School Plant as Predictors of Academic Achievement in Junior Secondary School Basic Science in Oyo State, Nigeria

Donald Abidemi ODELEYE[1] and Olufunke Bukola ADESINA[2]
[1,2] Department of Arts and Social Science Education, Faculty of Education, Lead City University, Ibadan, Oyo State, Nigeria

Introduction

Basic Science serves as a foundation for more specialised scientific disciplines such as physics, chemistry, and biology. Students who lack a solid foundation in Basic Science may struggle with core science subjects, leading to negative attitudes and poor performance. This, in turn, may affect their admission into tertiary institutions to study science-related courses. It is crucial to address the factors that contribute to the decline in the standard of education in Nigeria, including the performance of Integrated Science departments, to ensure that students receive a solid foundation in Basic Science and other scientific disciplines. Basic Science, also known as Integrated Science, is a subject taught in junior secondary schools across Nigeria, both in public and private institutions. The aim of this subject is to broaden students' understanding of science and its interconnectedness with other scientific fields.

To achieve these goals, it is essential to consider various parameters that impact students' achievement in Basic Science, such as the availability of well-equipped science laboratories and library facilities, classroom buildings and facilities, and the utilisation of innovative teaching techniques such as discovery, problem-solving, open-ended field trips, and laboratory methods. The National Policy on Education emphasises that Basic Science should help students gain an understanding of the

fundamental unity of science, a common approach to problem-solving, and the role of science in everyday life.

Globally, academic achievement in any educational settings is important for the measurement of educational progress of a country. Academic achievements of students in various formal and non-formal education contexts, as well as institutional achievements, serve as a significant criterion for assessing education performance of any country at the micro level, indicating success elements for that country. Identifying the factors that influence academic achievement is a research study that has been conducted all over the world over the years and has revealed that academic achievement is influenced by a small variety of factors, some of which are school-specific while others can be considered outside the school factors.

Academic achievement is a metric used to assess student's performance at all levels of education[1]. Exam performance is widely used to measure academic achievement. It is the degree to which a student has achieved his or her academic goals. Classes passed or failed, as well as marks obtained in exams and competitions, might be used as performance indicators. Academic achievement refers to a student's, teacher's, or institution's achievement of an educational goal overcome time. This is measured either by examinations or continuous assessments and the goal may differ from one individual or institution to another. It is a phrase used in school to describe a student's academic success.

A variety of factors can influence students' achievement. These variables may be classified into two categories: in-school and out-of-school.[2] The qualifications of teachers, availability of instructional materials, class size, relevance and appropriateness of the curriculum, management, and school leadership situation, teachers' motivation and commitment, and the conduciveness of the school compound for the smooth running of the general teaching-learning process are all factors that may affect the academic achievement of students in the school.

School plant variables are one of the in-school factors that might influence children's' academic performance. The totality of resources that constitute a school's learning environment is referred to as the school plant. The school plant is the physical embodiment of the school's programs and activities.[3] a deliberately created and regulated environment within the school that aids in the promotion of teaching process and learning activities School plants are made up of the systems and structures that each educational institution must have to function properly and fulfill the goals for which it was created.[4] School plant variables, also include the school's fixed and mobile structures and materials, such as classroom buildings, laboratory equipment, furniture, chalkboards, and audio and visual aids.[3] The terms "school plant" and "school facilities" have been used interchangeably. Classrooms, libraries, workshops, labs, equipment, energy, water, desks, seats, audio-visual and visual aids, bathrooms, and storage space are all examples of school facilities systems that would likely stimulate students to learn. However, in this study, school plant variables are interpreted as school facilities. Learning occurs more effectively and quickly in a school setting with high-quality buildings, accommodations, furniture, and equipment than in one without all of these elements[4]. The majority of secondary school buildings designed to encourage and enhance teaching, learning, and extracurricular activities are already obsolete.[3]

The conditions, adequacy and relevance of school plants have a direct impact on the student's academic achievement. School plants apart from protecting secondary school students from sun, rain, heat, and cold, also provides a learning environment that has a great influence on comfort and safety for everyone within the school premises[5]. The school plant as suggested by this study is school facilities such as classroom, laboratory and library facilities.

