. The realization that the transfer of knowledge does not only take place in the four walls of the classroom from the teacher to the students but rather that learning takes place through discovery, exploration, interaction with the internal and external environment has necessitated the creative and innovative development of teaching and learning facilities that reflect these changes. In the classroom enough desks, chairs, lockers, instructional aids as well as ICT materials etc. must be provided to match with the population ratio of not more than 1:30 students i.e. one teacher to thirty students. This will make for efficiency on the part of the teacher and good performance on the part of the students. The quality of products (students/pupils) bears a direct relationship with the quality of facilities deployed in the process of production. This implies that adequate human and material facilities must be provided in the classroom to prepare the pupils/students for life in the larger society. The orchestration of classroom life which include planning curriculum, organizing procedures and resources, setting the tone of the class environment to maximize learning, monitoring student progress and anticipating potential problem is necessary (Ijeoma,2007).

According to (Suleman & Hussain, 2014) to ensure a favorable classroom environment, it should be well equipped and facilitated. The classroom physical arrangement provides students

with effective instruction and promotes smooth teaching learning process. Classroom facilities should be provided as they are helpful in improving the overall performance of the school. Physical classroom environment is a combination of different facilities i.e., lighting, temperature, ventilation system, size of the room, floor, walls, desks, chairs, rugs, whiteboards, computers etc. Teacher and students are considered the main elements of the classroom environment, But unfortunately, educational facilities in our classroom is not conducive for smooth teaching learning process resulting to fatigue and frustration among the students. A student sitting in an insufferably hot, airless room listening to a lecture on cryogenics would not learn as much as he would in a cool, comfortable space. Unfortunately, school buildings are designed to attract people from outside but they failed to provide a safe and comfortable internal atmosphere for students. classroom environment have revealed that educational facilities plays a vital role in teaching learning process. It can affect the performance of both teachers and students (Suleman & Hussain, 2014). The learning setting is comprised of different things i.e., learners, teachers and the physical environment (Harrop & Turpin, 2013). Physical environment is simply defined as the physical characteristics of the room. It refers to the different things i.e., size of the room, lighting, degree of temperature, condition of classroom floor whether it is carpeted or just concrete etc. Physical classroom environment refers to the physical room in which teacher and learners are the main element including its spatial elements i.e., floor, windows, walls as well as other classroom equipment's i.e., desks, chairs, rugs, chalkboards, counters and computer equipment but not limited to these things (Suleman & Hussain, 2014).

Physical environment can affect students' comfort and also their ability to learn to some extent. Students who are comfortable are likely to get much information as compared to those who are uncomfortable. Besides, the physical atmosphere can also affect the morale of the

learners. Unfavorable classroom environment can discourage the learners and they become less willing to learn.

Physical facilities are one of the stimulating factors that play a fundamental role in improving academic performance in the school system. These include; school buildings, accommodation, classrooms, libraries, furniture, laboratories, recreational equipment's, apparatus and other instructional materials. Furthermore, their availability, relevancy and sufficiency affect academic performance positively. On the other hand, poor school buildings and overcrowded classrooms affect academic performance negatively.

Taylor, (2009). found the relationship between environment and design within the classroom from a theoretical perspective. They found that physical environment of the classroom acts as "Silent curriculum". It means that classroom environmental design can facilitate and improve the learning process like the overt curriculum.

Sufficient classroom facilities promote academic performance and ensure to strengthen the overall institutional performance. While unattractive and old school buildings; cracked classroom walls and floors; lack of desks and benches; lack of sufficient classrooms; overcrowded classrooms; lack of educational technology; lack of first doors and windows etc. Negatively affect academic performance of the institutions. Therefore, it is right to say that academic performance has a close link with the availability of classroom facilities educational.

There are several factors of classroom physical environment i.e.

- Visual factor,
- Acoustic factor,
- Thermal factor,
- Spatial factor and Time factor.



Visual factor refers to the quality of lighting in different parts of the classroom. It is determined by the level of natural and artificial light available in the classroom. It also refers to the way by which the classroom environment is arranged i.e. visually interesting, creating a favorable atmosphere and any unwanted disruptions e.g. windows overlooking playgrounds etc.

Acoustic factor is an important factor as we mostly depend upon verbal communication in our classroom. Noise level mainly depends upon school design, classroom organization and teaching methodologies applied during a lesson (Suleman & Hussain, 2014). Poor classroom acoustics can adversely affect learning environment for many students. Constant noise exposure can damage cognitive performance and functioning (Higgins, Hall, Wall, Woolner & McCaughey, 2005).

Thermal factor refers to the heating and ventilation of the classroom and are generally out of the teachers' control as they are climate variables. It plays a fundamental role in making classroom atmosphere favorable and comfortable and hence affects the behavior and performance. Spatial factor relates to the space management and has a great influence on behavior particularly on communication.

Time factor refers to the amount of time a student is participating in learning process i.e., the number of minutes the student is actively participating in teacher directed lessons and activities (Suleman & Hussain, 2014). Therefore, it is concluded that physical environment of classroom comprises of classroom size and structure, furniture, seating arrangement, instructional technologies, room heater, ceiling fans, curtains, cupboard, equipment's, lighting, ventilation etc.

Proper arrangement of classroom environment plays a remarkable role in making instructional process more effective and establishes an atmosphere favorable and encouraging to

learning. The quality of the physical classroom setting significantly affects academic performance of the students. Educational facilities in classrooms ensure effective and successful teaching learning process. Without these facilities, effective and fruitful teaching learning process is not possible. Students get more information from their teachers in well facilitated classrooms and consequently they show good performance. On the other hand, if students feel uncomfortable in classroom then they will fail to get more information from their teachers

Temperature and ventilation systems inside classroom are crucial factors that affect classroom learning environment. Classrooms too cold or too hot negatively affect students' performance and concentration as they feel uncomfortable in such conditions. According to (Suleman & Hussain, 2014), it is generally accepted that high temperature and humidity creates physiological and psychological problems which expedite fatigue, causes people to work more slowly, apply much efforts and causes to make more mistakes and errors. The classroom climate should be cautiously managed not only to provide physical comfort but also to serve as a positive factor in the learning process by stimulating attentiveness and concentration. To maintain such a climate, the atmosphere must be treated to simultaneously controlled temperature, humidity, cleanliness and circulation. Uline & Tschannen- Moran, (2008). established that temperature, heating and air quality are the fundamental elements for the educational attainment of students. In (Suleman & Hussain, 2014)noted that lighting is one of the most important physical characteristics of classroom. He further stated that visual environment can affect the capability of students to perceive visual stimuli and also affect their mental attitude. Consequently, their academic performance is affected negatively. Culp (2006) found that success can be ensured by using visual displays in classroom. According to Winterbottom and Wilkins (2009), there are

numerous aspects of lighting to be kept in mind while taking into account this environmental characteristic of classroom.

Classroom lighting consists of undetectable light, illumination at a student's desk, lighting from projection screens and windows. Improper lighting negatively affects academic performance and promotes distress and obstruction for students in the classroom furniture proper arrangement plays vital and crucial role in classroom functioning. Furniture is arranged with the intention that students may feel comfortable and they may be adjusted to the primary sources or different sources of information e.g., the teacher, instructional materials, while at the same time having accessibility to other sources or the activities e.g., work areas, computers without creating disturbance in the classroom. Higgins, Hall, Wall, Woolner & McCaughey, (2005) noted that desk arrangement can affect students' academic performance and attention (Bucholz & Sheffler, 2009) found that majority (94%) of the K-3 teachers use a semicircle or cluster to arrange the desks in their classrooms. The teachers responded that arrangement of desks in groups has several advantages i.e., encouraging cooperative learning, building a sense of class community and making the best use of the space.

Proper desk arrangement provides opportunities for learners to be enthusiastically engaged in learning process and creates the opportunity to work cooperatively with their colleagues. Therefore, it is imperative to make seating arrangement in such a way that it may ensure smooth functioning of instructional process. Iqbal (2005) stated that the arrangement of classroom educational facilities and instructional spaces might be selected for learning rather than teaching. Besides, it should ensure to facilitate teacher in making an atmosphere where quality learning may be promoted. Audio visual aids i.e., charts, graphs, maps, globes, radio, mock up, multimedia, computers, overhead projectors and internet are the part of classroom environment.

However, these technologies are not being utilized in instructional programmes as were expected (Weiss,2007).The design of classroom physical environment does not support the integration of technology. Classrooms should be equipped with modern technologies to ensure favorable and conducive atmosphere for teaching learning process. Teacher should be given training in the utilization of technology as it is a vital component of classroom physical setting.

### 2.3.3 Classroom Size and Space

Overcrowded classrooms and schools have consistently been linked to increased levels of aggression in students. Overcrowded classrooms are also associated with decreased levels of student engagement and, therefore, decreased levels of learning. Alternatively, classrooms with ample space are more conducive to providing appropriate learning environments for students and associated with increased student engagement and learning. classroom space is particularly relevant with the current emphasis on 21<sup>st</sup> century learning such as ensuring students can work in teams, problem solve, and communicate effectively. Classrooms with adequate space to reconfigure seating arrangements facilitate the use of different teaching methods that are aligned to 21<sup>st</sup> century skills. Creating private study areas as well as smaller learning centers reduces visual and auditory interruptions, and is positively related to student development and performance

### 2.3.4 Area Per Student in the Class.

The educational authority insist on 8-12sq.ft. per student in a classroom foreign standards and changing educational needs require 16sq. ft. per student, 12sq.ft. per student will not permit flexibility of space and small work bench in the class as required by the modern methods of

teaching. But in view of the present financial difficulties, the minimum functional requirement is 12sq.ft.per student may be provided(Kulbir,2011).

#### **2.4 Assessment of Library Facilities maintenance on students' academic performance inPublic secondary Schools in Kaduna State.**

The word 'library' is rich in tradition, meaning, and usage. The definitions of 'school library' given by various library scientists and associations reflect this heritage. Throughout the world the Library of a school is considered as part and parcel of the academic set-up. It is created and maintained to serve and support the educational activities of the school. The school Library provides information, inculcates ideas, and develops knowledge that is so essential to functioning successfully in today's information and knowledge-based society. It is fundamental to school library to equip students with lifelong learning skills and develop in them creative thinking and imagination, and enabling them to live as ideal and responsible citizens.

Thus, the school library must be made the hub of all the activities planned and executed in school. It can be used by students to prepare for their next class period, home examination, general education, information, competitions, recreation and inspiration. To cater to the wide varieties of demands of students and teachers it has to judiciously select and procure the prescribed/recommended text-books and other reading material from different sources, technically process itby making use of a standard scheme of classification, catalogue it to provide various access points,organize the collection on scientific lines, circulate the documents and disseminate the informationin the manner most liked by the students and teachers. In addition, the school library has to serveas a resource center as well.

According to Kumbar & Lohar, (2002).In Europe and other developed countries of the world, a greater emphasis is laid on the librarymethod of teaching. The School Library Staff

support the use of books and other information services which range from the fictional to documentary, from print to electronic within the four walls of the library as well as outside. This is all done to enthuse the young minds of pupil to unfold their self and discover their potential. A lot of assignments are given to the pupil for which they have to sit and work in the library itself. This method of teaching makes them skillful and discriminating users of library resources and facilities

Although the library has been recognized as an essential component of a good school, yet many schools of our country lack library facilities. From the prevailing picture of school situation in our country, it can be seen that much remains to be done in providing our schools with well-organized libraries facilities, particularly so in far flung rural areas. Currently, the situation is such that a few books locked in a classroom are given the status of a library. Millions of our school children, other than those studying in public schools, are being deprived of the full complement of library resources and services, which they need and are entitled to. Even in schools where library facilities exist, the pictures are not very bright. The condition of these libraries is below the standard when compared with their foreign counterparts.

### *Library Objectives*

- 1 Literacy
- 2 Formal Education
- 3 Information Provision
- 4 Economic
- 5 Social and Cultural Development. ([cbse.nic.in/library-1-99](http://cbse.nic.in/library-1-99)).

#### 2.4.1 Taking Care of your Library Facilities

*Your School Library belongs to you.*

1. Ensure its safety and avoid causing damage to its property fittings, furniture, floor or walls.
2. Make sure that No one removes any page or pages from books, newspaper, or magazines. No one puts any mark with a pen or pencil on any book of Library. This spoils the beauty of books and renders them unusable by others.
3. No one deliberately misplaces a book and makes it difficult to locate.
4. No one removes catalogue cards from the catalogue tray.
5. While members are free to browse amongst the stack and take out the books of their interest, in no case they are to replace the books back on the shelves after use.
6. More so when leaving the School please clear all the dues payable to Library, return all the reader's tickets, Identity Card, books issued to you and obtain a No Due Certificate from the Library. ([cbse.nic.in/library-1-99](http://cbse.nic.in/library-1-99)).

The basic purpose of library is to disseminate knowledge mainly through availability of right documents to the right person at the right time. The books of school library are subjected to heavy wear and tear, as the clientele is not mature enough to care for the borrowed items. There is wisdom in getting the book repaired as it prolongs the life span of the book. If the repair is of minor nature then in-house repair will do. Ordinary gummed tapes should not be used to join the torn or detached pages. This does not do any good and instead proves injurious and at times leaves the book beyond repair. Mostly it is the spine of the book, which requires frequent mending. A brightly colored mending tape may be fixed to the spine of the book and lettering on the spine of the books with bright colors may be quite beneficial and add to the book's visual appeal when lying on shelves. A good quality plastic sleeve of reasonable cost gives physical

protection and helps in retaining the freshness of the jacket and its original colors. This reinforcement can go a long way in enhancing the life of book.

#### 2.4.2 Weeding and Discarding

Discarding of the book/documents from the library is as important as the selection of documents in library. Decency and change are the vital features of a dynamic library. According to Ranganathan in (Rubin., 2017) the Library of a school follows the principle of 'adult growth' and thus its stocks need constant replenishment. While new books have to be added, the old ones, which are no longer of any use, should be gradually withdrawn from the shelves. This can be done with the help and cooperation of the subject teachers. Further, it should be borne in mind that low cost books are not worth binding, instead new copy may be procured and the old one withdrawn from the circulation and necessary entry made in the Accession Register and Principal's signatures taken in the Remark column.

#### 2.4.3 Issues in the Library

- 1 Spill on Carpet
- 2 Electrical problems
- 3 Elevator problems
- 4 Active Fire alarms/fire sprinklers
- 5 Grounds around building maintenance needs (i.e. steam cleaning and maintenance)
- 6 Hazard conditions such as bad smells, suspicious leaks, floods, or smoke
- 7 Heating/ventilation conditions
- 8 Light bulb requiring replacement
- 9 Malfunctioning door locks
- 10 Office furniture requiring relocation/adjustments



- 11 Plumbing problems/sewage/water temperature
- 12 Power failures
- 13 Roof problems/leaks
- 14 Steelcase installation needed
- 15 Additional trash containers needed
- 16 Window washing. (cbse.nic.in/library-1-99).

#### 2.4.4 Library Facilities to be provided include:

Reading tables adequate enough for users, sitting chairs, bookshelves, library space, fans, lighting, ventilation, flooring, Restaurant, location of exit point, notice board/bulletin, photocopiers, vehicle parking space, computers, carrels, periodical racks, circulation desks and other facilities that would make users comfortable for reading (Gelfand., 2006). While the services include community information services, recreational activities, reference services, storytelling, reading competition, career information, customer care, adult literacy education, mobile library services, and services to prisoners, online internet search, among others (Gelfand., 2006).

