

# School Plant Management and Students' Academic Achievement in Public Secondary Schools in AKWA IBOM State

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**ABSTRACT**

The study examined school plant management and students' academic achievement in public secondary schools in Akwa Ibom State. Two research questions were raised and two research hypotheses were formulated to guide the study. The design of the study was ex-post facto. The study population consisted of 235 public secondary schools, 48, 840 SSII students and 6755 teachers in 235 public secondary schools in Akwa Ibom State. The sample comprised 118 Secondary Schools, 977 SSII students and 811 teachers were selected using multi-stage sampling technique. Two sets of instruments were used for data collection. These were researcher developed checklist and questionnaire titled "School Plant Availability Checklist (SPAC) and School Plant Utilization Questionnaire (SPUQ)". SPUQ was responded to by both the teachers and students. The reliability co-efficient of the instrument was determined using the Cronbach Alpha statistic. The Reliability index of 0.82 was obtained. Mean and Standard Deviation were used to answer the research questions while Analysis of Variance (ANOVA) was used to test the hypotheses at 0.05 alpha level. The findings of the study revealed that there is a significant difference of availability and utilization of classroom space and school furniture on students' academic achievement in English Language, Mathematics and Biology. The study concluded that there is need to overhaul the existing policy on school plant to ensure proper provision and utilization. It was recommended that government should make available suitable classrooms, furnitures and all the materials needed to make them functional.

## I. INTRODUCTION

The school plant consists of the houses within the school, the equipment and all the essential structures, durable and temporal, as well as mechanical or electrical devices and laboratory equipment such as the blackboards needed for proper teaching and learning. Yusuf (2008) viewed the school plant as space translation of the school curriculum. It would be impossible for the curriculum to be implemented if the physical facilities required for teaching and learning are not available. Ejieh and Fadipe (2011) also included the school sites as part of the school plant. For the purpose of this study, the term school plant will be restricted to facilities such as classroom space and furniture, all structures and features such as books, desks, tables, ventilation of the classrooms and other objects used for the enforcement of educational activities; security and fire prevention systems. Facilities also include furnishings and classroom space needed for smooth running of an educational system.

School plants and facilities include non-durable and durable items that are necessary for attainment of school goals (Madumere, 2007). Under non-durable items there are such facilities like chairs, seats, chalks, water, light (electricity), chemicals used for experiments in the laboratory, pens, pencils, rulers, exercise books or note books. These are items that their life span do not exceed one year and are replaceable from time to time. They are usually replaced under recurrent budget along with staff salary and allowances. The durable items last for years. Under the durable items are classrooms, or buildings for classrooms, hostels, recreational halls, school vehicles, generating sets, other machineries for the school, like; the, a library stock with current books, workshops and laboratories. Some durable items last for fifty years or more depending on the usage. For example school buildings, school gardens, playgrounds, orchards and swimming pools last pretty long. Precisely, durable items are associated with capital projects and capital budgets which should serve the need of the school for a long time. The tools and equipment used in the buildings and outside the school buildings could be referred to as facilities, so also; the school building all tools, machineries and equipment used in the school. School plants or facilities are expected to make for to effective teaching and learning and to contribute to schools goal attainment.

The word management has been viewed in diverse ways by different authors. Griffin (2003) viewed it as a set of roles which point at making good use of available resources in the achievement of organizational objectives: Terry and Franklin (2003) were more involved in the activities of management. According to them, management is a process involving the activities of planning, organizing, co-ordinating, and controlling, execute to achieve the stated objectives with the utilization of human and material resources.

Planning is the first stage in any administrative role. It is the making of arrangement for the future. It consists of ideas on how to utilise time, money, human resource and equipment in future. Plans are made after objectives are set. Planning is usually considered as a search for the best method of realising these goals. In organizing, the administrator chooses what task would have to be filled and the function assign to each one. Effective organization implies that the main people are assigned to do the appropriate job at the right time. Activities should be assigned to individuals on the basis of their ascertained qualification, experience and interests. On the part of the administrator, the knowledge of leadership is required. Directing involves giving staff all needed on now to go about their duty. It is not once for-all activity but an on-going one. Officers should be directed on the right path to do their job.