Although, availability of school plant or school facilities alone is not sufficient condition for good performance; it is clear that schools which

are better equipped with adequate provision of plant facilities and other in school provision are more likely to produce a higher level of learning and motivation among the learners as compared to others. The primary goal of providing school plant and facility equipment is to meet students' educational requirements; nevertheless, school plant and facility equipment must be related to the curriculum and other outside issues.[3]

Most schools in developed parts of the world have increased their use of suitable school plants over time[6]. Achieving academic success ensures that citizens are skilled and vibrant. In many cases. It's worth noting that a student's academic achievement is influenced not just by their school related factors but also by their home or family background.[10] As a result, the government, stakeholders, educational administrators, and even parents should look at what they can do to restore educational settings to their former grandeur so that future generations can achieve their goals.

Statement of the Problem

Academic achievement of students is a matter of great concern for educational stakeholders, with a prevailing belief that student academic achievement is low. One of the crucial but often overlooked factors impacting the academic achievement of secondary school students is the school plant, which comprises classroom, library, and laboratory facilities. The design and quality of these spaces, including aspects such as color, lighting, sound, and equipment, can have a significant influence on learners and students when viewed in a systematic manner. Inadequate attention to school infrastructure and poor learning environments may contribute to poor academic performance among students. Thus, it is essential to examine the relationship between school plant and academic achievement among junior secondary school students in Basic Science in Oyo State, Nigeria. This study seeks to investigate school plant as a predictor of academic achievement, focusing solely on the design and quality of educational spaces and excluding family background variables.

Objectives of the Study

The objectives of this study are to:

i. to assess the level of availability of school plant (classroom, science laboratory and school library) in junior school Basic Science in Oyo State, Nigeria.
ii. to determine the level of academic achievement of junior secondary students in Basic Science in Oyo State.
iii. to investigate influence of school plant variables (classroom, science laboratory and school library) on academic achievement of Junior Secondary Schools in Oyo State, Nigeria.

Research Questions

Based on the stated objectives, the following research questions were answered in this study:

iv. to what extent is the availability of school plant (classroom, science laboratory and school library) in junior school Basic Science in Oyo State, Nigeria?
v. What is the level of academic achievement of junior secondary students in Basic Science in Oyo State?
vi. Do school plant variables (classroom, science laboratory and school library) have influence on academic achievement of junior secondary schools in Oyo State, Nigeria?

Hypotheses

The hypotheses stated below were tested at 0.05 level of significance

$H_0$1: There will be no significant influence of school plant variables (classroom, science laboratory and school library) on academic achievement of junior secondary schools in Oyo State, Nigeria.

Literature Review

Conceptual Review on School Plant Facilities

The material resources given for staff and students to maximise their efficiency in the teaching and learning process are known as school plant facilities. Plants in the classroom are an essential need in the

educational system, and their presence increases instructors' teaching abilities as well as students' academic achievement. Education is critical in any community, and Nigeria is no exception. It is the process through which an individual's talents and capacities are developed. Physical, emotional, social, and intellectual abilities are examples of these qualities. The sum of resources that constitute a school's learning environment is referred to as the school plant. The physical manifestation of the school's programs and activities is referred to as the school plant.[1] It is the school's purposefully created and regulated environment that aids in the promotion of teaching and learning activities. School plants are made up of the systems and structures that each educational institution must have in order to function properly and fulfill the goals for which it was created.[2] This definition shows that school plant includes both consumable and non-consumable items, as well as permanent and semi-permanent buildings in the school environment that are required for successful curriculum implementation. The school landscape, which includes trees, grasses, lawns, hedges, and accompanying paths, is divided into two subgroups[3]: security facilities, which include walls, gates, alarm systems, phones, and visitor books; and (ii) security facilities, which include walls, gates, alarm systems, phones, and visitors books. (iii) services such as power, piped water/boreholes, and transportation. (iv) instructional materials such as computers, chalkboards, chalk, charts, flannel graphs, beakers, burettes, pipettes, test tubes, thermometers, weighing scales, maps, glass jars, globes, and so on. (v) office equipment such as filing cabinets, generators, typewriters, and photocopiers (vi) sporting facilities such as football fields, table tennis courts, and basketball courts, (vii) classroom/educational equipment such as chairs, desks, tables, chalkboards, dusters, wash-hand basins, napkins, chalk (viii) structures such as classrooms, administrative blocks, libraries, laboratories, health blocks, kitchens, examination halls, dining halls, assembly halls, clinics, rest rooms, toilets, hostels, store, staff rooms, workshops, and (ix) play grounds such as football, volley ball, basketball, and badminton, tennis court, swing slide Classroom furniture, such as student seats and tables,

as well as buildings and playgrounds, are just as significant as any other school plant. The two former (classroom and educational equipment and structures) are, on the other hand, extremely important in the teaching-learning process.[4]