In a recent study, (Anunobi, 2003) observed that librarians are yet to make impact on students. The study revealed that the presence of school librarians who teach students on the use of library in secondary schools have not made much impact as shown by students' inability to use catalogues and indexes as library access points in their first year at universities. Diyaolu, Joda & Amusa (2018) maintained that the friendly disposition of staff, the willingness of library staff to assist users to get needed materials from within or through inter-library loan will encourage users to patronize the library and above all increase users' satisfaction with library services.

Researchers are of the opinion that attitude of some library staff that bothered on hostility, rudeness and lazy approach to requests or enquiries have often put off some potential library

users. Unomah as quoted by (Ogunniyi, Jato & Obasoro, 2018) in a survey of student's utilization of academic libraries in Nigeria found that most often than not, some of the junior staff attitude towards users are discouraging in their services to the students. The negative attitude of some librarians towards information technology in library operations is not encouraging. Ifidon and Okoli (2002) noted that the nature of library staff is a factor that inhibits effective library services. They further stressed that most of the staff went through the traditional form of training in which some of them just refused to adjust to the new situation, but want the status quo to remain. Thorhauge (2003) is of the view that Friendliness and helpfulness of library staff is one of the sixth criteria they proposed for the evaluation of academic libraries.

However, several studies in Nigeria Mamman., (2015).; Iyiade and Oladipupo, 2004; Onohwakpor, 2009) have noted that the Nigerian public library scene is yearning for improvement as their services suffer one form of neglect or the other due to lack of fund, inadequate infrastructure and unqualified manpower.

Contributing to the utilization of library facilities, (Oyediran-Tidings, 2004) observed that there is low use of the library by students which can be attributed to the expressed unavailability of the desired facilities in the library. Ajanyi & Akinrumji (2004) also observed that there is frustration among students as a result of their inability to use the library facilities. The frustration could be the inability of the library to provide materials that suit their ways of learning. That is why Oyediran stated that the use of university libraries depends on the availability, accessibility and utilization of the users desired information source. Ekwom, J. O. (2016) in confirmation of the above assertion, stated that the use of library has an approximately 80% dependence on the availability of the library facilities. Braimoh, Jegede & Moshoeshoe-Chadzingwa (1997). informs that the consequences of students' inability to use the library brings

about serious debasement of the quality of university education which may consequently have a negative effect on the job performance of the university products. Braimoh has already cited further added that the initiatives as well as competence to conduct viable academic research for the purpose of solving any kind of social and economic problems may be inhibited as a result of failure to use library facilities. In another development, the need for all to read and be informed is not in doubt, whether through formal or informal process. Libraries are recognized all over the world as institutions of inestimable value, providing a variety of information resources for the benefit of users.

Libraries are rooms where books and other materials are kept for readers and researchers. Ekwom, (2016) perceive libraries as the nerve centres of educational institutions. A university as one of the educational institutions should have good library. According to (Ekwom., 2016), a good library is the one that has a combination of print books, and non-print or audio-visual materials that contain information both for non-disabled and disabled students. That is why university libraries are very critical for every academic activity in the university. As Ekwom, (2016). stated, school libraries are the centres for collection of books, journals and other information.

Materials which are relevant for use by students, scholars and the general public for learning, teaching and research. This implies that university libraries are established to help students and teachers to accomplish their set goals in teaching, learning and research. Writing about the objectives of university library, Ifidon & Okoli, (2002) itemized the objectives of libraries as follows: - provision of materials for undergraduate instructions of any kind, term papers and projects as well as materials for supplementary reading, provision of materials in support of faculty, external and collaborative researches. University libraries also make provision

for specialized information on the region within which the university is situated as well as cooperation with other academic libraries, with a view to developing a network of academic library resources that is at the disposal of all scholars (Fabunmi, 2004). In order to perform the above functions, university libraries provide information sources in both print and non-print format. Some of these include generalized or reference materials such as dictionaries, bibliographies, abstracts, indexes, travel guides, yearbooks and encyclopedias. Aina (2004) posits that for a university library to be relevant to the users, information bearing materials are readily acquired and made available to the clients or users of the library. Availability of library facilities in the context of the study means information or reading materials that can be easily obtained or used by the readers. Availability also means a condition of being available, accessible or obtainable by the user. Availability of library facilities, according to (Aguolu & Aguolu, 2002), refers to the physical presence of information resources within the library. Such resources, according to the author, include: books, journals, dictionaries, encyclopedias, internet facilities, dissertation, audio visual materials and government documents.

Aguolu also noted that availability of library facilities means ensuring that library-based information, resources, published and unpublished materials, printed and non-printed ones, audio visual materials which may ordinarily not be immediately located in the university library are ready for use.

Alansari., (2013). in agreement states that facilities could be a motivating factor for users to change their perception in seeking information once such information is available and adequately satisfy their needs. It is an indication of the quality and quantity of teaching learning and research resources present in the university libraries this means that its adequacy in quantity

and quality promotes students learning activities thereby improving student's academic performance.

The availability of library facilities enhances the easy and its proper utilization. Contributing to the concept of availability, Alansari., (2013). perceives availability of library facilities as a sinequanon to effective library services. The author further asserts that the task of the library is that of collecting, sorting and organizing books and making them available to the users. This suggests that the effectiveness of any library is best measured in terms of availabilities accessibility and utilization of library facilities. This implies that library facilities should be seen as a place in all information request are immediately satisfied.

## **2.5 Assessment of Laboratory Facilities maintenance on students' academic performance in Public Secondary Schools in Kaduna State**

Laboratory facilities according to English dictionary is a building or room equipped for conducting scientific research or for teaching practical science. Hanucin, (2007) define laboratories as "contrived learning experiences in which students interact with materials to observe phenomena" (p. 202). In addition, laboratory has been used in terms of a teaching method (laboratory method as opposed to lecture method) (Linn, 1997), In Hanucin (2007) From other subjects' science stands out the most, because of its nature of validating things through experiments. It is through scientific instruments or facilities that experiments and observations are carried out. These facilities are designed for certain purposes, like set of tools, kits, apparatus and devices. Here are some List of laboratory equipment: microscope, Bunsen burner, test tube, thermometer to name a few. These are used in various fields such as, medical, educational, research and production. Tools like test tube stand, compass, and funnel are some of the examples. Intensive moisture balance is used for high level performance in quality control and

production. Importance of Educational science laboratory facilities offer students the opportunity of learning science through hands on experiences.

This helps them to enhance their learning and thinking skills. They help the students to be more competitive and help achieve their goals through higher level of education and thinking order. To give the students greater opportunities for learning, schools should be well equipped with scientific laboratory facilities. Students can learn with practical experiments in the school laboratories about the scientific methods such as collecting data, experimenting and testing hypothesis. This will help the students be more enthusiastic and appreciative towards science. Laboratory Water Bath can be useful for biology laboratories. According to a survey, school's providing various lab facilities also makes the teacher contribute better for their students. If the teachers work efficiently, then their students would also learn more by practically performing the experiments. In order to provide the requirements of schools and institutions, many laboratory facilities and equipment manufacturers are working hard to provide various, list of laboratory facilities and equipment like water testing, microscopes, magnifiers and many more products.

Weiss, (2007). Forty percent of schools nationwide reported that their facilities could not meet the functional requirements of laboratory science. More recent data from the 2000 National Survey of Science and Mathematics Education suggests that along with lack of content preparation, inadequate facilities and equipment and lack of money to purchase consumable supplies are barriers to the effective and equitable teaching of science (Twenty percent of the schools in the survey cited facilities as a “serious problem” for science and mathematics instruction laboratory is intended to mean a specialized facility in which science instruction takes place; however, laboratory has a variety of other meanings and usages within the literature. Often,

laboratory refers to activities carried out by students, rather than the facilities in which those activities take place. While facilities is the place in which those laboratory activities take place.

The emphasis on teaching and learning of science is on ensuring that teachers not only teach the process of science but also are able to subject scientific concepts to the sensory experience of the learners. By this, the ‘hands’ and ‘minds’ of learners must be on scientific activities such that learners will be able to learn actively and thereby participate in knowledge construction. Hanucin (2007), In essence, the focus is on activity-based science lesson which entails both best classroom and laboratory facilities. This direction of teaching and learning of science subjects in schools is viewed to lead students to acquiring the required science process skills, life skills and competence as enshrined in the revised edition of National Policy on Education (NPE) (Emesini, 2016). National core curricular for Biology, Chemistry, Mathematics and Physics etc. However, the efforts of teaching in achieving the goals of NPE 2013, the Millennium Development Goals (MDGS), EFA, Science Education for all, NEEDS, Vision 20:2020 faces great challenges. The challenges facing science teaching and learning includes the use of teacher-centred approach to teaching, lack of adequate and relevant instructional materials, inadequate classroom and laboratories and laboratory facilities etc.

Laboratory is at the centre of scientific studies and/or something so long as science remains both a product and process. The availability of laboratory equipment, facilities and materials play a vital role in determining the extent of best laboratory practices that will ensure acquisition of science process skills and competence in science concepts by the learners. According to (Katcha & Wushishi, 2015) one major aspect of Science education that is of great concern is in the area of availability and effectiveness of use of specialized and relevant science equipment, facilities and instructional materials.

The school laboratories that are well designed, stocked and safe for teaching and learning of science ensure active practical exercises (Katcha & Wushishi, 2015). Laboratory work is an indispensable part of science instruction, and no effective science education can exist without practical work (Udo,2010). Laboratory practicals are dependent on the level of facilities of the laboratory with relevant instructional materials and the ability of the teacher to effectively and efficiently utilize them. The challenges often faced in doing practicals in inadequately equipped laboratories, it has led teachers to separate science lessons into practical and theory lessons or classes and or shifting practical work until the second term of the final year. The science students have been performing below expectation because of poor laboratory practicals as a result of lack of facilities. The current trend in science curricular emphasis implies that science laboratory work should be taught as an integral part of classroom instruction in science with pre-and-post laboratory discussion (Udo,2010;Okeke, 2013;Katcha & Wushishi, 2015). Students' performance impacts the attitude towards science. There is a significant relationship between learners' performance in science and attitude towards science. The dwindling students' performance in science especially biology has been a source of concern to all stakeholders - the parents, teachers, students, science education researchers, government and the general public. Despite the efforts by science educators the performance of many students in science is still at an abysmal level. In essence there are still gaps in the efforts and results available.

This situation is easily attributed to factors of laboratory facilities supplied. With laboratory facilities, the modern trend emphasizes laboratory practicals as an integral part of classroom instruction in science with pre-and-post laboratory discussion if students have to learn Science as a process and product, and achieve to expectations of all the stakeholders and meet the demands of the vision 20:2020, and MDGS etc. As a result of conflicting research reports and its



inadequacy. Hofstein and Lunetta (2004) defined science practical activities as “learning experiences in which students interact with materials and/or with models to observe and understand the natural world”. Students learn by performing concrete activities, by comparing experimental data to a model, and/or by designing an investigation. Many authors put emphasis on the distinctiveness of the learning experience through practical work.

## **2.6 Assessment of Infrastructural Facilities maintenance on students’ academic performance in Public secondary Schools in Kaduna State.**

Infrastructural facilities refer to the school plant, that is, the school buildings, classrooms, library, laboratories, toilet facilities, recreational, offices and other materials and infrastructures that would likely motivate students towards learning. Infrastructural facilities are germane to effective learning and academic performance of students. In support of this (Akomolafe & Adesua, 2016) identified facilities as the main factor contributing to academic achievement in the school system. They include the school buildings, classroom, libraries, laboratories and recreational equipment among others. Hallak furthered claimed that the quality, appropriateness and adequacy of these items contribute to performance in the School system. Adeyemi (2008), opined that performance is a measure of educational output. Academic performance can be viewed as the extent to which an individual learner acts or does a piece of work, how well or poor he/she does the job or the activities within a learning process.

Maintenance enhances the quality of building structure to meet modern requirements, in order to prolong the life span of building. It is required to ensure the safety of building occupants. Shohet and Straub (2013) discussed increasing demands on maintenance programme to provide tools that will support maintenance planning. This is also confirmed by (Olayanju & Olosunde, 2011) that lack of appropriate tool for predictive maintenance of existing buildings and

infrastructure can have a detrimental effect in the future. It is necessary to carry out maintenance works for the safety of the users and properties in the buildings, while also preserving the physical conditions of the building and supporting infrastructure in operational state at all times. These standards can be achieved by providing maintenance tools especially for public secondary schools in our communities.

Maintenance issues play a major role in the performance of public secondary schools. Isyaku (2002) also observed that lucrative building maintenance contracts are awarded without due process which also contributes to poor maintenance of buildings. Zubairu (2010) attributed the array of abandoned and epileptically functioning of facilities in the public buildings in Nigeria to poor or lack of maintenance. This underscores maintenance strategy used by the school managers and various factors affecting secondary school building maintenance with a view to proffering relevant maintenance tools solutions. School buildings are part of a society's asset and infrastructure, because they could be used for a long time.

#### 2.6.1 Infrastructure Maintenance in Public Secondary Schools

Infrastructural development is a vital force towards increasing the value and usefulness of building and public facilities. Provision of drinkable water, electricity, drainages, sanitary facilities, sewage disposal and access roads essentially complement the buildings in such public schools while contributing to the proper functioning of the physical developments. (Jajac., Knezic & Marovic,. (2009).) argue that maintenance of urban infrastructure is a complex task that is even more difficult with taking decisions to prioritize aspects to be maintained. (Mojela, 2013) identified several factors that contribute to the deplorable conditions of public schools' infrastructure in South Africa. These include inadequate government intervention, no sense of

ownership by stakeholders, inadequate funding, and vandalism. Furthermore, lack of maintenance, neglect, deferred maintenance and overcrowding were also identified.

A multi stakeholder framework for the proper maintenance of public schools' infrastructure is proposed to eradicate existing poor conditions. The status of physical facilities especially in our public secondary schools today appears to be of great concern to educators. It seems that the provision of these school facilities has dwindled over the years, perhaps due to increase in school enrolment rate which had led to population explosion in public schools. It has been observed that school infrastructural facilities are essential tools to facilitate and stimulate learning programmes. Teachers need them in an ideal working environment. Experience shows that if infrastructural facilities are available, students tend to have interest in learning; this will invariably lead to high performance.

#### 2.6.2 Provision and Maintenance of Water and Electricity Supply

Takwate, (2018) opined that Light and water supply facilities are necessary requirements for institutions whether running day or boarding system. Efforts should be made to see that the facilities are not in acute short supply at any period. Schools in the urban area where electricity and pipe borne water are available do not have much difficulty in this respect except during occasional setbacks. In the rural and less urban areas, schools should make use of any source of water that is adequate and clean enough for the students. Whatever the sources of water supply whether through wells, boreholes or river, they should be kept pure and clean before drinking. Proper water storage is called for through the use of big pots and water storage tanks. Takwate, (2018) pointed out that the electrical services should ensure;

1. Electrical controls should safely protect with disconnect switches easily accessible
2. Labelled electrical system should be provided

3. Well maintained electricity sources should be properly placed to provide adequate lighting
4. Lighting system should provide adequate distribution of illumination for teaching and learning
5. Outdoor light fixtures. Electric outlets, equipment and other fixtures should be accessible for repair and replacement
6. Outside water supply should be adequate for normal usage
7. There should be adequate number of drinking water taps strategically placed for students use and proper maintenance
8. Drainage systems should be properly maintained to meet safety and health requirements
9. Water supply should be adequate with sufficient pressure to meet health and safety needs.
10. Alternative source of water should be provided.