Co-ordinating relates to the activities of diverse units to one another to ensure that the various activities are met, to achieve the set goals. Co-ordination occurs when the Organization's actions are planned, organized, directed and controlled. Controlling is the assessment and correcting of actions of subordinates to ensure that

these actions are contributing to the achievement of planned objectives. Ukeje (1992) pointed out that assessment and supervision are the administrators' tools for controlling, directing and leading.

School plant management is an area of management which deals with making of decisions by individuals and groups in school facilities based on requirements. According to Ejieh and Fadipe (2011) school plant management involves a number of related activities to determine the need for school plants, educational programme, school facility design, building construction, furnishing of the school at the right time. Effective school plant management ensures that school facilities are adequately used for teaching and learning without disruptions. Facilities management is a process that ensures that structures support the organizational need. School plant management should ensure that school facilitate support the provision of education by a school (Fenker, 2004).

According to Agboola (2015) school plant management should ensure that facilities are kept in good condition and are properly utilized to achieve the purpose for which they were meant. Ogbodo (1995) classified school plant management into three activities namely: procurement (availability), utilization (usability) and maintenance (renovation). This classification is adopted in this study and only availability/procurement and utilization were of the interest of this research work. That means that this study is interested in all the external conditions, objects available and their usage in public secondary schools in Akwa Ibom State that affect the academic achievement of the students. These include classroom space and furniture among others. The term furniture refers to such items as desks, tables, chairs, seats, and benches. They can be made of wood, metal or plastics and are easily moveable. According to Agboola (2015) furniture in education are provided in the school to enhance students' academic achievement. The two major factors that needed consideration before the provisions of furniture in the school are comfort and the safety of the students who will make use of the furniture. Furniture is an important aspect of the school management because students spend most of their time seated on it. "It should be moveable and easy for arrangement as to allow students seat in best seated for their learning pattern" (Lawrence, 2009,p.167).

A classroom can be defined as rooms where a class of students is taught. A classroom is a learning space or room in which classes are organised. Classrooms are found in schools from pre-schools to tertiary level, and may also be found on other places such as corporations, religious and humanitarian organisations. The classroom provides a space where learning takes place without disruptions. Classroom space is the physical arrangement of seats and resources in the class. Classroom space is the arrangement of the classroom to reflect the kind of learning that takes place in the classroom (UNICEF, 2000). According to Evertson (2001), the concrete organisation of the supplies and resources in a classroom is a critical factor in promoting learning activities. A well-designed classroom promote a better interaction between teachers and students.

Dusenbury (2012) viewed classroom space as the physical organisation of the classroom for movement and interaction. Classroom space makes it easy for students to relate with one another. Easy movement around the classroom make teaching more interactive and promote classroom control. Blatchford, Edmonds and Martin (2003), in their study classroom space and students' behaviour, observed that students in a well-organised classroom used more time for learning activities. Cakmak (2009).in a study of influence of class space on classroom control, observed that large classrooms are hard for teachers to control the students, resulting in the focus of the classroom environment being more on students' behaviour than on students' academic achievement. Adeyemi (2008) in a findings on the influence of classroom space on the quality of output in secondary schools revealed that schools having a well space classroom obtained better result in the secondary schools certificate examination (SSCE) than schools having an unspaced classrooms. Fletcher in Sita (2010)

found that a well-spaced classroom is safer and more effective and that when a class is congested it becomes more isolated which contributes to unhealthy activities.

The research on the impact of school facilities on students and teachers. A summary of the studies published since 2000 combined with Schneider's (2002) study on how school facilities affect academic outcome, give us a substantial body of evidence relating outcome of classroom space. Many of these studies have used regression modelling and in themselves are inclusive but when combined give a strong indication of the links. These conclude: Indoor air quality, temperature and humidity, ventilation and air flow, terminal comfort, lighting, acoustics, Building Age, Quality and aesthetics, poor work attitudes and behaviours, not cost effective, increases violence and disruptive behaviour. All these result to poor academic achievement of students (Blackmore, Baleman, Mara and Loughlin, n.d, p18).