School plant and facilities are described as "physical and spatial facilitators and enhancers of teaching and learning.[5]" Classrooms, libraries, farms, gardens, laboratories, workshops, offices, stores, school buildings, staff quarters, chairs, tables, text books, magazines, journals, pictures, filmstrips, charts, bulletin board, posters, cartoons, school museums and archives chalk-board, play fields, and other school plant facilities are included in secondary school education. Permanent buildings, semi-permanent structures, temporary structures, mobile structures, collapsible structures, boat schools, and even structures under the shade of trees are all available in Nigeria[3]. He asserted that the goal of school plant and facilities development in primary education is to increase school attendance, motivation and to improve academic performance of students. The key components of both direct and indirect aspects in the learning environment are school facilities. The school's plant and infrastructure, he claims, are materials created to serve certain objectives. She cited the need for plant and facilities in schools to provide opportunities for firsthand experience, experimentation, and demonstration; for specific investigation, to provide diversity of thought; for observation and inquiry for the development of scientific attitudes and skills, to protect the individual, provide comfort, and illustrate concepts; and for observation and inquiry for the development of scientific attitudes and skills, to protect the individual, provide comfort, and illustrate concepts[5]. It was argued that in an educational setting such as secondary schools, school plant and facilities such as furniture, laboratory equipment, and materials have an undeniable impact on the teaching and learning process because without them, no matter how appealing, empty buildings and structures cannot be used for educational purposes[5]. As a result, school plant and facilities are unquestionably an important component of instructional design

without which students' academic progress would suffer. With time, the notion of a functional plant for school buildings has matured and extended. The word "school plant" refers to the school's immovable construction. It consists of a school building, a playground, a classroom, a dormitory, a library, apparatus and equipment, a blackboard, and stores, among other things[6]. While school facilities are moveable structures which are also designed to promote teaching and learning effectiveness.

School Plant and Students' Academic Achievement

The school plant is the sum total of building, equipment, textbook including the surrounding where teaching and learning takes place. The school plant includes all permanent and semi – permanent structures in the school. Academic Achievement is the measurement of student achievement across various academic subjects. Teachers and education officials typically measure achievement, using classroom performance, graduation rates and results from standardised tests.

There is a clear correlation between instructional resources and student academic achievement.[8] Schools with better resources performed better than schools with fewer resources. The quality and quantity of these resources (school plant) have been identified as critical factors influencing students' achievement[6,9]. The relevance and applicability of these learning materials to the local context are critical to achieving national objectives and aims, materials school plant is classifying as "didactic" that encourage educational programs.[10]

The latter kind of school plant (playground) is undoubtedly required to support the school's co-curricular activities. As a result, it is reasonable to conclude that the importance of school plant variables such as school building, science laboratory facilities, and library facilities in the implementation of the curriculum are not mutually exclusive, and that all of these variables contribute to and link together to form a relationship that influences students' academic achievement in Basic

Science in Secondary Schools[14]. For effective teaching and learning situations, school plant and educational goals should be viewed as being closely interwoven and interdependent[15]. School plant, apart from protecting students from sun, rain, heat and environment has tremendous impact on comfort and safety for everyone within the school premises. To this end the study conceptualised the links and relationship among classroom facilities, science laboratory facilities and library facilities and how it influence academic achivement of Basic Science Students In Secondary Schools.

Student Performance in Achievement Tests

Learning is a complex activity that puts student's motivation and condition to the test. It has been a long held assumption that curriculum and teaching only have an impact on learning. However it is becoming apparent that the physical conditions of school can influence students' achievement. A study found on 2nd grade students in standard school buildings scored higher as measured by the comprehensive test of basic skill than did their counterparts attending class in sub-standard facilities. They also found that air conditioning, absence of graffiti, condition of laboratories, classroom furniture correlated with students' achievement at a significant level. In Nigeria, analysis of the WAEC and NECO exams results show that students in well-equipped schools (mainly private and urban) do better that those in poorly equipped schools (mainly public and rural). It can be concluded that technologies and adequate school plant better equip students for success in achievement tests.