2.6.3 School Infrastructure Facilities can be divided into two Categories:

- a) Direct teaching facilities, that is, those that have direct relevance to the educative process, and
- b) Non-direct teaching facilities, that is, those that have indirect relevance to educative process.

School infrastructural facilities include: school buildings and equipment as well as school records and books. School buildings are tangible structures which serve as shelter for educational activities. They include, among others: classrooms, laboratories (e.g.: physics, chemistry, biology, agricultural science, geography and languages, local crafts and home economics), teachers common rooms/offices, toilets, rest rooms, reading rooms, dispensaries libraries, hostels/dormitories, dining halls, assembly halls, staff quarters, sentry box, etc.

The various types of infrastructure facilities required in schools are classroom equipment (e.g.: desks, chairs, blackboards, cupboards, shelves, dustbins, dusters, wash hand basins, napkins, teaching aids, etc.). Laboratories equipment for physics, chemistry, biology, agricultural science, languages, geography, etc. Sports and games equipment e.g.: football, table tennis, volley ball, hockey stands/ crossbar, javelin, hurdles, trophies, jerseys/sports vests, etc.

Schools records/books include: special records books or professional record books kept for day-to-day school affairs such as log-books, admission registers, attendance registers, punishment books, movement books and general administration record books, and they are used for day-to-day running of school administrative duties. They include, among others, inward register, correspondence outward register, store control books, store receiving books, store issuing books. There are also books and periodicals that are supposed to be stocked in the library like: text-books, reference books, journals, magazines, newspapers, etc., and they are ready-

The main task of school is to provide education which involves a series of programmes and activities. The successful conduct of these programmes and activities depends mainly upon the availability of proper infrastructure in the school. The term 'Physical Infrastructure' stands for the physical facilities of the school. It is referred to buildings, grounds, furniture and apparatus along with equipment's essential for imparting education.

We must have the following physical infrastructure for a good school.

(a) *School Building:*

The school building should be well planned, spaciouly, functionally and with pleasing architectural features. The rooms of the building should be spacious and ventilated with all facilities like fans etc. While constructing a school building, we must keep in mind the school buildings should have different facilities such a library, different types of laboratories (Physics.

Chemistry Geography Biology Science, Home Sc., Drawing and Painting etc. workshops art and craft rooms, staff room, principal's office, school office, multimedia room, conference room or theatre etc. along with assembly ground, gymnasium etc.

The architectural design of the building is the most important feature. It should allow free movement in and out of classroom for students and teachers while it is often preferred that schools are housed in single story building in urban areas due to non-availability of land; multi-storied buildings are constructed for schools. There must be a transport facility to be arranged in the building for cycles, scooter etc.

*(b) Classrooms:*

Classroom is the backbone of any school physical infrastructure. Every school should, have adequate number of classrooms and every classroom should have a pleasant look. Walls should be painted by some light colors and rooms should be carefully decorated. New charts. Paintings should be fixed on the walls.

The front wall should have blackboard at appropriate height. The walls of the back should be having built-in cupboards for keeping books, tools, crafts materials, apparatus for experiments, maps and other teaching outs. In a classroom where there are movable seats and work tables, where varied resources for learning are readily available in storage cabinets. The seating can be changed in a variety of activities simultaneously. The classroom should be well lighted so that students seated at different corners are able to see the teacher and the blackboard. The location of rooms would be airy and lighted naturally on the failure of power (Electricity).

*(c) Library:*

Library is a counterpart of a school physical infrastructure. It plays a vital role in the learning process of the school. The library is an essential component of a good school. The library room should be located in such a place where students are not getting disturbed by noise.

*(d) Laboratories:*

Laboratory is an essential part of a school. This is the place where experiments are performed and hypothesis are tested and verified. At a stage a school needs biology, physics, chemistry, a computer laboratory. The physics lab should be equipped by optical, electrical, thermodynamical, mechanical instruments.

The chemistry lab is equipped with different types of solutions, salts and components. Biology lab has to be equipped by slides, microscopes, skeletons and different specimens. Computer lab is equipped with a series of computers and systems. Mere knowledge would not be sufficient for building the required competence in specific content area. If theory is supported by practices clarity could be maintained as well as psychomotor skills could be developed.

*(e) The Administrative Block:*

In a school infrastructure the administrative block should be well planned. The leadership and service functions are done in administrative block. The school office should be centrally located so as to serve as a good co-ordination centre, easily accessible to visitors, teachers and students. The principal's office should be large enough to accommodate small conference and should open into the general office as well as to the corridor.

*(f) Staff Room:*

In the physical infrastructure there must be a room where the teachers can meet and interact with each other, do corrections of home/school work of students and refer to books etc. This room

should have lockers for teachers so that they can safeguard various reference books and instructional materials and answer books and their personal belongings.

*(g) School Playground:*

Sound mind exists in a sound body, so die school should have well maintained playgrounds. Sports and games play so vital roles in education that they cannot be totally dispensed with. Playgrounds not only enable pupils to develop their physical but also help them to grow cognitively, socially and effectively. Any school that has its eye on the total development of children should have enough facilities for indoor as well as outdoor sports and games. Physical education is a subject to be taught so that it should be taught in playground only.

*(h) Other Facilities:*

Among the above facilities there is another one which is most important for a school. These are, Art and Craft Room, Music Room, Dramatic Room, Dance Room, Sports Room, Common Room etc. (Hargreaves, Halasz & Pont, 2007).

**2.7 Assessment of Recreational Facilities maintenance on students' academic performance in Public Secondary Schools in Kaduna State**

The Place of recreational Educational Facilities, Supplies and Equipment in Secondary Schools Sports Development Recent studies and experimentations have yielded new trends in design for the construction of recreational Education facilities, supplies and equipment. Although basic concepts, such as that of having teaching stations remain the same, current innovations in design are producing teaching stations that are more functional and less expensive. In order to catch them young, Nigeria secondary school's physical education requires a variety of sports/physical education facilities, supplies and equipment both indoors and outdoors.



The relative needs of the students and athletes should be recognized in the planning of facilities, scheduling for their use and the purchase of the supplies and equipment. Supplies and equipment needs vary according to a wide range of factors, including the level of programme or participants, age of the user group, type of activities being offered, number of participants, and, of course, finance. Arnheim & Prentice, 2000; Athletic Business February 2000; Athletic Business August(2000). Facilities, supplies and equipment provision are important aspect of recreational education and sports management. Excellent programme is the key word in physical education and sports competitions, and this requires well equipped good play-ground for training. Standard facilities and equipment are essential prerequisites to good and impressive performance. Lack of adequate and standard recreational facilities and equipment hampers physical education and sports programmes in many ways. Aluko & Adodo, (2011), also pointed out that there must be sufficient motivation in the form of attractiveness of facilities, supplies and equipment to captivate athletes' interest to participate in sports or games. He further stated that the facilities and equipment in this country are simply not good enough and are hindrance to physical education and sports development.

#### 2.7.1 Guidelines for the Selection of Instructional Materials

Appropriate materials are usually selected for use in a teaching and learning situation. Generally, when selecting instructional materials for classroom instruction the following guidelines should be considered. Materials that carry sound and picture such as multimedia like Television, Video, and Personal computer

##### *Instructional Objectives*

What the teacher sets out to achieve, his instructional objectives, should be given due consideration. If the teacher's Instructional objective includes – cognitive, affective or

psychomotor aspect of knowledge, the teacher may require different forms of instructional materials because of the variation of the task.

If it is cognitive, such as when what the teacher requires to accomplish or realize his teaching objectives[s] has to do with the acquisition of facts, principles and knowledge thus, radio medium or the form of audio materials may be considered (Kadage, 2012). If the teacher's instructional objective is about affection or psychomotor other forms of should be employed.

1. Level, age, interest and Background of learner
2. Age
3. Interest
4. Background of the learner
5. Availability and accessibility
6. Ability of the teacher
7. Characteristics of the instructional materials
8. Quality of the instructional Materials
9. Cost Benefit analysis
10. Instructional Amenities
11. Competent Personnel:
12. Popular Instructional Materials (Kadage, 2012).

#### 2.7.2 Instructional Material Utilization and Maintenance

The next consideration of educational materials application is the usability and integration of the Improvised/selected for use in teaching and learning requires that the teacher should be prepared adequately and ahead of the actual period of the lesson the teacher should make the following arrangements

1. He should be mentally and physically fit to carry out the task of teaching
2. He should have a well-prepared lesson plan/lesson note.
3. He should be knowledgeable to the subject;
4. He should be resourceful in creating and handling different media;
5. He should be methodical and tactful in lesson presentation.
6. He should be conversant with the medium/media in use
7. He should prepare the environment in terms of choice of appropriate classroom and
8. He should prepare the learners mentally and physically i.e. the learners should be motivated and their seats should also be arranged such that they are free from any kind of interference (Kadage, 2012).

Having taking all these into consideration, the teaching – learning task is now ready to commence (Kadage, 2012). It is worthy of note however, that there is no hard and fast rule regarding the stage at which the teacher can employ or integrate the relevant medium/media in the lesson.

### 2.7.3 Implications of Instructional Materials

Teachers who implore instructional materials in their lessons must be wary of possible implications of the materials. Some of these implications are:

*Over-Utilization of the Instructional Materials:* over utilization of instructional materials occurs when all deductive materials, which are integrated in the content and presentation of lessons, are made to perform an instructional task that can be more effectively performed by other medium or a combination of media. An example of over utilization of medium can be seen in teaching of science by radio. In this situation advance visuals or written words word or animation are

required without which the radio medium is clearly over-utilized consequently the teaching and learning activity may not be effective.

*Under – Utilization of the Medium or Media:* this is a situation when the teacher put the chosen materials to insufficient task. Under – utilization of instructional materials occurs when they are not used to their utmost capacities. An example of a situation where a medium of instruction is under – utilized could be seen in instructional television. In this situation – i.e. a multi – materials situation, where the human teacher merely performed at information giving level only, this is grossly under – utilizing the medium. In this situation, however, the teacher can stimulate and guide the thinking of the learners. He can use various demonstrations and provide as many visuals as possibly required for the lesson, when that is not done it means the medium is under – utilized.

#### 2.7.4 Criteria of selection Instructional Materials

Kadage (2012), furthered opined that for successful implementation of the lesson after planning it, you must also select the appropriate and suitable instructional materials that will help you to strategically deliver the content. Instructional materials where they are available in the school or in the Education Resource Centre, the teacher is advised to select from the array of them. Thus, the teacher is hereby guided on what consideration is required before he select the instructional material(s) that will help him in the delivery of his lesson they are listed below:

1. Need of the client
2. Knowledge of the resource materials
3. Authenticity of the resource materials
4. Scope of the learners as well as the resource materials
5. Interest covered by the material
6. Organization of the material
7. Physical characteristics of the material

8. Availability of the material
9. Accessibility of the material
10. Aesthetic standard of the material
11. Subject matter or course to be taught.
12. Cost of the material
13. Size of the material
14. Operational facilities
15. Teacher capability
16. Interactivity
17. Motivational value
18. Objectives of the lesson
19. Constraints of instructional situation
20. Instructional Methodology
21. Characteristics of learner. (Kadage, 2012).

## **2.8 Assessment of Instructional Facilities maintenance on students' academic performance in Public secondary Schools in Kaduna State.**

Instructional facilities are educational facilities used to improve students' knowledge, abilities, skills, to monitor their assimilation of information, and to contribute to their overall development and upbringing. More specially, it was that the use of instructional materials is a sine qua non in affecting behavior of learners of every field. It is obvious that teaching and learning cannot be well accomplished without the use of instructional materials. The reason is not farfetched. Advances in technology have brought instructional materials especially the projected and electronic materials to the forefront as the most radical tools of globalization and social development which have affected the classroom teaching learning situation positively. Such technology or technological breakthroughs as networked and non-networked projected and

non-projected, visual, auditory, audio-visual electronic materials are important landmarks in knowledge transfer. With them both teaching and learning become very pleasant experiences.

Instructional materials possess some inherent advantages that make them unique teaching. For one thing, they provide the teacher with interesting and compelling platforms for conveying information since they motivate learners to want to learn more and more. Also, by providing opportunities for private study and references, the learners' interest and curiosity are increasingly stimulated. Further, the teacher is assisted in overcoming physical difficulties that could have hindered his effective presentation of a given topic. They generally make teaching and learning easier and less stressful. They are equally indispensable catalysts of social and intellectual development of the learners.

Ajayi (2006) pointed to a good relationship between the teachings of the subjects and using of instructional materials. He argued that while some educators have been fascinated by the potential of instructional materials to enhance teaching and learning teachers lagged behind in using instructional materials during teaching and learning. Others expressed doubts that instructional materials will ever incite teaching reform in some subjects. Instructional materials are integral components of teaching learning situation. It is not just to supplement learning but to complement its process.

Instructional materials are made up of objects such as printed materials, audio, visual that aid in the successful delivery of social studies lesson (Katsiyannis, Ryan, Zhang, & Spann, 2008). To this end, instructional materials are said to be objects or things the teacher can use in the classroom while teaching in order to ease off his teaching activities. However, instructional materials cannot address all the teaching learning problem but it can go a long way in solving them, simply because they are additional apparatus that can assess the reality of teaching and

learning activities. Effiong & Igiri (2015) explained that, the concept of teaching aids has gone through several evolutionary stage from the simple aids, instructional technology, media to communication and educational technology. This however, tells us that instructional materials are not just objects or equipment's used during teaching learning process but there those objects improvised by the teacher to make conceptual abstraction more concrete and practical to the learners.

Instructional materials are the relevant materials utilized by a teacher during instructional process for the purpose of making the contents of the instructions more practical and less vague. Instructional materials are indispensable factors of any teaching learning process. Ordinary words or verbalization has been found to be inadequate for effective teaching. Instructional materials serve as a channel through which message, information, ideas and knowledge are disseminated more easily. They can therefore be manipulated, seen, heard, felt or talked about. They facilitate activities. They are anything or anybody the teacher turns to for help in his learning process (Lawrence & Vimala, 2012).

Instructional materials group the learners' intellect and eliminated boredom. Some of the unique qualities of instructional materials is speedy learning and accuracy. They make the work easier, more appealing, accurate, neater and boosting for clarity of social studies concept. Some subjects like integrated science and Social studies is so close to the life of every child that no teacher needs ever be without instructional materials for teaching of them. One of the biggest draw backs in the use of instructional materials is inadequate supply of instructional materials.

Teaching of the above-mentioned subjects in respect to its scope and nature, which is multidimensional, integrative and dynamic, cannot effectively take effects without the use of instructional materials, the teaching of social studies contents must focus not only on making

teachers competent at using instructional materials, but at the same time, promote strategies that enables the integration of instructional materials that enhances teaching and learning of their goals and objectives.

Instructional materials as an act of giving help normally by teachers to provide help and encouragement in students or pupils learning activities. They further described instructional materials as a tool, which can easily be used by a teacher to correct wrong impressions and to illustrate things that learners cannot forget. The major aim of using instructional materials in schools instructional is to achieve excellent result.