Nwosu (2016) conducted a study on class size and teachers' effectiveness in public secondary schools in Uyo local educational zone. Ex-post Facto research design was employed in the study. The population consisted of all the principals and 4937 SSII students of the 14 public secondary schools in Uyo local Education committee, while the sample consisted of 543 SSII students drawn using stratified random sampling technique. The instrument for data collection was titled Class size and Teachers Effectiveness Questionnaire (CSTEQ) which was validated by three experts. The reliability of the instrument was determined using test re-test method which was tested using Cronbach Alpha; it yielded an overall reliability coefficient of 0.86. The research questions were answered using mean and standard deviation while independent t-test was used in testing the null hypotheses at 0.05 significant levels. The finding revealed that there is a significant difference in teachers' classroom control, discipline and interaction based on class size.

The term furniture refers to such items as desks tables, chairs, seats and benches. They are made of wood, metal or plastics and are usually easily moveable. The relationship between the students and the classroom environment needs to be better understood (Hemmingsson and Borell, 2011) in order to promote academic achievement for all students in inclusive classrooms: one potential area to explore is classroom furniture. The furniture in each classroom should function to facilitate learning while allowing the appropriate level of participation without distractions.

A variety of non-traditional classroom furniture options are available that can help to meet the movement needs of students while they are engaged in instructional activities. Options for ball chair, stranded desks and treadmill desk now exist for schools, each of which advertises benefits for users on multiple levels. Unfortunately, marketing does not always portray the reality of the effectiveness of these alternatives. Schools are understandable hesitant to invest in materials or tools until their value and cost-effectiveness is clearly evident, especially with the increasing Fiscal demands places on school systems. Both financial and societal standards influence what modifications are acceptable and therefore implemented (Eriksson and Grandlund, 2004).

There is need to give considerable attraction to the selection of the appropriate furniture for the school. According to Ejieh and Fadipe (2011), some useful criteria for the selection of furniture include durability of the furniture, comfort, safety, availability, and cost.

Ivory (2011) conducted a study on how dynamic classroom furniture may influence classroom achievement such as attention, work neatness, and work completion in a second grade general education classroom of 19 students. All students in the classroom were included in this study to understand the implications of environmental modifications on the learning process in general education settings. A descriptive

method provided information about the interaction of furniture on identified learning parts. Three different dynamic furniture options were provided: Zuma chairs®, Disc ‘O’ Sits® (inflated seat cushions), and standing desks with the Original Foot Fidget®. The class was randomly divided into four groups of up to five students. The groups were rotated through the furniture, allowing one week per group with each type of furniture. The Sensory Processing Measure (Parham & Ecker, 2007) was used to screen the sensory processing of students and a daily self-report rubric provided data on attention behaviours and perception of the dynamic furniture options. Data were graphed and visually analyzed for differences in responses to types of furniture. Responses on the rubrics indicate that the different types of furniture impacted different components of learning in a variety of ways. The data from this study indicates that no one type of furniture provides the same effect for all elementary students, but rather that personal characteristics may dictate the best match for focus, work completion, and neatness. The reviewed works have a relationship with present study as they all focused on some aspect of school plant; however they also differed significantly from present study in content, geographical location and time span.

#### *A. Statement of the Problem*

School Plants, particularly buildings, protect students and teachers from the sun, the rain, heat, cold, violent storm and insects. It also represents a learning environment which has a tremendous positive impact on the comfort, safety and academic achievement of students. School plant management is a process of ensuring that facilities are available, maintained and utilized for the purpose of the realization of educational goals. Students learn best when they can actively explore an environment rich in materials. The school plant is also relevant for community activities such as extra moral classes, adult education and home economic centres, youth club meetings, sports, conferences and so on.

It is apparently that the school environment is a very important factor in the achievement of educational objectives. In developing countries, the school plant tends to lack some of the basic systems and structures which make teaching and learning effective. However, where school plants are inadequate and unutilised the teaching – learning process will be hampered. For instance, many secondary schools in Nigeria and Akwa Ibom State in particular, were yet to install their basic technology equipment and machines in the workshops almost thirty years after they were supplied by the Federal Government. Most secondary schools lack electric supply, most seem to lack of functional libraries, laboratories and safe sources of drinking water supply. Also, it has been observed that while government encourages technical education, schools are not equipped with the necessary infrastructure and materials. For examples the 9-3-4 system of education proposes that students be taught a number of technical and vocational subjects. Unfortunately, implementation has been a far cry as the problems are compounded by the inability of teachers to involve students in practical work and for lack of equipment in public secondary schools.