Theoretical Framework on School Plant

System Theory

The system theory may be identified as the foundation for this research. A system is a collection of interconnected pieces that operate together to produce the desired results or consequences. This refers to a group of people, resources, concepts, and processes assembled to carry out a certain task or achieve a specific objective. An input, transformation

process, and output make up a system, which is surrounded by an environment. The system's environment is made up of numerous factors that are external to the system. In essence, they are not input-output processes, but they have an impact on the system's goals and hence its functioning.

The physical conditions of a large percentage of secondary schools are not conducive to learning. There was a claim that a favorable physical environment for students in secondary schools is necessary to enhance student performance[1]. Unfortunately, some urban and rural schools lack adequate infrastructure such as classroom blocks, causing some students to learn under the shade of trees (especially the newly established ones). Rainstorms have blown off the bulk of the roofs of the classroom blocks that do exist. Other schools' classrooms have enormous flaws that need to be fixed or updated. Worse, a higher percentage of students sit and write on the bare floor due to a shortage of classroom chairs. This condition, without a doubt, will not help pupils improve their learning abilities and, as a result, their performance in class, including tests. As a result, he advised that all hands be on deck to ensure that obstacles were eliminated and that a strong solid foundation could be established for future generations.[2]

The efficacy and efficiency of a system are frequently assessed. The degree to which goals are met in the educational environment is referred to as system effectiveness. As a result, effectiveness is used to assess the degree to which the institution of learning has met its objectives. While efficiency refers to how a school's activities may be carried out in such a way that waste of resources is minimised in order to achieve the goals. As a result, efficiency attempts to reduce costs and assess how efficiently resources are being utilized for the upkeep of existing facilities. This is determined by the output-to-input ratio[2].

According to the system theory, a school is a social system whose sustainability is dependent on its capacity to maintain the relative consistency of its processes and relationships within and outside the

system. The capacity to keep its processes and relationships within and outside the system relatively consistent. A model of an energetic input-output system with energetic returns is used in the procedure. The outputs, in other words, revive the system.

The inputs entering the system are processed within the system, and the outputs are obtained. Some of the outputs are transmitted to the environment, such as the school, while others return to be used as inputs. According to the theoretical framework, the impact of school facilities on student performance plays a critical role in any school (particularly secondary schools), as it facilitates and permits seamless planning, directing, organising, staffing, and regulating inside the school. The major goal of school facilities is to make it as pleasant as possible for students and instructors to teach and study in order to achieve excellent results. The school facilities are operated by students, academics, and non-academic employees in order to provide effective and accurate results to the society at large. In additions, it answers the increasing needs of schools as it allows staff and students to have access to all relevant school facilities which enables them to take active role within and outside the community[31].

Empirical Review

The teaching-learning process is inadequate without good construction. The researcher focused on the school building and its influence on student academic progress in this study. The study's major goal was to determine the influence of school buildings on secondary schools students in Pakistan's Khyber Pakthunkhwa province. The research was descriptive in nature. The respondents were polled using a dichotomous questionnaire. To achieve the study's goal, descriptive and inferential statistics were utilized. The current study's findings reveal that there is a link between kids' academic achievement and the structure of their school[99].

The impact of school plants on students' academic Achievement in Economics at Secondary Schools in Ondo State's Ile-Oluji Okeigbo Local Government Area was explored in a research. The study used an ex-post facto research design. A total of 1,342 students offering Economics were selected as a sample, accounting for 29.0 percent of the 4632 Junior Secondary School (JSS) students. The study employed the School Plant Availability Checklist (SPLAC), which has a Cronbach Alpha () of 0.73. The hypotheses were tested using Analysis of Covariance (ANCOVA) at the 0.05 level of significance. The findings revealed that instructional equipment, facilities, and playgrounds all had a substantial impact on students' economic performance[100].

The provision of laboratory facilities in Calabar Secondary Schools has brought little or no results in terms of student academic achievement in recent years[106]. The purpose of this article is to assess the impact of laboratory facilities on students' academic performance in Calabar. However, 350 copies of a questionnaire were sent to Chemistry students in order to measure the influence of the facilities on the students' academic performance. The findings of the data collection and analysis suggest that Secondary School Laboratory Facilities are insufficient for teaching Chemistry. This conclusion was also confirmed by the tested hypothesis, which showed that facility adequacy had no significant impact on student academic performance in Chemistry.