Instructional Materials are channels through which messages, information and ideas are conveyed or disseminated. Instructional materials, therefore, refer to all educational resources designed for instructional purposes e.g. graphics, photographic, electronic or mechanized means of processing or restructuring audio or visual or a combination of both. Simply put, instructional materials refer to all forms of communication through which teaching and learning take place (Tuckman, 1970) in (Kadage, 2012)

### 2.8.1 Problems of Recreational Facilities Maintenance in Secondary Schools

The effective performance of physical education and recreational programmes in secondary schools involves the determination, allocation and development of funds for the achievement of the school recreational programmes. The programmes requires a large amount of money every year. This is because facilities such as courts and pitches are constructed and maintained for the use of the students. Also, equipment and supplies such as balls, nets, javelin, rackets, hockey sticks, bats, gymnastic and athletic (track and field) materials require either purchasing, replacement or repairs. Gulhane., (2014)opined that facilities should be planned and constructed with an eye to the future. Too often, facilities are constructed and out-grown their



use within a very short time. Most facilities constructed in our secondary schools are very difficult to expand or exchange. It is noticed in today's schools, the increased population, rising school enrolments, city life, limited space, and skyrocketing labor and material costs, are all altering physical education and recreational facilities and equipment availability and maintenance. According to (Awosika, 2009), it might be impossible to achieve satisfactory results from athletes whose training facilities and equipment are inadequate or of sub-standard.

The scarcity of physical education facilities, supplies and equipment constitute a big cog in the successful administration, organization and maintenance of recreational activities and sports in Nigeria. Nigeria athletes would have performed better if they have half of the facilities and equipment available to the Western World. It is noted that most of our athletes lack exposure to modern sophisticated sports/physical education infrastructural facilities and equipment for training. Orunaboka & Nwachukwu (2012)ascertained that athletes have been known to drop out of skip training because these things (facilities and equipment) are either not existing or inadequate.

Maintenance culture of recreational Facilities, Equipment and Maintenance of most public properties which belongs to nobody is less concern of some citizen of Nigeria. Maintenance culture should be established by the physical education administrator, with proper repairs of physical education facilities, supplies and equipment. Gulhane., (2014)opined that equipment and facilities should always be maintained in a serviceable condition. Procedures for caring for facilities, equipment and supplies should be routinized so that repairs are provided as needed. All used equipment and supplies should be checked and then repaired, replaced, or serviced as needed. Such used items should be cleared and stored properly. Facilities and equipment should be easy and economically to maintain and should be durable. A great emphasis should be on

maintenance culture by the administrators as to achieve the best results. The construction of facilities for recreational facilities must follow the established checklist for facility planners. The planning, construction, and use of facilities for school physical education programme should consider the following health facility planning;

- a. Validity
- b. Utility
- c. Accessibility
- d. Isolation
- e. Departmentalization
- f. Safety (hygiene and sanitation)
- g. Supervision
- h. Durability and Maintenance
- i. Beauty
- j. Flexibility and Expansibility
- k. Economy and
- l. Acoustics. (Orunaboka & Nwachukwu, 2012).

It could be said that with proper maintenance culture, a facility will last longer, provide a healthier and safer environment, be less costly, and provide a more satisfying experience for user groups. Planning and constructing facilities in recreational activities and sport are team efforts. If proper plans, construction, and materials are selected, then maintenance should be made easier. Nothing is more embarrassing than a new facility that is a maintenance nightmare because of poor management decisions in the design and planning phases of the construction process. Given an adequate facility, it is up to the physical education, recreational sports, and athletic

departments' management and all user groups as well as the custodial staff to work together in taking pride in their facility and putting forth a special effort to see that it is maintained in as near perfect condition as possible (Gulhane., 2014).

The State of Facilities and Equipment in Secondary Schools in Nigeria today is fast gaining recognition as a way of the life of the people. Recreational activities have also become a universal political game; therefore, no effort should be spared in encouraging every able-bodied person to participate. The primary and secondary schools are the fertile ground for mass participation and sports for all through physical education program. It is at primary and secondary schools that the aim of the slogan "Catch them young"! Will be achieved.

The importance of recreational activities and sports in this country has been demonstrated by the level of patronage from the government, individuals, private sectors and even the spectators. Recreational activities and sports are now effectively used to propagate political, social and economic might. There is strong evidence that every state of the federation spends a great proportion of her revenue to either resuscitate or maintain and improve upon the levels already attained in sports in secondary schools. Recognizing the advantages of sports and physical education therefore, the government established sports councils, school's sports management and other sports bodies. It would be impossible for any state to win unless talents are tapped at the grassroots (primary, secondary, colleges and polytechnics /universities).

The physical education and sports administrators and organizers need to do a lot of work to raise the levels of physical education and sports in Nigeria. The planners need to appreciate that the foundation of good sports development is the exposure of the youths of that nation to participate in physical education/sports programs maintenance of standard sports sophisticated facilities, equipment and supplies for the training and participation. As it is now many public

primary and secondary schools in Nigeria may not be proud of good and quality physical education and sports facilities, equipment and supplies in their school environment for the pupils and students use. No matter the government efforts towards improving this situation, many contractors with some ministry of Education personnel are ready to frustrate government efforts by not supplying the appropriate facilities and even poor maintenance.

## **2.9 Empirical studies**

Related studies are in this section to give the study more empirical base for instance, Atolagbe. Omosidi, Oparinde, & Umaru (2017). conducted a study titled school plant planning as correlate of students' academic performance in south west Nigeria secondary schools with objectives as to find out the correlate of instructional space on students' academic performance in South West Nigeria Secondary Schools, Examine the administrative space correlate on students' academic performance in South West Nigeria secondary school, identify the correlate of circulation space on students' academic performance in South West Nigeria Secondary School, Access the correlate of school plant layout and students' academic performance in South West Nigeria Secondary schools and find out the correlate of class-size on students' academic performance in south west Nigeria secondary schools.

Descriptive survey design was used with the population of 1650 respondents comprising 150 schools' principals and 1500 teachers. Multistage, stratified and sample random sampling techniques were used to select the sample, frequency counts, percentages, mean and Pearson's products moment correlation were also used.

The researcher came up with the following findings that school plant planning and students' academic performance significantly relate to instructional space planning, Administrative space planning, circulation space planning and planning for accessories. The

study is relevant to mine in the following ways; its research on school plant, it serves as a guide material to my study and even though it is focused on South West Nigeria but it is a pointer to factors in school plant that will improve the students' academic performance in Nigeria schools generally.

Mohammed (2019) carried out the research titled assess of school plant planning on student's performance in secondary schools in Kaduna state, Nigeria. The objective of the research is to examine the assess of instructional facilities on students' performance and the assess of infrastructural facilities on students' performance in secondary schools in Kaduna state. Descriptive survey design was used and questionnaire was used for data collection. The population of the study was 10,634. The sample size was 510. The statistical tool use in analyzing the data is ANOVA. The study therefore found out that adequate provision of infrastructural facilities influences students' performance in secondary schools in Kaduna state. The researcher also found out that adequate provision of instructional facilities impacts students' performance in secondary schools in Kaduna State. The previous research work is relevant to the current research in areas such as the research design, the instruments used and the analytical tool.

However, there are some differences between the two researchers the previous is conducted at Taraba State while the current is conducted in Kaduna State. In the previous work the researcher was not specific about his respondent because the researcher only mentioned the MOE official.

Tope, (2012) carried out the study titled: Assessment of School Physical Environment on the Academic Performance of Secondary School Students in Agege Local Government Area, Lagos State, Nigeria. The objectives of the study was to examine the relationship between school environment and students' academic performance, the impact of school facilities on academic

performance of students, the extent to which school location affects the students' academic performance.

Descriptive survey design was employed in the study that covers all secondary schools in Agege Local Government Area in Lagos State, Nigeria. Ten Schools were randomly selected, while the respondents include 200 teachers, 10 principals and 20 staff from the Ministry of Education. The researcher came up with the following findings in his study; that a conducive school environment promote students learning, as well as class size also promote students' academic performance. The study is relevant to my study thus: it is a research guide to my study.

Similarly, Muriungi & Mbui (2013).studied the effects of library services on the academic performance of students in English Language in Kenya District Schools. The study has the following objectives; find out schools with good library services in Kenya District Schools, Access effects of poor library services on students' academic performance in English language in Kenya District schools, Examines the schools without library services and its effects on English language students' academic performance in Kenya District Schools and Assess the usage of library services by students and its effects on English Language students' academic performance in Kenya District schools.

Descriptive survey design was used with 300 respondents 150 students from schools with good library services and 150 students from schools without library services, systematic random sampling was used for the sample while Pearson's product correlation was used as the statistical tool. The researcher's findings include; the significant relationship between numbers of hour students spent in the library and how it affects students' academic performance in English language; in the schools with good library services, the students perform better than those without good library services and that the more hours the students spend in the library the more

they improve their academic performance in English language. The research is relevant to my study in the following ways; it serves as a research guide to my study hence it has a correlation with students' academic performance.

However, a research was carried out by Akani, O. (2015).on the state of school plant and its impact on performance of senior high schools in Ezza-South Local Government Area of Ebonyi State. The objectives of the study are to examine the assessment of infrastructural facilities, manpower facilities, instructional facilities and recreational facilities. The researcher used a survey research design with 306 teachers of the 17 secondary schools in the area. 170 teachers were selected as respondents using satisfied random sampling, simple percentage and Chi-square statistics.

The findings in the study are: Poor funding, inadequate infrastructure, poor record-keeping and inadequate manpower are the problems inhibiting effective implementation of school plant planning in Ezza-South Local Government Area of Ebonyi State.

The research is relevant to mine with the following; it is a guide to my study, have correlation and relevance of school plant and its impact on students' performance.

Oginni, Awobodu, Alaka, & Saibu (2013). worked on evaluation of school plant in terms of adequacy, usage and maintenance in secondary schools in Idemili North Local Government Education Area with objective as: To find out adequacy of school plant in Idemili North schools, the usage of school plant facilities in Idemili North schools and its maintenance. The researcher used descriptive survey design, the population of the study comprised all the principals and the teachers in post primary schools in Idemili Education Zone, he used T-test and mean score as the statistical tool. The findings of the study include the following; There should be supply of physical school plant facilities in the schools, the students should not be charged for repairing of

school plant facilities and the post primary school management board should employ store officers to manned the facilities.

The study is relevant to mine with the following; it is a guide to my study and gives more correlation to evaluation, adequacy, usage and maintenance of school plant.

The study(Alimi, Ehinola, & Alabi, 2012.) is on School types and facilities on students' academic performance in secondary schools in Ondo State. The objective of the study is to find out the assessment of school types (based on ownership) on academic performance of senior secondary school students in Ondo State. The study also examined whether public and private schools differ in term of facilities availability. Descriptive survey design was used. The population consists of all senior secondary school teachers and principal in public and private secondary schools in Ondo State. Proportionate random sampling technique was used to select 50 schools in Ondo state. Two set of research instruments named School Facility Descriptive and Students' Academic Performance Questionnaire (SFDAPQ) for principals; and School Facility Descriptive Questionnaire (SFDQ) for the teachers were used for the study. T- test was used to analyze the data. The study revealed a significant difference in facilities available in public and private schools in Ondo State. However, it revealed no significant difference in academic performance of students in the two types of secondary schools. The Government of Ondo State was observed not to be interested in the facilities available in the public School. The author examined that public and private school are different in terms of facilities available but never consider the academic performance of such school. The relevance of previous study sort to address certain subjects in the study while the present study maintains all educational facilities the previous study relates to this study in the aspect of school facilities.



Nwokike (2012) management of school plant by principals in Nsukka education zone of Enugu state. Ascertain the principals' roles in the procurement of school plant facilities, determine school plant maintenance activities of the principals and Determine safety measures put in place by principals for school plant items. The study adopted a descriptive survey design. The population comprised 59 principals and 1988 teachers in both urban and rural secondary schools from the zone. The sample size for the study was 600 respondents. A structured questionnaire by the researcher was used as the instrument for data collection. A mean and standard deviation were used to analyze the research questions while t-test statistic was used in testing the formulated hypotheses. The findings revealed that principals played significant roles in the procurement, maintenance, safe guarding, as well as ensuring adequate utilization of school plant facilities. The study also found that there was no significant difference in the mean ratings of principals and teachers with regard to principals' roles in all the investigated variables. The study having gathered its population from the urban and rural secondary school from the zones did not consider an objective to help the urban and rural zones. All its objectives are principal centered. Its relevance to the present study is that it determines the school plant maintenance activities of principals. This will help us to know how much principals partake in school facility maintenance. The previous study was basically considering management activities and safety measures of school plant without an insight to maintenance of school plant. The present research further on this study to ascertain the maintenance of school plant facilities.

Ogunniyi, Jato & Obasoro, (2018) availability and utilization of library facilities by students with visual impairment in universities in Enugu State. The objectives among others are to determine the availability of library facilities by students with visual impairment in universities in Enugu State and to ascertain the extent of the use of library facilities by students with

visual impairment in universities in Enugu state. The design of the study was a descriptive survey while the population comprised of 32 students with visual impairment and 68 librarians in the sampled institutions in Enugu state. The sample size was 100 including students with visual impairment and librarians, purposive random sampling technique was used to select the institutions that admit students with visual impairment and also to select the respondents for the study. A structured questionnaire titled Library Facilities Observation Schedule (LFOS) and Utilization Questionnaire (UQ) for collection of data from respondents were used. The data was analyzed using percentage, mean and standard deviation while two null hypotheses raised for the study were analyzed through use of chi-square and t-test statistics. Findings showed that students with visual impairment do not utilize library facilities because of inadequacy and poor orientation on the available library facilities by the librarian because of inadequate specialized personnel to handle the library facilities. The study previously undertaken by (Ogunniyi, Jato & Obasoro, 2018) on availability of library facilities by student in visual impairment in Universities in Enugu State does not consider maintain the library facilities available while the present study the assessment of educational facilities takes into consideration the maintain of these educational facilities such as classroom, library and others. The study should not only consider adequacy availability but also maintenance, it is observed by one of the findings that the library facilities are poorly handled because of inadequately personnel which is why the present study is considering maintenance of the facilities in order to be well handled or managed.

The sample institutions were not mentioned. The sample size was minimal to be able to determine inadequacy. The scope of this research is too narrow to give appropriate result. The objectives and the hypothesis do not relate.

Maro.,(2020). worked on the effects of school plant on students' readiness to learn in Tanzania Central District Schools. The objectives of the study were to examine how the availability of school plant like classroom, buildings, adequate playground, recreational facilities, toilets and games facilities motivate learners to learn in Tanzania Central District Schools. The researcher used descriptive survey design with 350 respondents consisting of 10 principals, 40 teachers and 300 students drawn from 10 high grade schools in Tanzania Central District using satisfied random sampling. He used simple percentage and Chi-square statistics.

The findings in the study are thus: That in schools where school plant is readily available and accessible students are eager to learn whether in rural or urban areas, the good condition of school facilities affect students interest in learning and schools whose facilities are in good state or condition were seen to attract more learners and retention was very high. The research is relevant to mine with the followings; it is a research guide to my study even though school plant on students, readiness to learn. It is still having correlation on showing the relevance of school plant on students' academic performance in schools.