The physical conditions under which teachers work have been established to have direct positive and negative effects on their morale, sense of personal safety, feeling of effectiveness in the classroom and the general learning environment. It has also been observed that poor ventilation in schools, accumulation of dust and growth of mould in ceilings and walls can lead to respiratory infections, headaches, and sleepiness among students and staff. Here in Akwa Ibom State, the researcher observed “window dressing” tendency in some public secondary school buildings along the road. That is, most schools along the roads, in Akwa Ibom State have more presentable plants than schools in the interior areas. The fundamental problems for this study are students’ academic achievement in relation to school plant management. The elements of the problem are students’ academic achievement in relation to classroom space and school furniture. Hence, the researcher intends to investigate school plant management of classroom space, furniture as they relate to students’ academic achievement in Akwa Ibom State public secondary schools.

### *B. Purpose of the Study*

The purpose of this study was to investigate into school plant management and students' academic achievement in public secondary schools in Akwa Ibom State. Specifically, the study is set to determine the difference in.

- Students' academic achievement in Akwa Ibom State based on availability and utilization of classroom space.
- Students' academic achievement in public secondary schools in Akwa Ibom State based on availability and utilization of school furniture.

### *C. Research Questions*

The following research questions were raised to guide the study.

- What is the difference in the students' academic achievement in public secondary schools in Akwa Ibom State based on availability and utilization of classroom space.
- What is the difference in the students' academic achievement in public secondary schools in Akwa Ibom State based on availability and utilization of school furniture.

### *D. Null Hypotheses*

The following null hypotheses were formulated to guide the study.

HO<sub>1</sub>: There is no significant difference in students' academic achievement in public secondary schools in Akwa Ibom State based on availability and utilization of classroom space.

HO<sub>2</sub>: There is no significant difference in students' academic achievement in public secondary schools in Akwa Ibom State based on availability and utilization of school furniture.

## II. RESEARCH METHOD

In this chapter the research design and method of study are presented. It describes the conduct of the research under the following sub-heading: design of the study, area of the study, sample and sampling techniques, instrumentation, validation of the instrument, reliability of the instrument, administration of the instrument and method data analysis.

### A. Design of the Study

The design which was used for this study is the ex-post facto survey design. The ex-post facto design is considered appropriate because the phenomena (school plant and academic achievement), had already occurred and it is not possible to manipulate the characteristics of these variables to arrive at the answer. The design is suitable because it is non-experimental and involves the study of facts that cannot be manipulated. The survey method of the ex-post-facto design was used because the researcher intends to establish differences between the independent variable (availability and utilization of instructional materials, school library, information and communication technology equipment, science laboratories, recreational facilities, classroom space and furniture) units with the dependent variables (students' academic achievement in English Language, Mathematics and Biology).

### B. Area of the Study

The research area for this study was Akwa Ibom State. Akwa Ibom State was created on 27<sup>th</sup> September, 1987. It was carved out of the former Cross River State. Akwa Ibom State has 31 Local Government Area with Uyo as the state capital. Akwa Ibom State is one of the largest oil producing states in the South-South geopolitical zone of Nigeria. The State is situated within the tropics. The state shares a common boundary with Abia State in the north, Cross Rivers State in the East, Bight of Bonny in the South and Rivers state in the west. The state lies between latitude 4<sup>0</sup>33' and 5<sup>0</sup>33' North and longitude 7<sup>0</sup>25 and 8<sup>0</sup>25 East. Akwa Ibom State has a population of 3.9 million people (National Population Commission, 2007).