"Influence of Library Service on Students' Academic Performance in Ordinary Certificate of Secondary Education Examination in Mtwara Mikindani Municipality, Tanzania" was conducted that several Secondary Schools in Mtwara Mikindani Municipality did not have libraries[107]. Furthermore, students from secondary schools with libraries and sufficient materials performed better in CSEE than students from secondary schools without libraries and sufficient materials. This is because the availability of well-equipped libraries encourages learning habits and enhances students' study skills, resulting in better CSEE performance.

The library is regarded as a crucial component in the implementation of school programs. In view of the aforementioned, the researcher looked at the perceived impact of library services on Secondary School Students' academic progress.[108] Twenty schools and their principals were chosen from three senatorial districts in Kwara State using non-probability procedures (stratified, purposive, and convenience selection techniques). To obtain relevant data for the study, the research design comprised an interview and an observational checklist. The data was analyzed using the Nvivo software (version 10) program. The study's findings demonstrated that library services had a favorable impact on students' academic progress. The findings also revealed that libraries in schools lacked basic facilities and contents. In addition, schools had untrained or inadequate library staff.

The correlation between school plant provision and secondary school students' academic achievement in Rivers State's Tai and Eleme Local Government Areas. To do this, the study was guided by four research questions and four null hypotheses. The findings of the studies revealed that there is a link between school plant provision and kids' academic achievement in secondary schools[117]. The result was that school plants are essential components of the educational system, and their presence improves instructors' teaching abilities as well as students' academic achievement. School buildings should have appropriate space, ventilation, lighting, humidity, and temperature. Instructional resources, library services, and a scientific lab should all be available.

Methodology

Research Design

Descriptive survey research design was adopted for this study because it is aimed at ascertaining and establishing the status quo, facts or pieces of information concerning the population.

Population of the Study

The study's population consists of all Junior Secondary School Students in Oyo State with the total population of 225,580[3]. The target population of the study is all the Junior Secondary School Students in Oyo State.

Sample and Sampling Techniques

Multi-stage stage sampling procedure was used to arrive at the sample for the study. At the first stage, Oyo State was divided into three using proxy of senatorial districts. These are Oyo South, Oyo North and Oyo Central Senatorial Districts. Secondly, Local Government Area with highest and lowest number of schools in each of the senatorial districts were selected. Thirdly, slovin's formula for sample size was adopted. Lastly, simple random sampling techniques was used to select students from sampled schools as shown below:

Table 1: Population of the Study

S/N	Senatorial District	Local Government Areas	Number of schools	LGA with Lowest & Higest schools	Sample School	No. Selected Students & Sample size
		Afijio	17			
		Akinyele	36	36	7	220
		Egbeda	30			
		Ogo Oluwa	13			
		Surulere	23			
1.	**Oyo Central**	Lagelu	26			
		Oluyole	29			
		Ona Ara	33			
		Oyo East	11	11	4	120
		Oyo West	11	11	4	106
		Atiba	15			
		Sub-total	**244**	**58**	**15**	**446**
		Saki West	22			
		Saki East	11			
		Atisbo	12			
		Irepo	6	6	2	66
		Olorunsogo	4			
		Kajola	16			
		Iwajowa	9			
2.	**Oyo North**	Ogbomoso North	15			
		Ogbomoso South	16			
		Iseyin	23	23	5	126
		Oorelope	8			
		Itesiwaju	11			
		Orire	18			
		Sub total	**171**	**29**	**8**	**192**
		Ibadan North	42	42	8	264
		Ibadan North West	13			

		Ibadan South West	30			
		Ibadan North East	34			
3.	**Oyo South**	Ibadan South East	36			
		Ibarapa East	11	8	3	98
		Ibarapa North	8			
		Ibarapa Central	10			
		Ido	26	**50**		**362**
		Sub total	**210**	**1000**		
Grand Total			**625**			

Source: Nigeria Digest of Educational Statistic

Description of Research Instrument

The main instruments that were adopted for this research were data from both questionnaire and achivement test. The questionnaire was structured in a simple clear language to elicit data to answer the stated research questions. The questionnaire were divided into two sections (Section A and B), Section A were designed to obtain the demographic information of the respondents such as; gender, age bracket, class and religion. Section B has fifteen items and is structured using four points Likert scale of strongly Agree (SA), Agree (A), Disagree (D), and strongly Disagree (SD) will be the response mode for this section.

The second instrument used to collect data on academic achievement was Basic science Achievement Test (BSAT). Test items on developed by the researcher using Basic Education Certificate Examination (BECE) standard test. The test contained 25 items of multiple choice questions of junior secondary Basic science. This helped the researcher obtain first-hand information about students' achievement.