(Afework &Asfa, 2014) The Availability of School Facilities and Their Effects on the Quality of Education in Government Primary Schools of Harari Regional State and East Hararghe Zone, Ethiopia Its major objective was to study the availability of school facilities, the influences of school facilities on quality of education and the effect of quality school facilities on government schools. The research design adopted was descriptive survey. The study population are the 34 School principals,6 district and2 regional education bureau heads were the sample of the research the study sample was selected through simple random sampling technique and available sampling techniques. The data collection instrument were questionnaire, interview and

observation. The data analysis was done using statistical tools such as percentages, frequencies, means and grand means.

Research result showed that the availability of school facilities and instructional materials were unavailable, less in quantity and quality that created a great challenge on teaching and learning activities that in turn had a negative influence on the improvement of the quality of education. The research observed that the previous research topic evaluates availability and quality of school facilities while the present study considers the assessment and maintenance of the school facilities, the previous study did not show us how the facilities available will be maintained. The difference in the previous study from the present study is the location and the coverage area of the study.

## **2.10 Summary**

The review of literature is based on the following heading: conceptual framework, review of empirical studies and summary. It is evident that school facilities are vital tools in effective and efficient operation of educational programmes, good and well-maintained school facilities contribute immensely to a higher level of academic performance. A school with sufficient educational facilities and well-maintained facilities is comfortable and secure from being dilapidated and it contributes to an improved students' academic performance, it radiates a sense of well-being and sends a caring message to the students. Thus, good school facilities is the key to a higher academic performance. It also discusses assessment of classroom facilities maintenance in public secondary school, assessment of library facilities maintenance in public secondary school, assessment of laboratory facilities maintenance in public secondary schools, assessment of infrastructural facilities maintenance in public secondary schools, assessment of recreational facilities maintenance in public secondary school, assessment of instructional

facilities maintenance in public secondary schools. The researcher reviewed four empirical studies on educational facilities and related areas. The academic performance of students depends on professionally qualified and experienced teachers. The findings revealed that school educational facilities are supplied by the government. The academic performance of students depends on professional qualified and experienced teachers. There is a gap in public secondary schools as regards availability and maintenance of educational facilities. It is this gap that arouses the researcher's interest to undertake a study on the assessment of educational facilities maintenance on students' academic performance in public secondary schools in Kaduna state.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter spells out the research methods and techniques employed in carrying out this research. It is divided into the following sub-headings: Research Design; Population of the Study; Sample and Sampling Techniques; other aspect of the chapter includes; Validity of the Instrument; Pilot Study; Reliability of the Instrument; Procedure for Data Collection; and Procedure of Data Analysis.

#### **3.2 Research Design**

This study employed a descriptive survey research design, to evaluate the assessment of educational facilities maintenance on students' academic performances in public secondary schools in Kaduna State. This is a design that studies people or item in groups, and also describes and interprets relationships between or among variables that exist in a research. A survey research design is used to collect data. In line with this(Macharia, Iravo, Tirimba & Ombui, 2015) describes research design as a plan, structure and strategy of investigation to obtain answers to research questions and control variance. It is a design which attempts to document current conditions of what exists at the moment The choice of this research design is based on the fact that it allows for the collection of data from heterogeneous groups. This means that inferences and generalizations can be made on the entire population where data is collected.

#### **3.3 Population of the study**

According to Meredith., (1998) Population is the target group, which the researcher is interested in studying and which he intends to obtain information and draw conclusions. The population of this study comprises of secondary schools principals, teachers, and MOE Officials

within the twelve education zones in Kaduna State, the Zones includes Anchau, Birni Gwari, Giwa, Gwado-Gwado, Kachia, Kaduna, Kafanchan, Lere, Rigachukun, Sabon Tasha, Zaria, and Zonkwa. The total population for this study is Eleven thousand and Sixty-Four (11,064) which comprises of 541 Principals, 10,294 Teachers and 229 MOE Officials. Table 1 shows the details:

**Table 3.1: Population of the study**

S/No	Education Zones	No of Principals	No of Teachers	No. of MOE Officials
1	Anchau	67	858	18
2	Birnin Gwari	21	178	11
3	Giwa	33	628	13
4	Gwado-Gwado	36	477	19
5	Kachia	56	573	11
6	Kaduna	38	1762	32
7	Kafanchan	52	1256	18
8	Lere	44	479	11
9	Rigachukun	30	435	19
10	Sabon Tasha	66	1446	34
11	Zaria	55	1524	19
12	Zonkwa	48	678	23
<b>TOTAL</b>		<b>541</b>	<b>10,294</b>	<b>229</b>

**Source:** Ministry of Education Kaduna State (2017)

Table 3.1 shows the population of the study. It shows the number of principals, teachers, and MOE officials across the twelve Educational Zones in Kaduna State. The table reveals that Anchau has the highest population of school principals at 67, with Birni Gwari having the least

population of schools principals. Kaduna education zones has the highest number of school teachers (1762) with Birni Gwari having the lowest population of teachers (178)sabon Tasha has 34 MOE officials while Birnin Gwari ,Kachia, and Lere has the lowestpopulation of MOE officials.

### 3.4 Sample and Sampling Techniques

The study was carried out in four (4) education zones within Kaduna State.Principals,Teachers and MOE Officials are Sample within the school in the zones. Stratified sampling technique wasused to select the sample size. These zones were randomly selected based on the proximity to the researcher The total sample size of 215 principals,5305 teachers and 96MOE officials is selected; which is a total of (5616) five thousand six hundred and sixteenrespondent. The distribution of the sample size is given in tables3.2

**Table 3.2: Sample of the Study**

S/No	Schools	Principal		Teachers		MOE Officials	
		Population	Sample	Population	Sample	Population	Sample
1	KACHIA	56	19	573	172	11	3
2	KADUNA	38	11	1762	529	32	10
3	SABON TASHA	66	20	1446	457	34	6
4	ZARIA	55	15	1524	434	19	10
<b>TOTAL</b>		<b>215</b>	<b>65</b>	<b>5305</b>	<b>1592</b>	<b>96</b>	<b>29</b>

The sample size is determined by(Nomayu, Ijov & Asen, 2015)who said that 10%-30% of a population can be used as a sample to represent the entire population. Stratified Random



Sampling technique is used to select Kaduna, Kachia, Sabon Tasha and Zaria, A total of (65) sixty-five Principals, (1592) one thousand five hundred and ninety-two teachers and (29) twenty-nine MOE Official were selected, that is a total of (1686) One thousand six hundred and eighty-six respondents used for this study.

### **3.5 Instrumentation**

A self-designed questionnaire tagged IEFMSAPQ on the assessment of educational facilities maintenance on students' academic performance in public secondary schools in Kaduna State was administered to the respondents (Principals, Teachers and Students). The 60-item instrument was divided into sections "A"– "G". Section "A" included information about the respondents' personal data, such as status and school types sections "B" to "F" included items that were on the working variables of the study. The instrument is tailored around the five-point Likert scale rating format of (1-Very regularly maintained, 2- Regularly Maintained, 3- Seldomly Maintained, 4-not maintained and 5-Abandoned.) This allowed the respondents not only to agree or disagree with items of the questions, but also to indicate their levels of maintenance. Thus, it was also easily understood by both the researcher and the respondents.

#### **3.5.1 Validity of the Instrument**

.Anthony (2013) opined that validity is a degree to which results obtained from the analysis of the data represent the phenomenon under study. In this regard, a questionnaire was designed for the various categories of respondent (Principals, teachers and MOE Officials) from Kaduna state was validated in its contents and face values by the supervisors of the research work which is line with Bodunde (2010) was in support that validation of instruments by experts was an effective method of content validity of research instruments. Necessary corrections and amendment were made in order to ensure that the instrument was free of ambiguity. Each

questionnaire item was directed at the objectives and statistical hypotheses formulated in line with the objective of the study.

### 3.5.2 Pilot Study

A pilot study was conducted to test the reliability of the instrument. 3 school principals, 15 teachers and 12 MOE officials were randomly selected from Government junior secondary schools Kabala West, Government Girls secondary school Angwan Muazu (JNR) and (SNR) which was outside the study area. 30 questionnaires were deployed for the pilot testing. The pilot study is designed to determine the reliability of the instrument, its difficulty level and whether it has power to discriminate over result. The instruments were personally administered by the researcher and two research assistants. Scores were collected from the field immediately. This was to ensure that the instruments were well scrutinized before it is deployed for finally fieldwork.

### 3.5.3 Reliability of the Instrument

According to these researchers (Adesina, 2011) who stressed that “an instrument is reliable if it consistently measured what is expected to measure after several tests have been made. An instrument is considered reliable if it lies between 0 and 1, and that the closer the calculated reliability coefficient is to zero, the less reliable is the instrument, also the closer the calculated reliability coefficient is to 1, the more reliable is the instrument.

From the pilot study, The Cronbach's Alpha test of reliability was carried out, the result gave a coefficient of 0.93 at a 0.05 level of significance. This therefore confirms the reliability of the data collection instrument used as fit for the main work.

## 3.6 Procedure for Data Collection

The research instrument meant for the three categories of the respondents was administered by the researcher and four trained research assistants in the sampled schools. The respondents were given the questionnaire and allowed to familiarize themselves with it and ask questions where necessary. They were allowed to freely respond to the instrument, with no interference and after which the responded instrument was retrieved back in one week which lasted for a period of two weeks in all the sampled schools by the researcher and the assistant.

### **3.7 Method of Data Analysis**

The study used tables for the presentation of data. Descriptive and inferential statistical technique was used for the analysis of data, the bio-data of the respondents was analyzed with the use of percentage and frequency counts, while mean and standard deviation was used to respond to the research questions. The postulated hypotheses of this research were analyzed using ANOVA Analysis of Variance. The use of this statistical tool is based on the fact that the study has more than two respondent and the data to be gathered is a categorical data. Hypotheses was tested at 0.05 alpha level of significance.

## CHAPTER FOUR

### RESULTS, ANALYSIS AND DISCUSSION

#### 4.1 Introduction

The study is titled assessment of educational facilities maintenance on students' academic performance in public secondary schools in Kaduna state, Nigeria

It has six major objectives, to which six research questions were provided answered and six corresponding hypotheses tested. A total of 1686 was distributed but 1660 was retrieved. Respondents comprising of 61 principals, 26 Ministry of Education officials and 1573 teachers across the entire public secondary schools in Kaduna State totaling 1660 respondents out of the 1686 sampled for the study representing 98.5%. The study seeks to find the difference among these three categories of respondents on assessment of educational facilities maintenance on students' academic performance in public secondary schools in Kaduna state, Nigeria, hence the appropriate statistical techniques.

The Statistical package of the Version IBM 23 was used to analyze the data in this study, the first section consists the presentation of the bio data variables in frequencies and percentages. These consist of the respondents' gender, age, the type of school, qualification, status, years of experience and school location. The research questions were answered based on the set of tables in each of the six sections. Each item mean was computed to determine agreement or disagreement and a cumulative mean was also computed in each table. A mean response higher than the standard/decision mean of 3.000 indicate positive agreement while a mean lower than the standard mean of 3.00 indicate negative or disagreement. The hypotheses were all tested with the Analysis of Variance statistics because each hypothesis test the level of significant differences among the three categories of respondents of Principals, Teachers and MOE officials.

In order to accept or reject the null hypothesis, all the hypotheses were tested at 0.05 alpha level of significance

#### 4.2. Bio Data of the Respondents

Presentation of Demographic data in Frequency and percentages

**Table 4.1: Shows School Type Respondents**

Category	Frequency	Percent%	Cumulative Percent
JSS	550	33.1	33.1
SSS	1110	66.9	66.9
<b>Total</b>	<b>1660</b>	<b>100.0</b>	<b>100.0</b>

On their school type, a total of 550 representing 33.1% are from JSS schools and the rest 1110 or 66.9% are from SSS schools

**Table 4.2: Shows Status of Respondents**

Category	Frequency	Percent	Cumulative Percent
Principal	61	3.7	3.7
Teachers	1573	94.8	94.8
MOE Officials	26	1.6	1.6
<b>Total</b>	<b>1660</b>	<b>100.0</b>	<b>100.0</b>

The status of the respondents showed that while 329 or 19.8% are principals another 1181 or 71.1% are teachers and the rest 150 or 9.0% are MOE officials

#### 4.3 Answering Research questions using the perception of respondents on each item of the data

**Question One:** What is the assessment of classroom facilities maintenance on students' academic performance in public secondary schools in Kaduna state?

**Table 4.3: Opinion of respondents on Classroom Facilities Maintenance on students' academic performance.**

S/No	Item Statement	Response					Mean
		VRM	RM	SM	NM	A	
1	Tables are maintained in the school for students' academic performance	294	915	45	374	32	3.647
2	Chalkboards are well maintained in the schools for students' academic performance	295	908	65	360	32	2.934
3	There is maintenance of teaching aid in the classroom in this school for students' academic performance	110	557	216	668	109	3.523
4	Projectors are well maintained in the classroom in this school for students' academic performance	235	896	127	309	95	2.091
5	There are maintenance of Computers in this school for students' academic performance	15	203	292	558	592	2.395
6	Chairs are well maintained in this school for students' academic performance	63	293	281	623	400	3.520
7	Waist bin are maintained in this school for students' academic performance	233	896	127	307	95	4.251
8	Students register are maintained in the classroom in this school for students' academic performance	743	732	76	77	32	3.378
9	Classroom rules and consequences are posted in each class and are maintained in this school for students' academic performance,	234	822	108	329	167	4.402
10	Classroom teacher maintained good use of lesson note and scheme of work in this school for students' academic performance	915	622	46	30	47	3.642
	<b>Cumulative mean</b>						3.3783

**Standard/decision mean = 3.00**

Table 4.3 shows that classroom facilities maintenance has tremendous impact on students' academic performance in public secondary schools in Kaduna state? This is because the respondents overall mean agreement of 3.3783 in this regard is above the 3.000 standard decision

mean. Specifically, classroom rules and consequences are posted in each class and are maintained in this school for students' academic performance as this opinion attracted the highest mean level of 4.402 as a total of 234 very regularly maintained, 822 regularly maintained while 108 were seldomly maintained 329 not maintained and the rest 167 abandoned.

Waist bin are adequately maintained in this school for students' academic performance as this had the second highest mean of 4.251 indicating that while 233 very regularly maintained, 896 regularly maintained as against 127 seldomly maintained while 307 not maintained and the rest 95 abandoned. In summary, Classroom rules and consequences are posted in each class and are maintained in this school for students' academic performance and Waist bin are adequately maintained in this school for students' academic performance

***Question Two:*** What is the assessment of library facilities maintenance on students' academic performance in public secondary schools in Kaduna state?