The state occupies a total land mass of 7,245, 935 sqkms. The state has 234 government owned secondary schools clusters into 17 Local Education Committees (LECs), and two Federal Government (Unity) secondary schools at Ikot Ekpene and at Ikot Obio Itong, Mkpato Enin. There are 1,146 public primary schools. The state has higher educational institutions which include; one Federal University at Uyo, the state headquarters, one state university, the Akwa Ibom State University, at Mkpato Enin, one Federal Polytechnic at Ukana Essien Udim, one State owned Polytechnic at Ikot Osurua, one Maritime academy at Oron, one state college of education at Afaha Nsit. Others include; the School of Health Technology, Etinan, the School of Nursing and Midwifery, Uyo. The state is recently blessed with some private higher institutions, notably Obong University.

Akwa Ibom State is divided into three major political zones namely, Uyo Senatorial District. Eket Senatorial District and Ikot Ekpene Senatorial District. The major ethnic groups in Akwa Ibom State are the Ibibios, the Annang, the Orons and the Andonis. The occupation of the people of the state is fishing, farming, trading, while a good number of people of Akwa Ibom State are civil servants.

Akwa Ibom State makes immense human and material inputs to the nation and numerous oils wells are located here. She is believed to have contributed a greater percentage to the nation's wealth. Hence, the researcher's interest in the area is to establish the influence of management of the school plants and students' academic achievement in Akwa Ibom State secondary schools.



### C. Population of the Study

The population of this study consisted of all the 48,840 SSII students and 6755 teachers in 235 public secondary schools in Akwa Ibom State.

### D. Sample and Sampling Technique

The sample of this study consisted of 977 SSII students (2%) of the students' population, 811 teachers (12%) of the teachers' population and 118 schools (70%) of the 235 public secondary schools in Akwa Ibom State. The multistage sampling technique was used for the study. Cluster sampling technique was used for grouping the respondents into the three Senatorial Districts in Akwa Ibom State. Seventy percent of schools from each local government cluster from the senatorial zones were sampled; two percent of SSII students' results and twelve percent of teachers were drawn from the three senatorial zone. Simple random sampling technique was used both in selecting the schools, teachers and students from each school. The hat and draw method which gave the highest probability of selecting a representative sample was used in selecting the respondents so that every respondent would have equal chance of being selected. Systematic sampling technique was used in selecting students' results. The Sampling Frame is shown in Table 1.

Senatorial District	No. of public secondary schools	Sample of schools selected from the local govts. in each of the Senatorial Zones 70%	Total No. of Teachers	Sample of Teachers 12%	Total No. Students	Sample of SS11 Students 2%
Uyo	64	37	1156	139	14335	287
Ikot Ekpene	86	39	2189	263	18792	376
Eket	85	42	3410	409	15713	314
Total	235	118	6755	811	48,840	977

Table 1. The Sampling Frame for the Study

### E. Instrumentation

A researcher-developed instruments, titled "School Plant Availability Checklist (SPAC) and School Plant Utilization Questionnaire (SPUQ)" were used for data collection on school plant, while the SSII Mock Examination was used to assess students' academic achievement.

Checklist on item availability in the school plant contained 35 items measured on a 4-point rating scale, with the following codes: SA - Sufficiently Available - 4 point, MA- Moderately Available - 3 point, IA - Inadequately available- 2 point UA -Unavailable -1point. The scoring was used for positively-worded items while the negatives items will take the reverse scoring.

Questionnaire on item utilization contained 35 items for teachers respond and 35 items for students respond measured on a 4-point rating scale, with the following codes: VHU-Very Highly Utilized-4 points, HU-Highly Utilized-3 points, FU-Fairly Utilized-2 point, and NU-Not Utilized-1 point. The scoring will be used for positively-worded items while the negatives items will take the reverse scoring. The availability and utilization of school plant will be compared with students' achievement in English Language, Mathematics and Biology.

The achievement was on SSII students 2015/2016 mock examination on English Language, Mathematics and Biology. The grade was as follows: Distinction-4 points (70% and above), Credit-3 points (50 -69), Pass-2point (40-49) and Fail-1 point (below 40%). The points on the three subjects were merged using mean.