Reliability of the Research Instrument

For the objective of establishing the instrument's reliability, a pilot study was undertaken with fifty students from various schools that were not

part of the state's selected schools. The reliability coefficient of BSAT for the pilot research was estimated using the KR_{20} reliability approach. The result was a score of 0.82. BSAT was deemed dependable for the investigation based on the computed reliability coefficient. The Cronbach Alpha technique was used to determine questionnaire reliability, yielding a reliability coefficient of 0.76. As a result, the study's questionnaire reliability was rated equally dependable.

Administration of Research Instrument and Method of Data Collection

The researcher sought permission from the authorities of the schools concern before administering the instrument. After permission was sort, the two instruments were administered simultaneously. The distribution and collection of the questionnaire was done by the researcher with the help of some research assistants. The collection of the two instruments was immediately after their completion to ensure speedy and accurate return of all copies of the questionnaire.

Method of Data Analysis

The data collected from administered questionnaires were subjected to statistical manipulations. The descriptive statistics were used to analyze biographical data. The research questions raised were answered using mean and simple percentage while hypotheses raised were tested using regression analysis tools. Statistical Package for Social Science (SPSS) version 23 was used to ensure accuracy of the analysis of the data collected for study.

Results

Analysis of the Research Questions

Research Question One: What is the level of availability of school plant (classroom, science laboratory and school library) of junior secondary school in Basic science in Oyo state Nigeria?

Analysis of the research question one is represented in the Table 4.2

Table 2: Descriptive Statistics on Level of Availability of School Plant (Classroom) used for Basic Science

S/N	Items	N	$\bar{x}$	Std. Dev	Remarks
1	Buildings	1000	3.4700	.71411	**HA**
2	Adequate Space	1000	3.1900	.68898	**HA**
3	Duster & Chalk	1000	3.2700	.87084	**HA**
4	Wall Charts	1000	3.0700	.01332	**HA**
5	Chalkboard	1000	3.1900	.82160	**HA**
6	Power Points	1000	2.3200	.14183	**NHA**
7	Visual Teaching Aids	1000	2.3400	.97261	**NHA**
8	Lightling and Ventilation	1000	2.9700	1.01529	**A**
9	Writing Kit	1000	1.1400	1.06879	**NA**
Grand total		**1000**	**2.773333**	**0.700819**	

HA: Highly Available, A: Available, NHA: Not highly Available, NA: Not available

Table 2 showed that each of the items 1 to 9 on the level of availability of school plant (classroom) used for Basic science teaching in junior secondary schools in Oyo state. The results from the table revealed that obtained grand mean score 2.77, which was above the criterion of 2.50 set for the study. This results of grand mean of 2.773 which is greater than 2.5 decision mean implied that the respondents rated the level of availability of school plant (classroom) used for Basic science teaching in junior secondary schools in Oyo state as adequately available while the average standard deviation of 0.701 indicated that the respondents were not far from the mean and from one another in their responses. Also, the Table above revealed that item1 had the highest mean of 3.47, followed by items 2 to 5. This indicated that classroom Buildings with adequate space, duster and chalk, chalkboard and wall charts were all highly available for used as classroom materials in Basic Science teaching while averagely some classrooms were lightling and ventilated. Likewise, power points, visual teaching aids were rated to be not highly available in the classroom for used in basic science teaching while the least mean was that of item 9 with a mean score of 1.14 to

indicate that writing kit were not available for used. Thus, it can be concluded that school plant (classroom) used for Basic Science teaching in junior secondary schools in Oyo State is adequately available.

Table 3 Table Level of Availability of School Plant (laboratory Facilities) used for Basic Science.

S/N	Items	N	$\bar{x}$	Std. Dev	Remarks
1	Laboratory.	1000	3.6000	.88255	**HA**
2	Measuring cylinder.	1000	3.0200	.93865	**HA**
3	Skeleton.(Model)	1000	1.6000	.73546	**NA**
4	Dissecting Equipment.	1000	3.3700	.89130	**HA**
5	Litmus paper	1000	3.3200	.35460	**HA**
6	Cotton wool	1000	3.4900	.81916	**HA**
7	Conical flask.	1000	3.1700	.95005	**HA**
8	Calorimeter	1000	3.0200	.88369	**HA**
9	Laboratory funnel.	1000	3.1400	.91750	**HA**
11	Test tube and Racks.	1000	2.8700	.95636	**A**
12	Beaker.	1000	2.9900	.78161	**A**
13	Aquarium.	1000	2.8000	.12343	**A**
14	Thermometer.	1000	3.0700	.15209	**HA**
15	Microscope.	1000	1.0200	.93865	**NA**
16	Magnifying glasses.	1000	3.1200	.81652	**HA**
17	Dropping pipette.	1000	2.8700	.05592	**A**
18	Bunsen burner.	1000	2.9700	.15383	**A**
19	Preserved specimen	1000	2.7500	.09063	**A**
20	Tripod stand.	1000	2.7200	.05045	**A**
Grand Mean			**2.89**	**0.604866**	