**Table 4.4: Opinions of respondents on Library Facilities Maintenance on students' Academic performance.**

S/No	Item Statement	Response					Mean
		VRM	RM	SM	NM	A	
1	Library tables and chairs are maintained in this school for students' academic performance	124	473	216	564	283	2.754
2	Book shelves are maintained in this school for students' academic performance	109	428	265	561	297	2.693
3	Sufficient library space in the school are well maintained for students' academic performance	77	445	202	655	281	2.628
4	Computers in the library are maintained in the school for student academic performance	94	280	321	627	338	2.497
5	Online facilities are well maintained in this school for students' academic performance	46	142	297	698	477	2.146
6	There are photocopying machines in the library are well maintained in this school for students' academic performance	48	333	246	666	367	2.415
7	The journals are current and maintained in this School for students' academic performance	48	216	263	822	311	2.318
8	There is maintenance of textbooks in this school library for students' academic performance	95	570	192	617	186	2.862
9	The cupboards in the library are well maintained in this school. for students' academic performance	47	429	233	713	238	2.599
10	There are reference materials and they are well maintained in this school for student academic performance	112	463	206	601	278	2.717
<b>Cumulative mean</b>						<b>2.5629</b>	

**Standard/decision mean = 3.00**



Table 4.4 shows that respondents generally agreed that Maintenance of library in public schools has a very low cumulative mean agreement of 2.5629 which was found to be lower than the 3.000 standard/decision mean. Specifically, they disagreed with the statement that there are Adequate online facilities are available and is well maintained in this school for students' academic

performance, as this attracted the least mean agreement of 2.146 as only 46 went with very regularly maintained, while 142 showed it was regularly maintained as against 297 showed that it was seldomly maintained while 698 choose it was not maintained and the rest 477 showed abandoning of these facilities.

In addition, they disagreed with the statement that the journals are current and adequately maintained in this School for students' academic performance as this attracted a very low mean agreement of 2.318 with details showing that only 48 choose it was very regularly maintained while 216 accepted it was regularly maintained,as against 263 which showed it was seldomly maintained while 832 showed it was not maintained and the rest accepted it was abandoned.

In summary, the maintenance of library facilities for Students academic performance in public schools in Kaduna state is very low especially as there are no adequate maintenance of online facilities nor are there current journals maintained.

***Question Three:*** What is the assessment of laboratory equipment maintenance on students' academic performance in public secondary schools in Kaduna state?

**Table 4.5: Opinions of respondents on Laboratory Equipment Maintenance Students Academic performance**

S/No	Item Statement	Response					Mean
		VRM	RM	SM	NM	A	
1	The Microscope in the science laboratory are well maintained in this school for students' academic performance	153	261	360	577	309	2.622
2	There is sufficient maintenance of laboratory stool in this School for students' academic performance	123	647	250	452	188	3.039
3	Test tubes are maintained in science laboratory in this school for students' academic performance	188	629	297	390	156	3.183
4	voltmeters are maintained in laboratory in this school for students' academic performance	94	491	483	403	189	2.939
5	There is maintenance of multi-media screen and speakers in this school for students' academic performance	31	77	450	623	479	2.131
6	The burners in the science laboratory are maintained in this school for students' academic performance	141	515	373	340	291	2.925
7	There is maintenance of ammeter (measuring instrument) in this school for students' academic performance	94	529	390	446	201	2.921
8	The school laboratory cupboards are maintained for students' academic performance	125	634	328	357	216	3.057
9	There is maintenance of gas cylinder in this school for students' academic performance	141	430	375	465	249	2.849
10	There is maintenance of storage flask in this school for students' academic performance.	79	324	470	554	233	2.676
	<b>Cumulative mean</b>						<b>2.8342</b>

**Standard/decision mean = 3.00**

Table 4.5 shows that the general level of perception on the maintenance of Laboratory equipment maintenance in public secondary schools in Kaduna state is very low. Reason being that the respondents' general or cumulative mean agreement level of 2.8342 is lower than the 3.000 standard/decision mean. In specific terms, The maintenance of multi-media screen and speakers

in this school for students' academic performance is not adequate as this statement attracted a low

mean of 2.131 as only 31 accepted it was very regularly maintained while 77 went with regularly maintained while 450 choose seldomly maintained as against 623 that indicated it was not maintained and the rest 479 choose abandoned. In the same vein the Microscope in the science laboratory are well maintained in this school for students' academic performance is very low with a mean agreement of 2.622 as details showed that only 153 were in support it was very regularly maintained while 261 choose it was regularly maintained while 360 was seldomly maintained while 577 choose not maintained and the rest 309 went for abandoned. In summary, the general level of perception on the maintenance of Laboratory equipment maintenance in public secondary schools in Kaduna state is very low. Especially as it concerns multi-media screen and speakers in this school for students and Microscope in the science laboratory

***Question Four:*** What is the assessments of infrastructural facilities maintenance on students' academic performance in public secondary schools in Kaduna state?

**Table 4.6: Opinions of respondents on Infrastructural Facilities Maintenance on Student Academic Performance**

S/No	Item Statement	Response					Mean
		VRM	RM	SM	NM	A	
1	The school building are maintained for students' academic performance	418	822	81	261	78	3.748
2	Water tank is well maintained for students' academic performance	341	484	173	431	231	3.164
3	Electrical appliances are well maintained in this school for students' academic performance	167	525	155	564	249	2.878
4	There is maintenance of roads in this school for students' academic performance	169	636	171	530	154	3.082
5	There are maintenance of toilet facilities in this school for students' academic performance	230	633	111	481	205	3.122
6	The furniture's are well maintained in this school for students' academic performance	202	959	159	263	77	3.570
7	There is maintenance of school shops in this school for students' academic performance	108	346	369	558	279	2.666
8	Sick bays are maintained in this school for students' academic performance	125	271	323	540	401	2.505
9	There is maintenance of the ventilation in this school for students' academic performance	434	914	111	154	47	3.924
10	Roofs are maintained in this school for students' academic performance.	291	745	81	312	231	3.333
<b>Cumulative mean</b>							3.199

**Standard/decision mean = 3.00**

Table 4.6 shows that the respondents believe that the level of infrastructural facilities maintenance in public schools for academic performance is high this is because the respondents cumulative mean agreement level of 3.199 is higher than the 3.000 standard/decision mean. Specifically, there is adequate maintenance of the ventilation in this school for students' academic performance as

434 choose very regularly maintained while 914 went for regularly maintained as against 111 that choose seldomly maintained while 154 went for not maintained and the rest 47 went for

abandoned. However, On the other hand, the Sick bays not adequately maintained in the public school for students' academic performance with the least mean agreement of 2.505 with details showing that on the assessment, only 125 went for very regularly maintained while 271 choose regularly maintained, as against 323 that choose seldomly maintained while 540 went for not maintained and the rest 401 went for abandoned.

In summary, the level of infrastructural facilities maintenance in public schools for academic performance is high particularly adequate maintenance of the ventilation in this school but on the other hand, the Sick bays are not adequately maintained in the public school for students' academic performance.

***Question Five:*** What is the assessments of Recreational Facilities Maintenance on Students' Academic Performance in Public Secondary Schools in Kaduna State?

**Table 4.7: Opinion of Respondents on Recreational Facilities Maintenance on Students Academic Performance**

S/No	Item Statement	Response					Mean
		VRM	RM	SM	NM	A	
1	Gardens are maintained in this school for students' academic performance	107	232	234	641	446	2.345
2	Students common room are maintained in this School for students' academic performance	93	125	326	604	512	2.207
3	The clubs are well maintained in this School for students' academic performance	320	737	251	252	100	3.557
4	There is maintenance given to playground in this School for students' academic performance	139	591	280	448	202	3.010
5	Music room are maintained in this school for students' academic performance		138	407	590	525	2.095
6	There is maintenance of the recreation centres for students' academic performance	31	141	392	619	477	2.175
7	Lawns are well maintained in this School for students' academic performance	15	311	390	605	339	2.433
8	Students recreation arts are well maintained in this School for students' academic performance	46	217	327	700	370	2.319
9	Green space are maintained for students' academic performance	31	293	327	623	386	2.373
10	The Students drama and Dance costume are well maintained in this School for students' academic performance	156	460	266	468	310	2.810
	<b>Cumulative mean</b>						2.532

**Standard/decision mean = 3.00**

Table 4.7 shows that the general recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state is very low. This is as their cumulative mean response agreement of 2.532 is below the 3.000 standard/decision mean. Specifically, most of them are of the opinion that Music room are not maintained in the public school for

students' academic performance as this response attracted the least mean agreement of 2.095 as details showed that only 8 went for Very regularly maintained while only 130 choose regularly maintained as against 407 that choose seldomly maintained while 590 choose not maintained and the rest 525 went for abandoned. In the same vein the maintenance of recreational centers in public schools is very low as this attracted a mean agreement level of only 2.175 as details showed that while only 31 and 141 went for very regularly maintained and regularly maintained respectively, 392 were for seldomly maintained as against 619 that choose not maintained and the rest 477 choose abandoned.

In summary, the general of recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state is very low, particularly as it concerns the maintenance of music rooms and recreational centers.

***Question Six:*** What is the assessments of instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state?

**Table 4.8: Opinion of Respondents on Instructional Facilities on Students' Academic Performance**

S/No	Item Statement	Response					Mean
		VRM	RM	SM	NM	A	
1	There is maintenance of Simulation games in this school for students' academic performance	110	266	338	622	324	2.528
2	Graphs are maintained in this school for students' academic performance	111	575	276	526	172	2.956
3	There is maintenance of transparency maker in this School for students' academic performance	77	339	407	588	249	2.643
4	Microfilm recorder are maintained in this School for students' academic performance	15	78	471	619	477	2.117
5	Cameras are maintained in this school for students' academic performance	0	35	484	603	538	2.010
6	There is maintenance of wall charts in this school for students' academic performance	220	521	331	404	184	3.114
7	Posters are well maintained in this school for student academic performance	110	401	364	555	230	2.763
8	There is proper maintenance of flip chart in this school for students' academic performance	78	139	439	697	307	2.388
9	Flannels boards are maintained in this school for students' academic performance	63	96	455	725	321	2.310
10	There is maintenance given to slide projector in this school for students' academic performance.	16	47	394	712	491	2.027
	<b>Cumulative mean</b>						2.486

**Standard/decision mean = 3.00**

Table 4.8: shows Instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state is very low this is because the cumulative mean agreement of 2.027 is lower than the decision mean of 3.000. Looking at the response on each item, it was obvious that most of them specifically believe Cameras are adequately maintained in



this school for students' academic performance as this item attracted the least mean agreement of 2.010 as

nobody was in strong agreement while only 35 choose regularly maintained as against 484 that choose seldomly maintained, 603 went for not maintained and the rest 538 went for abandoned.

In the same vein the level of maintenance of microfilm in public schools is very low as this attracted only a mean agreement of 2.117 as only 15 went for very regularly maintained while 78 were for regularly maintained as against 471 who choose seldomly maintained, 619 went for not maintained and the rest 477 for abandoned.

In summary the general Instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state is very low, particularly the maintenance of cameras in schools and microfilm.

#### **4.4 Hypotheses Testing**

This section test all the six null hypotheses using Analysis of Variance (ANOVA) on the perception of the three categories of respondents in each section

***Hypothesis One:*** This null hypothesis state that there is no significant difference in the opinions of principals, teachers and ministry of education officials on the assessment of classroom facilities maintenance on students' academic performance in public secondary schools in Kaduna State



**Table 4.9: Analysis of Variance (ANOVA) statistics in the opinions of principals, teachers and ministry officials on the assessment of classroom facilities maintenance on students' academic performance in public secondary schools in Kaduna State.**

<b>Class Room</b>	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	4.067	2	2.034	.153	.859
Within Groups	22435.772	1683	13.331		
<b>Total</b>	<b>22439.839</b>	<b>1685</b>			

Class room Facilities maintenance on students' academic performance in table 4.9 shows a result of the Analysis of variance statistics. It indicates no significant difference in the opinions of principals, teachers and ministry officials on the assessment of classroom facilities maintenance on students' academic performance in public secondary schools in Kaduna State. Reasons being that the calculated p value of 0.859 is above the 0.05 level of confidence while the computed F value of 0.153 is lower than the 2.60 F critical value. Consequently, the null hypothesis which state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of classroom facilities maintenance on students' academic performance in public secondary schools in Kaduna state, is hereby accepted and retained.

**Hypothesis Two:** This null hypothesis state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of Library facilities maintenance on students' academic performance in public secondary schools in Kaduna state.

**Table 4.10: Analysis of Variance (ANOVA) statistics in the opinions of principals, teachers and ministry supervisors on the assessment of Library facilities maintenance on students' academic performance in public secondary schools in Kaduna state.**

<b>Library</b>	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	4.978	2	2.489	.267	.766
Within Groups	15692.569	1683	9.324		
<b>Total</b>	<b>15697.547</b>	<b>1685</b>			

From Table 4.10 the Results of the Analysis of variance statistics shows no significant difference in the opinions of principals, teachers and ministry supervisors on the assessment of library facilities maintenance on students' academic performance in public secondary schools in Kaduna state. Reasons being that the calculated p value of 0.766 is above the 0.05 level of confidence while the computed F value of 0.267 is lower than the 2.60 F critical value. Consequently, the null hypothesis which state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of library facilities maintenance on students' academic performance in public secondary schools in Kaduna state, is hereby accepted and retained.

**Hypothesis Three:** This null hypothesis state that there is no significant difference in the opinions of principals, teachers and ministry supervisors on the assessment of Laboratory facilities maintenance on students' academic performance in public secondary schools in Kaduna state.

**Table 4.11: Analysis of Variance (ANOVA) statistics in the opinions of principals, teachers and ministry supervisors on the assessment of Laboratory facilities maintenance on students' academic performance in public secondary schools in Kaduna state.**

Laboratory	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	4.067	2	2.034	.153	.859
Within Groups	22435.772	1683	13.331		
<b>Total</b>	<b>22439.839</b>	<b>1685</b>			

Table 4.11 shows the results of Analysis of variance statistics. It indicates no significant difference in the opinions of principals, teachers and ministry supervisors on the assessment of laboratory facilities maintenance on students' academic performance in public secondary schools in Kaduna state. Reasons being that the calculated p value of 0.859 is above the 0.05 level of confidence while the computed F value of 0.159 is lower than the 2.60 F critical value. Consequently, the null hypothesis which state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of laboratory facilities maintenance on students' academic performance in public secondary schools in Kaduna state, is hereby accepted and retained.

Means for groups in homogeneous subsets are displayed.

- a. Uses Harmonic Mean Sample Size = 59.411.
- b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

**Hypothesis Four:** This null hypothesis state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of infrastructural facilities maintenance on students' academic performance in public secondary schools in Kaduna state.



**Table 4.12: Analysis of Variance (ANOVA) statistics in the opinions of principals, teachers and ministry supervisors on the assessment of infrastructural facilities maintenance on students' academic performance in public secondary schools in Kaduna state.**

<b>Infrastructural</b>	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	4.978	2	2.489	.267	.766
Within Groups	15692.569	1683	9.324		
<b>Total</b>	<b>15697.547</b>	<b>1685</b>			

Results of the Analysis of variance statistics in table 4.12 shows that there is no significant difference in the opinions of principals, teachers and ministry supervisors on the assessment of infrastructural facilities maintenance on students' academic performance in public secondary schools in Kaduna state. Reasons being that the calculated p value of 0. .766 is above the 0.05 level of confidence while the computed F value of 0.267 is lower than the 2.60 F critical value. Consequently, the null hypothesis which state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of infrastructural facilities maintenance on students' academic performance in public secondary schools in Kaduna state, is hereby accepted and retained.

**Hypothesis Five:** This null hypothesis state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state.

**Table 4.13: Analysis of Variance (ANOVA) statistics in the opinions of principals, teachers and ministry officials on the assessment of recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state.**

<b>Recreational</b>	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	4.267	2	2.414	.160	.777
Within Groups	2215.772	1673	12.311		
<b>Total</b>	<b>22339.839</b>	<b>1685</b>			

Results of the Analysis of variance statistics in Table 4.13 showed that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state. Reasons being that the calculated p value of 0.777 is above the 0.05 level of confidence while the computed F value of 0.160 is lower than the 2.60 F critical value. Consequently, the null hypothesis which state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state, is hereby accepted and retained.