#### *F. Validation of the Instrument*

The instruments, “School Plant Availability Checklist (SPAC) and School Plant Utilization Questionnaire (SPUQ)” face validated by one validate in the Departments of Curriculum Studies, Educational Management and Planning and by two experts in Measurement and Evaluation in the Department of Educational Foundations, all in the University of Uyo. The corrections such as the removal of some items in the instrument and reconstructions of the items from these experts were used to modify the instruments SPAC and SPUQ, in terms of appropriateness, clarity of language and content coverage.

#### *G. Reliability of the Instrument*

Reliability ascertains the extent on which an instrument can precisely exhibit the same assessment potential when used on the same kind of sample twice. To determine the reliability of the instrument: ‘School Plant Utilization Questionnaire (SPUQ)’ was trial tested once using 50 students from schools in Ikot Ekpene Senatorial District that were not part of the sample for the main study. The data obtained were analysed using cronbach alpha; it yielded an overall reliability coefficient of 0.82

#### *H. Administration of the Instrument*

The researcher ticks the checklist on the availability of school plant items in the sampled schools. The sampled SSII students and teachers responded on the items on school plants utilization.

#### *I. Method of Data Analysis*

A Mean scores and standard deviations were used to answer the research questions while the analysis of variance (ANOVA) was used for analysing the data for hypotheses testing. All the null hypotheses were tested at 0.05 alpha levels.

### III. RESULTS

The results of the study are presented in the table below according to the research questions and hypotheses.

#### *Research Question 1*

What is the difference in the students' academic achievement in public secondary schools in Akwa Ibom State based on availability and utilization of classroom space.

Availability	Classroom Space		Mean ( $\bar{x}$ )	S.D
	Utilization	N		
Adequate	High	36	72.72	10.30
	Low	39	58.18	10.94
Inadequate	High	20	58.85	18.41
	Low	23	58.26	15.17

Table 2. mean and standard deviation analysis of the difference on students' academic achievement in public secondary schools in Akwa Ibom State based on availability and utilization of classroom space.

Entries in table 2 reveals that schools where classrooms are adequately spaced and highly utilized have achievement mean score of 72.72, while the lowly utilized have mean score of 58.18. Schools where classroom spaces are inadequate but highly and lowly utilized have the achievement means score of 58.85 and 58.26 respectively. The result means that, schools where classrooms are adequately spaced have more achievement in Biology, English Language and Mathematics than school where classroom spaces are inadequately available. Also where the classroom spaces are highly utilized have a higher achievement in those subjects than those that lowly utilize the classroom space.

#### *Research Question 2*

Availability	Classroom Furniture		Mean ( $\bar{x}$ )	S.D
	Utilization	N		
Adequate	High	69	65.19	13.05
	Low	4	76.00	4.08
Inadequate	High	19	72.74	8.75
	Low	26	46.92	9.78

Table 3. Mean and standard deviation analysis of the difference on students' academic achievement in public secondary schools in Akwa Ibom State based on availability and utilization of school furniture.

Entries in Table 3 reveal that schools where classroom furniture are adequate and highly utilized have the achievement measures of 65.19 while the lowly utilized have mean score of 76.00. Schools where classroom furniture is inadequate but are highly and lowly utilized have the achievement means scores of 72.74 and 46.92 respectively. The result means that, schools where classrooms Furniture are adequately available have achieved more in English Language, Mathematics and Biology than schools where classroom furniture are inadequately

available. Moreover, where the Furniture is highly utilized have a higher achievement in those subjects than those that lowly utilize the furniture.

#### *Null Hypothesis 1*

Source	SS	df	Ms	F-cal	F-crit	Decision at $p < .05$
Corrected model	5162.42 <sup>a</sup>	3	1720.81	9.93		
Intercept	418730.22	1	418730.22	2415.27		
Class Space Availability	1294.70	1	1294.70	7.47		
Class Space Utilization	1558.73	1	1558.73	8.99		*
CS Availability *CS Utilization	899.99	1	899.99	7.65	3.94	
Error	19763.95	114	173.368			
Total	489496.00	118				
Corrected total	24926.37	117				

Table 4. Result of Analysis of Variance of the difference on Students' Academic Achievement based on availability and utilization of classroom space

\* = Significant at  $p < .05$

Table 4 shown that the calculated-F value of 7.65 is greater than the critical-F value of 3.94 with 1 and 114 degrees of freedom at 0.05 level of significant. The result is significant; therefore, the null hypothesis that there is no significant difference in students' academic achievement in public secondary schools in Akwa Ibom State based on availability and utilization of classroom space is rejected. The result means that there is a significant difference of availability and utilization of classroom space on students' academic achievement in English Language, Mathematics and Biology.