HA: Highly Available, A: Available, NHA: Not highly Available, NA: Not available

Table 3 showed that each of the items 1 to 20 on the level of availability of school plant (Laboratory Facilities) used for Basic Science teaching in Junior Secondary Schools in Oyo State. The results from the table revealed that obtained grand mean score is 2.89, which was above the criterion of 2.50 set for the study. this results of grand mean of 2.89 which is greater than 2.5 decision mean implied that the respondents rated the level of availability of school plant (Laboratory Facilities) used for Basic Science teaching in Junior Secondary Schools is adequately available, while the average standard deviation of 0.6048 indicated that the respondents were not far from the mean and from one another in their responses. Also, the Table above revealed that item1 had the highest mean of 3.47, which indicated that laboratory is highly available for teaching of Basic Science that is most schools have laboratory. Likewise, laboratory facilities were highly available as regards items 1 to 9, 14 and 16 as indicated in the above table. However, most of the facilities in the table above were available for used in the teaching of Basic science with the exception of items 2 and 15 i.e Skeleton (Model) and Microscope with the mean score of 1.02 and 1.60 respectively which is below 2.5 mean decision to indicate that Skeleton (Model) and Microscope are not available laboratory facilities using for the teaching of Basic Science. Finally, with Grand mean of 2.89, it can be concluded that school plant (laboratory facilities) used for Basic science teaching in junior secondary schools in Oyo State is adequately available.

Table 4: Table Level of Availability of School Plant (Library Facilities) used for Basic Science

S/N	Items	N	$\bar{x}$	Std. Dev	Remarks
	Library	1000	3.2600	.97055	**HA**
1	eBook	1000	2.4700	.71411	**NHA**
2	Magazines: titles, suppliers and costs (print and e-zines)	1000	3.1900	.68898	**HA**

3	Suppliers of stationery and library consumables: barcodes, covering materials, labels etc	1000	1.0200	.03865	**NA**
4	Library shelving, furniture and equipment suppliers	1000	2.8200	.81652	**A**
5	E-library services	1000	2.2700	1.05592	**NHA**
6	Professional support	1000	2.7001	.90911	**A**

HA: Highly Available, A: Available, NHA: Not highly Available, NA: Not available

Table 4 showed that each of the items 1 to 6 on the level of availability of school plant (library facilities) used for Basic science teaching in junior secondary schools in Oyo State. The results from the table revealed that Obtained grand mean score 2.70, which was above the criterion of 2.50 set for the study. This results of grand mean of 2.70 which is greater than 2.5 decision mean implied that the respondents rated the level of availability of school plant (library facilities) used for Basic Science teaching in Junior Secondary Schools is adequately available while the average standard deviation of 0.909 indicated that the respondents were not far from the mean and from one another in their responses. Also, the Table above revealed that item1 had the highest mean of 3.26 which indicated that library is highly available for teaching of Basic Science that is most schools are having library. The results also, revealed that item3 i.e. Magazines with the mean score of 3.19 is highly available in the library for used in the teaching of Basic Science. However, Library shelving, furniture and equipment suppliers and Professional support are adequately available as indicated by mean scores of 2.82 and 2.70 respectively. Likewise, eBook, E-library services were rated to be not highly available in the library for used in basic science teaching while the least mean score was that of item 3 with a mean score of 1.02 to indicate that Suppliers of stationery and library

consumables was not available for used. Thus, it can be concluded that school plant (library facilities) used for Basic Science teaching in junior secondary schools in Oyo State is adequately available according to the grand mean score of 2.70.