**Hypothesis Six:** This null hypothesis state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of Instructionalfacilities maintenance on students' academic performance in public secondary schools in Kaduna state.



**Table 4.14: Analysis of Variance (ANOVA) statistics in the opinions of principals, teachers and ministry officials on the assessment of Instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state.**

<b>Instructional</b>	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	4.888	2	2.339	.574	.806
Within Groups	12292.512	1666	9.124		
<b>Total</b>	<b>13397.547</b>	<b>1677</b>			

Outcome of the Analysis of variance statistics in table 4.14 shows that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of Instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state. Reasons being that the calculated p value of 0.806 is above the 0.05 level of confidence while the computed F value of 0.574 is lower than the 2.60 F critical value. Consequently, the null hypothesis which state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of Instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state, is hereby accepted and retained.

#### 4.4.1 Summary of Hypotheses Testing

The summary of the six Null Hypothesis tested for this study is hereby presented in Table 4.20

**Table 4.15: Summary of Tested Null Hypotheses**

S/No	H0 Statement	Statistical tool Used	Result	Level of Sig	Decision
1	This null hypothesis state that there is no significant difference in the opinions of principals, teachers and ministry of education officials on the assessment of classroom facilities maintenance on students' academic performance in public secondary schools in Kaduna State	Analysis of Variance (ANOVA)	F-ratio is 0.153 while the p-Value is 0.859	0.05	H0 <sub>1</sub> was accepted and retain this means that there is no significant difference in the opinion of respondents.
2	This null hypothesis state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of Library facilities maintenance on students' academic performance in public secondary schools in Kaduna state.	Analysis of Variance (ANOVA)	F-ratio is 0.267 while the p-Value is 0.766	0.05	H0 <sub>2</sub> was accepted and retain this means that there is no significant difference in the opinion of respondents.
3	This null hypothesis state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of Laboratory facilities maintenance on students' academic performance in public secondary schools in Kaduna state.	Analysis of Variance (ANOVA)	F-ratio is 0.159 while the p-Value is 0.859	0.05	H0 <sub>3</sub> was accepted and retain this means that there is no significant difference in the opinion of respondents.
4	This null hypothesis state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of Infrastructural facilities maintenance on students' academic performance in public secondary schools in Kaduna state.	Analysis of Variance (ANOVA)	F-ratio is 0.267 while the p-Value is 0.766	0.05	H0 <sub>3</sub> was accepted and retain this means that there is no significant difference in the opinion of respondents.
5	This null hypothesis state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of Recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state.	Analysis of Variance (ANOVA)	F-ratio is 0.160 while the p-Value is 0.777	0.05	H0 <sub>3</sub> was accepted and retain this means that there is no significant difference in the opinion of respondents.
6	This null hypothesis state that there is no significant difference in the opinions of principals, teachers and ministry officials on the assessment of Instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state.	Analysis of Variance (ANOVA)	F-ratio is 0.574 while the p-Value is 0.806	0.05	H0 <sub>3</sub> was accepted and retain this means that there is no significant difference in the opinion of respondents.

#### **4.5 Summary of the major findings of the study**

The followings are the summary of the major findings of the study

1. There was no significant difference in the opinions of principals, teachers and MOE Official on the assessment of classroom facilities maintenance on students' academic performance in public secondary schools in Kaduna state. This was indicated by their mean opinion obtained from the assessment of classroom facilities maintenance on students' academic performance. Their opinion values were 35.2154, 35.3882 and 35.1034 by Principals, Teachers and MOE officials respectively, this confirmed similar levels of mean opinion in this respect.
2. There was no significant difference in the opinions of principals, teachers and MOE on the assessment of Library facilities maintenance on students' academic performance in public secondary schools in Kaduna state. Their descriptive statistics realized from the assessment of library facilities maintenance on students' academic performance showed and opinion of 36.2000, 36.4158 and 36.1379 by Principals, Teachers and MOE officials respectively, confirming the same level of opinions in this regard.
3. There was no significant difference in the opinions of principals, teachers and ministry supervisors on the assessment of laboratory facilities maintenance on students' academic performance in public secondary schools in Kaduna state. This was confirmed by the mean opinions on the assessment of laboratories facilities maintenance on students' academic performance. Their values showed 35.2154, 35.3882 and 35.1034 by principals, Teachers and MOE officials respectively confirming the same level of mean opinions.

4. There was no significant difference in the opinions of principals, teachers and ministry supervisors on the assessment of infrastructural facilities maintenance on students' academic performance in public secondary schools in Kaduna state. Their mean opinion on the assessment of infrastructural facilities maintenance on students' academic performance was 36.2000, 36.4158 and 36.1379 by principals, Teachers and MOE officials respectively, this confirmed there had similar level of mean opinion in this respect.
5. There was no significant difference in the opinions of principals, teachers and ministry supervisors on the assessment of recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state. This was confirmed by their mean opinion on the assessment of recreational facilities maintenance on students' academic performance, which show a value of 37.2224, 37.3412 and 36.9998 by principals, Teachers and MOE officials respectively, showing that their mean opinion was the same.
6. There was no significant difference in the opinions of principals, teachers and MOE on the assessment of Instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state. This was confirmed by the mean opinion realized from the assessment of Instructional facilities maintenance on Students' Academic Performance. Which showcased values of 36.3300, 36.5558 and 36.2279 by Principals, Teachers and MOE officials respectively this at the end showed similar levels of mean opinion in this respect.

#### **4.6 Discussion of Major Findings**

Based on the results of the major findings presented so far; for the principals, teachers and MOE officials' point of view on the assessment of classroom facilities maintenance on students' academic performance in public secondary schools. It shows that classroom facilities such as projectors and smart screen should be made available for teaching purposes. In addition, students' academic performance can be improved on with the maintenance of a functional library with internet facilities like an e-book, E- libraryetc.

It was further shown that the level of infrastructural facilities such as sick bays and health centres should be well equipped with drugs and doctors for student's academic performance and teacher's health in public schools.

The school management need to give adequate maintenance to laboratory equipment such as multi – media screen, speakers and microscopes in public schools for students' academic performance in Kaduna State.

The level of infrastructures facilities maintenance in public schools for academic performance is high particularly there is adequate maintenance of the ventilation in this school but the sickbay are not adequately maintained in public school for students' academic performance while the general recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state is very low, particularly as it concerns the maintenance of music rooms and recreational centers.

The general Instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state is very low, particularly the maintenance of cameras in schools and microfilm.



## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This closing chapter focuses on the Summary of the main findings from the study especially as it relates to testing of the null hypotheses, the basic Conclusions that could be deduced from the study as well as offered some useful recommendations that would further improve the maintenance of educational facilities for optimum Students' Academic performances as well as suggestions for further studies in related area of study

#### 5.2 Summary

The study examines the assessment of Educational Facilities maintenance on Students' Academic performance in Public Secondary Schools in Kaduna State, Nigeria. In regards to this, the study stresses the background to the study, Statement of the Problem, Objectives of the study, research questions, Hypothesis, Basic assumptions, Significant of the study and scope of the Study.

The study revealed several related Literatures in line with the formulated objectives. The study source literatures from various books, Magazine, Journals and also the internet. The conceptual framework of this study is composed of the following elements: concept of educational facilities, concept of maintenance, concept of academic performance. In the study the following objectives this includes: Find out the assessment of classroom facilities maintenance on students' academic performance in public secondary schools in Kaduna state, Examine the assessment of library facilities maintenance on students' academic performance in public secondary schools in Kaduna state, Find out the assessment of laboratory facilities maintenance on students' academic performance in public secondary schools in Kaduna state, determine the assessment of infrastructural facilities maintenance on students' academic performance in public secondary

schools in Kaduna state, find out the assessment of recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state and ascertain the assessment of instructional facilities maintenance on students' academic performance in public secondary schools in Kaduna state.

The research Method in the study presents research design, population of the study, Sample and sampling Techniques, Instrumentation, validity of the adopted instruments, pilot study, reliability of the instrumentation, Method of Data Collection and Analysis of the collected Data from the respondents. It also gives insights by analyzing and making discussion on the data collected from the respondents base on the topic understudy. Using frequency tables and simple percentages in order to measure the significant difference or relationship among the variables in the study.

Analysis of Variance Statistical Technique (ANOVA) was used in testing the hypothesis of the study, where all the six hypothesis were retained, Structure questionnaire was administered on three groups of respondents thus principals teachers and MOE officials. From the sample area of the study, data collected was statistical collected and findings shows that Students Academic Performance in Kaduna State can be assessment through adequate provision of class room facilities, Laboratory facilities, Infrastructural facilities, Recreational facilities and Instructional facilities

### **5.3 Conclusions**

The under listed are basic conclusions that were deduced from the study as it concerns the respondents general opinions on the study:

1. Classroom rules and consequences are posted in each class and are maintained in this school for students' academic performance and Waist bin are adequately maintained in this school for students' academic performance.



2. The maintenance of library facilities for students' academic performance in public schools in Kaduna state is very low especially as there are no adequate maintenance of online facilities nor are there current journals maintained.
3. The general level of perception on the maintenance of Laboratory equipment maintenance in public secondary schools in Kaduna state is very low. Especially as it concerns Multi-media screen and speakers in this school for students and Microscope in the science laboratory.
4. The level of infrastructural facilities maintenance in public schools for Academic performance is high particularly adequate maintenance of the ventilation in this school but on the other hand, the Sick bays are not adequately maintained in the public schools for students' academic performance.
5. The general recreational facilities maintenance on students' academic performance in public secondary schools in Kaduna state is very low, particularly the maintenance of cameras in schools and microfilm.
6. Facilities maintenance on students' academic performance in public secondary schools in Kaduna state is very low, particularly as it concerns the maintenance of music rooms and recreational centers

#### **5.4 Recommendations**

As a result of the findings from this study the following recommendations are put forward that will ultimately if followed would lead to students better academic performance:

1. Classroom facilities such as projectors and smart screens should be well maintained for teaching purposes and other things such as waste bins and rules or consequences for

should be posted in each class and are maintained in public school for students' academic performance.

2. The libraries in schools should be should be well maintained by providing them up to date journals, books and on line so as to assist both the students and teachers to aid students' academic performance in public schools in Kaduna state.
3. The government should maintain Laboratory equipment adequately, such as multimedia screen, speakers and microscopes in public secondary school for students' academic performance.
4. The level of infrastructural facilities such as sick bays and health centers should be well maintained and equipped with drugs and doctors for students and teacher's health in the public school for students' academic performance.
5. Schools should strengthen their music lessons by maintaining music rooms and recreational centers to meet the needs of students and staff as this will boost the general students' academic performance in public secondary schools in Kaduna state
6. The school management should maintain instructional facilities likecameras in schools and microfilm in public secondary schools in Kaduna state, as this boost their academic performance.

### **5.5 Suggestions for Further Studies**

The study assessed the perception of Principals, Teachers and MOE officials on the assessment of educational facilities maintenance on students' academic performance in public secondary schools in Kaduna state, Nigeria, it can be further studied under the following headings: These are:

1. Comparative analysis of assessment of educational facilities maintenance on students' academic performance between public and private secondary schools in Kaduna state, Nigeria.
2. Effect of Motivation and interest in the teaching and learning processes on students' academic performance between public and private secondary schools in Kaduna state, Nigeria.

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## APPENDIXES

### **A Questionnaire on the Assessment of Educational Facilities Maintenance on Student Academic Performance in Public Secondary School in Kaduna State, Nigerian**

Department of Educational  
Foundations and Curriculum,  
Faculty of Education  
Ahmadu Bello University  
Zaria.  
22<sup>nd</sup> May, 2017.

Dear Respondent,

#### **Request to Provide Relevant Data for a Study.**

I am a post graduate Student of the mentioned university I write to solicit your little time to fill the attached questionnaire on the Assessment of Educational Facilities Maintenance on Students Academic Performance in Public Secondary Schools in Kaduna State, Nigeria. Therefore, your contributions in bringing out honest opinion as a Principal, Teacher, and Ministry of Education Official will definitely aid this work. Your responses will also help me to fulfill the criteria for the award of the Master of Education (M.Ed) in Educational Administration and Planning.

All information given will be treated strictly confidential.

Yours Sincerely,

**Oyiza Akomodi.**

**P15EDFC8042**

**Section A: BIODATA**

Kindly mark X in the appropriate space provided against each option

1 **Type of School :** (a) JSS  (b) SSS

2. **Status:** (a) Principal  (b) Teacher  (c) MOE Official

**Section B:Opinion of Respondence on the Assessment of Classroom FacilitiesMaintenance on Students’ Academic Performance in Public Secondary Schools**

<b>S/NO</b>	<b>Item Statement</b>	<b>Very regularly maintained</b>	<b>Regularly Maintained</b>	<b>Seldomly Maintained</b>	<b>Not Maintained</b>	<b>Abandoned</b>
1	Tables are maintained in the school for students’ academic performance					
2.	Chalkboards are well maintained in the schools for students’ academic performance					
3.	There is maintenance of teaching aid in the classroom in this school for students’ academic performance					
4.	Projectors are well maintained in the classroom in this school for students’ academic performance					
5.	There are maintenance of Computers in this school for students’ academic performance					
6.	Chairs are well maintained in this school for students’ academic performance					
7.	Waist bin are maintained in this school for students’ academic performance					
8.	Students register are maintained in the classroom in this school for students’ academic performance					
9.	Classroom rules and consequences are posted in each class and are maintained in this school for students’ academic performance,					
10	Classroom teacher maintained good use of lesson note and scheme of work in this school for students’ academic performance					



**Section C: Opinion of Respondence on the Assessment of Library Facilities Maintenance on Students' Academic Performance in Public Secondary Schools**

	<b>Item Statement</b>	<b>Very regularly maintained</b>	<b>Regularly Maintained</b>	<b>Seldomly Maintained</b>	<b>Not Maintained</b>	<b>Abandoned</b>
1	Library tables and chairs are maintained in this school for students' academic performance					
2.	Book shelves are maintained in this school for students' academic performance					
3.	Sufficient library space in the school are well maintained for students' academic performance					
4.	Computers in the library are maintained in the school for student academic performance					
5.	Online facilities are well maintained in this school for students' academic performance					
6.	There are photocopying machines in the libraryare well maintained in this school for students' academic performance					
7	The journals are current and maintained in this School for students' academic performance					
8.	There are maintenance of textbooks in this school library for students' academic performance					
9.	The cupboards in the library are well maintained in this school. for students' academic performance					
10	There are reference materials and they are well maintained in this school for student academic performance					

**Section D: Opinion of Respondence on the Assessment of Laboratory Facilities Maintenance on Students' Academic Performance  
inPublic Secondary Schools**

<b>S/NO</b>	<b>Item Statement</b>	<b>Very regularly maintained</b>	<b>Regularly Maintained</b>	<b>Seldomly Maintained</b>	<b>Not Maintained</b>	<b>Abandoned</b>
1	The Microscope in the science laboratory are well maintained in this school for students' academic performance					
2.	There is sufficient maintenance of laboratory stool in this School for students' academic performance					
3.	Test tubes are maintained in science laboratory in this school for students' academic performance					
4.	voltmeters are maintained in laboratory in this school for students' academic performance					
5.	There is maintenance of multi-media screen and speakers in this school for students' academic performance					
6.	The burners in the science laboratory are maintained in this school for students' academic performance					
7.	There is maintenance of ammeter (measuring instrument) in this school for students' academic performance					
8.	The school laboratory cupboards are maintained for students' academic performance					
9.	There is maintenance of gas cylinder in this school for students' academic performance					
10.	There is maintenance of storage flask in this school for students' academic performance.					