#### *Null Hypothesis 2*

There is no significant difference in students' academic achievement in public secondary schools in Akwa Ibom State based on availability and utilization of school furniture.

Source	SS	df	Ms	F-cal	F-crit	Decision at $p < .05$
Corrected model	9520.29 <sup>a</sup>	3	3173.43	23.48		
Intercept	191351.38	1	191351.38	1415.94		
School Furn. Availability	1303.41	1	1303.41	9.65		*
School Furn. Utilization	632.94	1	632.94	4.68		
SF Availability *SF Utilization	3772.41	1	3772.41	27.92	3.94	
Error	15406.08	114	135.14			
Total	489496.00	118				
Corrected total	24926.37	117				

Table 5. Result of Analysis of Variance of the difference on Students' Academic Achievement based on availability and utilization of classroom furniture

\* = Significant at  $p < .05$

Table 5 shows that the calculated-F value of 27.92 is greater than the critical-F value of 3.94 with 1 and 114 degrees of freedom at 0.05 level of significant. The result is significant; therefore the null hypothesis that there is no significant difference in students' academic achievement in public secondary schools in Akwa Ibom State based on availability and utilization of school furniture is rejected. The result means that there is a significant difference of availability and utilization of school furniture on students' academic achievement in English Language, Mathematics and Biology.

#### ➤ *Summary of Findings*

- Schools where classroom space is adequately available have more achievement in English Language, Mathematics and Biology than schools where classroom space is inadequately available. Also, where classroom space is highly utilized have a higher achievement in those subjects than those that lowly utilized the classroom space.
- Schools where classroom furniture is adequate and highly utilized have more achievement in English Language, Mathematics and Biology than school where school furniture is inadequately and lowly utilized.
- There is a significant difference of classroom space on students' achievement in English Language, Mathematics and Biology.
- There is a significant difference of availability and utilization of school furniture on students' achievement in English Language, Mathematics and Biology.

#### IV. DISCUSSION

The result of the analysis presented in hypothesis 1 revealed that there is a significant difference of availability and utilization of classroom space on students' academic achievement in English Language, Mathematics and Biology. This could be attributed to effective and efficient availability and utilization of classroom space by both the teachers and the students.

The test results of this hypothesis agreed with findings of Ajayi and Yusuf (2009) who examined the relationship between instructional space planning and students' academic performance in south west Nigeria secondary schools and found amongst others that students' academic performance was significantly related to instructional space planning. The result also conforms to the assertion of Evertson (2001) that the physical arrangement of the supplies and resources in a class is a critical factor in promoting learning activities.

The result of the analysis presented in hypothesis 2 revealed that there is a significant difference of availability and utilization of school furniture on students' academic achievement in English Language, Mathematics and Biology. The result could be as a result of the quality of the furniture provided by the school management that is, the type that can allow the students to adjust while learning.

The result is in conformity with Ivory (2011) who conducted a study on how dynamic classroom furniture may impact classroom performance such as attention, work neatness and work completion in a second grade general education classroom of 19 students. And the result showed that different type of furniture impacted different components of learning in a variety of ways. To further support this result, Hemmingsson and Borell, (2011) asserted that the furniture in each classroom should function to facilitate learning while allowing the appropriate level of participation without distractions.

#### ➤ *Recommendations*

The following recommendations were made:

- Government should make available suitable classroom, laboratory, library and all the materials needed to make them functional.
- The school management should organise a regular inspection and assessment of the school plant in the area of availability and how they are being utilized by both the teachers and students.
- The school management should ensure that the available school plant are properly and timely maintained.
- Government and the school management should organise a regular seminar and workshop for both the teachers and students on how to use the available school plants in both teaching and learning.
- The school management should ensure that the usage of the school plants by the members of the communities is regulated as to avoid damages.

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