Analysis of research question three is represented in the table Table 4.4

Table 5: Analysis of the Level of Academic Achievement of Junior Secondary Students in Basic Science

Academic achievement (Student scores)	Frequency	Percent
0-15	309	30.9
16-25	312	31.2
26-35	210	21
36-50	169	16.9
Total	**1000**	**100.0**

The Table 5 above presents the analysis of the level of academic achievement of junior secondary students in Basic Science. It revealed that 312 representing 31.2% of the respondents out total respondents of 1000 scores range from 16 to 25 out of total mark of 50, 309 representing 30.9% of the respondents scored between the range of 0 to 15 marks, 210 representing 21% of the respondents scores range from 26 to 35 marks while 169 representing 16.9% of the respondents scored between the range of 36 to 50 marks. Thus, most students' marks fall within the range of 0 to 25 marks. As a result, it can be inferred that junior high school pupils' academic achievement in Basic science is fairly average.

Test of Hypothesis

$H_0$1: There is no significant influence of school plant variables (classroom, science laboratory and school library) on academic achievement of Junior Secondary School in Basic science.

Table 6: Joint Influence of School Plant Variables (Classroom, Science Laboratory and School Library) and Family Background Variables (Education Status of Parents, Family Size and Parental Income) on Academic Achievement of Junior Secondary School in Basic Science.

R	R Square			Adjusted R Square	Std. Error of the Estimate
.417	.174			.168	9.6335
ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3046.328	2	507.721	7.511	.000
Residual	9665.865	998	67.593		
Total	12712.193	1000			

Table 6 shows the Joint contribution of school plant variables variables influence on academic achievement. The table also shows a coefficient of multiple correlation (R = .417 and a multiple R2 of .174. This means that 17.4% of the variance is accounted for by six predictor variables when taken together. The significance of the composite contribution was tested at $P < .05$. The table also shows that the analysis of variance for the regression yielded a F-ratio $_{(2, 998)}$ of 7.511 (significant at 0.05 level). This implies that the joint contribution of school plant variables variables influence on academic achievement was significant and that other variables not included in this model may have accounted for the remaining variance.

Discussion of Findings

According to the findings of research question one for this study, the school plant provided in the school includes well-built classrooms, a science lab, and a school library. This suggested that classroom buildings had sufficient space, duster and chalk, chalkboards, and wall charts were all readily available as classroom supplies in Basic Science education, and that some classrooms were light and ventilated on

average. In addition, based on the findings, library shelving, furniture, and equipment providers, as well as professional support, are all readily available. This support the findings that instructional equipment, facilities, and playgrounds were fairly available for teaching and learning of economic; with the premise that school buildings should have sufficient space, ventilation, lighting, humidity, and temperature, school plants are key components of the educational system, and their presence increases instructors' teaching abilities as well as students' academic accomplishment.[9,113&117]

The interpretation of the results from the hypothesis influence of school plant variables (classroom, science laboratory facilities and library facilities) on academic achievement of Junior Secondary Schools Basic Science in Oyo State indicated that the joint contribution of school plant variables influence on academic achievement of students in Basic Science was significant. This is in agreement with the scholars' views that School Plants with well-designed school building, classrooms, toilets, and fresh drinking water facilities, libraries, offices, laboratories, and other materials as well as infrastructure are quite helpful to bring betterment in the educational system due to which teachers and students are highly motivated towards the teaching-learning process.[3,4,6&7]

Conclusion

This study examined school plant and family background as predictors of achievement of Junior Secondary School Basic Science in Oyo State, Nigeria. The educational environment and students' family background have a significant impact on their learning outcomes. The classroom, library, and Basic Science laboratory, along with parental education level of parent, parental income, and family size, are all elements that influence students' academic success in Basic Science. This study can therefore conclude that the impacts of combining school plant and family background variables on student academic achievement were beneficial. This means that academic achievement is influenced not only by school circumstances, but also by factors at home.

Recommendations

The following recommendations were made in light of the findings and conclusions reached in this current study.

1. Features of school buildings and classroom facilities, such as ventilation, space, and classroom height, should be insisted upon. Teachers and students should instill positive habits of cleanliness and order in both indoor and outdoor learning environments.
2. Adequate library, laboratory, and workshop equipment should be supplied, with plans in place to improve and maintain them.
3. School facilities should be used as a priority, and users of school facilities should be taught how to use them to help students perform better.
4. Government should adequately equipped science laboratories across the state for effective teaching and learning of Basic science.
5. Policymakers and instructors should discuss how to maximise student usage of the library and library services, increasing the chances of favorable outcomes. Interventions that help students learn more effectively.

Endnotes

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