**Section E: Opinion of Respondence Assessment of Infrastructural Facilities Maintenance on Students' Academic Performance in Public Secondary Schools**

<b>S/NO</b>	<b>Item Statement</b>	<b>Very regularly maintained</b>	<b>Regularly Maintained</b>	<b>Seldomly Maintained</b>	<b>Not Maintained</b>	<b>Abandoned</b>
1	The school building are maintained for students' academic performance					
2.	Water tank is well maintained for students' academic performance					
3.	Electrical appliances are well maintained in this school for students' academic performance					
4.	There is maintenance of roads in this school for students' academic performance					
5.	There are maintenance of toilet facilities in this school for students' academic performance					
6.	The furniture's are well maintained in this school for students' academic performance					
7.	There is maintenance of school shops in this school for students' academic performance					
8.	Sickbaysare maintained in this school for students' academic performance					
9.	There is maintenance of the ventilation in this school for students' academic performance					
10	Roofs are maintained in this school for students' academic performance.					

**Section F: Opinion of Respondence Assessment of Instructional Facilities Maintenance on Students' Academic Performance in Public Secondary Schools**

S/NO	Item Statement	Very regularly maintained	Regularly Maintained	Seldomly Maintained	Not Maintained	Abandoned
1	There is maintenance of Simulation games in this school for students' academic performance					
2.	Graphs are maintained in this school for students' academic performance					
3.	There is maintenance of transparency maker in this School for students' academic performance					
4.	Microfilm recorder are maintained in this School for students' academic performance					
5.	Cameras are maintained in this school for students' academic performance					
6.	There is maintenance of wall charts in this school for students' academic performance					
7.	Posters are well maintained in this school for student academic performance					
8.	There is proper maintenance of flip chart in this school for students' academic performance					
9	Flannels boards are maintained in this school for students' academic performance					
10	There are maintenance given to slide projector in this school for students' academic performance.					

**Section G: Opinion of Respondence Assessment of Recreational Facilities Maintenance on Students' Academic Performance in Public Secondary Schools**

<b>S/NO</b>	<b>Item Statement</b>	<b>Very regularly maintained</b>	<b>Regularly Maintained</b>	<b>Seldomly Maintained</b>	<b>Not Maintained</b>	<b>Abandoned</b>
1	Gardens are maintained in this school for students' academic performance					
2.	Students common room are maintained in this School for students' academic performance					
3.	The clubs are well maintained in this School for students' academic performance					
4.	There is maintenance given to playground in this School for students' academic performance					
5.	Music room are maintained in this school for students' academic performance					
6.	There is maintenance of the recreation centres for students' academic performance					
7.	Lawns are well maintained in this School for students' academic performance					
8.	Students recreation arts are well maintained in this School for students' academic performance					
9.	Green space are maintained for students' academic performance					
10	The Students drama and Dance costume are well maintained in this School for students' academic performance					

**APPENDIX III**

**RELIABILITY**

**PERFORMANCE IN PUBLIC SECONDARY SCHOOLS IN KADUNA STATE, NIGERIA**

**Reliability**

**Scale: ALL VARIABLES**

**Case Processing Summary**

		N	%
Cases	Valid	99	99.0
	Excluded <sup>a</sup>	1	1.0
	Total	100	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.953	.957	60

**Item Statistics**

	Mean	Std. Deviation	N
Tables are adequately maintained in the school for students' academic performance	2.41	1.079	99
Chalkboards are well maintained in the schools for students' academic performance	2.39	1.058	99
There is adequate maintenance of teaching aid in the classroom in this school for students' academic performance	3.10	1.129	99
Projectors are well maintained in the classroom in this school for students' academic performance	3.92	1.027	99
There are adequate maintenance of Computers in this school for students' academic performance	3.62	1.167	99
Chairs are well maintained in this school for students' academic performance	2.41	1.069	99
Waist bin are adequately maintained in this school for students' academic performance	2.55	1.198	99
Students register are adequately maintained in the classroom in this school for students' academic performance	1.78	.910	99
Classroom rules and consequences are posted in each class and are maintained in this school for students' academic performance,	2.64	1.233	99
Classroom teacher maintains good use of lesson note and scheme of work in this school for students' academic performance	1.61	.890	99
Library tables and chairs are adequately maintained in this school for students' academic performance	3.22	1.266	99

Book shelves are adequately maintained in this school for students' academic performance	3.26	1.234	99
Sufficient library space is provided in this school and well maintained for students' academic performance	3.34	1.205	99
Computers in the library are adequately maintained in the school for student academic performance	3.49	1.181	99
Adequate online facilities are available and is well maintained in this school for students' academic performance	3.84	1.037	99
There are photocopying machines in the library and are well maintained in this school for students' academic performance	3.61	1.141	99
The journals are current and adequately maintained in this School for students' academic performance	3.68	1.048	99
There are adequate maintenance of textbooks in this school library for students' academic performance	3.11	1.194	99
The cupboards in the library are well maintained in this school. for students' academic performance	3.36	1.120	99
There are adequate reference materials and they are well maintained in this school for student academic performance	3.25	1.248	99
The Microscope in the science laboratory are well maintained in this school for students' academic performance	3.39	1.227	99
There is sufficient maintenance of laboratory stool in this School for students' academic performance	2.99	1.199	99
Test tubes are adequately maintained in science laboratory in this school for students' academic performance	2.85	1.207	99
voltmeters are adequately maintained in laboratory in this school for students' academic performance	3.10	1.111	99
There is adequate maintenance of multi-media screen and speakers in this school for students' academic performance	3.88	.918	99
The burners in the science laboratory are adequately maintained in this school for students' academic performance	3.04	1.261	99
There is adequate maintenance of ammeter (measuring instrument) in this school for students' academic performance	3.09	1.153	99
The school laboratory cupboards are adequately maintained for students' academic performance	2.96	1.228	99
There is adequate maintenance of gas cylinder in this school for students' academic performance	3.16	1.235	99
There is adequate maintenance of storage flask in this school for students' academic performance.	3.33	1.097	99
The school building are adequately maintained for students' academic performance	2.31	1.157	99
Water tank is well maintained for students' academic performance	2.95	1.380	99
Electrical appliances are well maintained in this school for students' academic performance	3.21	1.264	99
There is adequate maintenance of roads in this school for students' academic performance	3.01	1.208	99
There are adequate maintenance of toilet facilities in this school for students' academic performance	2.96	1.309	99

The furniture's are well maintained in this school for students' academic performance	2.45	1.062	99
There is adequate maintenance of school shops in this school for students' academic performance	3.39	1.176	99
Sick bays are adequately maintained in this school for students' academic performance	3.56	1.206	99
There is adequate maintenance of the ventilation in this school for students' academic performance	2.12	.993	99
Roofs are adequately maintained in this school for students' academic performance.	2.95	2.517	99
There is adequate maintenance of Simulation games in this school for students' academic performance	3.47	1.190	99
Graphs are adequately maintained in this school for students' academic performance	3.04	1.186	99
There is adequate maintenance of transparency maker in this School for students' academic performance	3.43	1.080	99
Microfilm recorder are adequately maintained in this School for students' academic performance	3.87	.922	99
Cameras are adequately maintained in this school for students' academic performance	4.00	.808	99
There is adequate maintenance of wall charts in this school for students' academic performance	2.88	1.239	99
Posters are well maintained in this school for student academic performance	3.24	1.161	99
There is proper maintenance of flip chart in this school for students' academic performance	3.62	1.047	99
Flannels boards are adequately maintained in this school for students' academic performance	3.69	.986	99
There are adequate maintenance given to slide projector in this school for students' academic performance.	3.97	.863	99
Gardens are adequately maintained in this school for students' academic performance	3.75	1.172	99
Students common room are adequately maintained in this School for students' academic performance	3.81	1.149	99
The clubs are well maintained in this School for students' academic performance	2.47	1.146	99
There is adequate maintenance given to playground in this School for students' academic performance	3.01	1.191	99
Music room are adequately maintained in this school for students' academic performance	3.92	.955	99
There is adequate maintenance of the recreation centres for students' academic performance	3.85	1.014	99
Lawns are well maintained in this School for students' academic performance	3.57	1.042	99
Students recreation arts are well maintained in this School for students' academic performance	3.72	1.031	99
Green space are adequately maintained for students' academic performance	3.69	1.066	99
The Students drama and Dance costume are well maintained in this School for students' academic performance	3.20	1.317	99

**Summary Item Statistics**

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.192	1.606	4.000	2.394	2.491	.300	60



**Descriptive**

H1

	N	Mean	Std. Deviation	Std. Error
Principal	61	35.2154	3.65929	.45388
Teacher	1573	35.3882	3.64931	.09146
MOE Official	26	35.1034	3.73540	.69365
Total	1660	35.3766	3.64930	.08888

**Descriptives**

H2

	N	Mean	Std. Deviation	Std. Error
Principal	61	36.2000	3.05778	.37927
Teacher	1573	36.4158	3.05746	.07663
MOE Official	26	36.1379	2.81227	.52223
Total	1660	36.4027	3.05222	.07433

**Descriptives**

H3

	N	Mean	Std. Deviation	Std. Error
Principal	61	35.2154	3.65929	.45388
Teacher	1573	35.3882	3.64931	.09146
MOE Official	26	35.1034	3.73540	.69365
Total	1660	35.3766	3.64930	.08888

**Descriptives**

H4

	N	Mean	Std. Deviation	Std. Error
Principal	61	36.2000	3.05778	.37927
Teacher	1573	36.4158	3.05746	.07663
MOE	26	36.1379	2.81227	.52223
Official				
Total	1660	36.4027	3.05222	.07433

**Descriptives**

H5

	N	Mean	Std. Deviation	Std. Error
Principal	61	37.2224	2.67929	.44118
Teacher	1573	37.3412	2.65931	.42216
MOE	26	36.9998	2.74540	.69411
Official				
Total	1660	35.3766	3.64930	.02128

**Descriptives**

H6

	N	Mean	Std. Deviation	Std. Error
Principal	61	36.3300	3.44778	.44927
Teacher	1573	36.5558	3.33746	.22663
MOE	26	36.2279	2.44227	.31223
Official				
Total	1660	36.5527	3.11222	.24211

**List of Schools in Various Zones with their official Staff Strength**

S/No	Senatorial Zones	Education Zones	Schools	Principal		Teachers		MOE Official	
				<i>Population</i>	<i>Sample</i>	<i>Population</i>	<i>Sample</i>	<b>Population</b>	<b>Sample</b>
1		Kachia Zones	GJSS GADANAJI (JNR)	1	1	5	5	10	10
2			GJSS GIDAN ALI (JNR)	1	1	5	5	10	10
3			GSS KAGARKO (SNR)	1	1	25	28	10	10
4			GSS KAGARKO (JNR)	1	1	22	28	10	10
5			GSS KUBACHA (SNR)	1	1	11	10	10	10
6			GSS KUBACHA (JNR)	1	1	13	10	10	10
7			GSS ARIBI	1	1	5	5	10	10
8			GSS DOGON KURMI (JNR)	1	1	9	9	10	10
9			GSS DOGON KURMI (SNR)	1	1	12	10	10	10
10			GSS ANKWA	1	1	7	7	10	10
			<b>TOTAL</b>	<b>10</b>	<b>10</b>	<b>114</b>	<b>110</b>	<b>100</b>	<b>100</b>

S/No	Senatorial Zones	Education Zones	Schools	Principal		Teachers		MOE Official	
				<i>Population</i>	<i>Sample</i>	<i>Population</i>	<i>Sample</i>	<b>Population</b>	<b>Sample</b>
1		Kaduna Zones	GSS KAWO (SNR)	1	1	55	44	10	10

S/No	Senatorial Zones	Education Zones	Schools	Principal		Teachers		MOE Officials	
				Population	Sample	Population	Sample	Population	Sample
2			GSS RICHIFA STREET T/WADA BAREWA COLLEGE	1	1	71	63	10	10
1		Zaria Zone	ZARIA						
3			GJSS KAWO	1	1	20	19	10	10
4			GSS KUGU GSS UNG/SARKI	1	1	50	44	10	10
			KADUNA						
5			GGSS M/GWARZO (JNR)	1	1	50	44	10	10
6			A.M.N.S GJSS KABALA WEST KADUNA	1	1	14	10	10	10
7			GJSS KADI.	1	1	4	4	10	10
8			GJSS RIGASA CENTRAL	1	1	15	10	10	10
9			GSS UNGWAN RIMI KADUNA	1	1	40	28	10	10
10			GSS RIGASA JNR (MAIN)	1	1	25	19	10	10
			<b>TOTAL</b>	<b>10</b>	<b>10</b>	<b>306</b>	<b>250</b>	<b>100</b>	<b>100</b>

S/No	Senatorial Zones	Education Zones	Schools	Principal		Teachers		MOE Official	
				Population	Sample	Population	Sample	Population	Sample
3			GSS BOGARI ZARIA						
4		(Sabon Tasha Zone)	GSS GONIN (SNR)	1	1	30	28	10	10
5			GSS KUIJAMA (SNR) GSS YAKASAI	1	1	26	28	10	10
6			GSS AMINU (SNR)	1	1	32	28	10	10
7			GJSS CHIKAJI	1	1	27	28	10	10
8			GJSS MATARI (JNR)	1	1	6	6	10	10
9			GJSS ABA	1	1	3	3	10	10
10			GSS MAGAJIYA (JNR) ZARIA	1	1	26	28	10	10
			<b>TOTAL</b>	<b>10</b>	<b>10</b>	<b>223</b>	<b>210</b>	<b>100</b>	<b>100</b>

3			GSS BABBAN SAURA(JNR/SNR)	1	1	14	10	10	10
4			GJSS KUFANA(JNR)	1	1	12	10	10	10
5			GJSS MAGANI(JNR)	1	1	12	10	10	10
6			GJSS KALLAH(JNR)	1	1	10	10	10	10
7			GJSS KALLAH(SNR)	1	1	10	10	10	10
8			GJSS KATARMA(JNR)	1	1	2	2	10	10
9			GJSS CHIKUN(JNR)	1	1	4	4	10	10
10			GJSS GWARAJI(JNR)	1	1	2	2	10	10
			<b>TOTAL</b>	<b>10</b>	<b>10</b>	<b>122</b>	<b>114</b>	<b>100</b>	<b>100</b>

## **Research Assistant Manual**

For: assessment of Educational facilities maintains on Students' Academic performance in Public Secondary schools in Kaduna State. Nigeria.

The research assistant was introduced to educational zone that the researcher to Administered research questionnaires to. I Introduced him to the various school principal to further assist him in Administering the questionnaires

The research assistant was trained within a day and asked to be patent with the respondents when questionnaires are administered. I also asked him to be sure that all questionnaires administer are retrieved. where there is need to call for further explanations or questions please do not hesitate. Remember to appreciate all your respondents and whoever assisted in the process.

Sign

Akomodi Oyiza.