



**INFLUENCE OF SCHOOL ENVIRONMENTAL FACTORS ON STUDENTS ACADEMIC  
ACHIEVEMENT AND INTEREST IN CORE SCIENCE SUBJECTS IN UYO SENATORIAL  
DISTRICTS OF AKWA IBOM STATE, NIGERIA.**

**BY**

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**ABSTRACT**

*The study is out to investigate the influence of School Environmental factors on students achievement and interest in core science subjects in public Secondary Schools in Uyo Senatorial District of Akwa Ibom State. Six Purpose of Study, Six Research questions and Six Hypotheses were carefully formulated to guide the study. Ex-Post Facto Research Design was adopted for the Study. The Area of the Study was Uyo Senatorial District where there Public Secondary Schools were Randomly Selected to guide the Study. The Sample Population were Six hundred Senior Secondary two SS 2 offering Physics, Chemistry and Biology students were selected using purposive random technique to guide the study and three instruments namely (ISEFBQ)(ISEFCSQ) and( ISEFPSQ) were developed, Validated by three independent assessors from University of Uyo and where use for the study . The Data collected we're Analysed Using Mean and Standard Deviation to answer the research questions while an independent t test where Use to test the Null hypotheses at 0.05 Significant Level. The findings of the Research Reveals that statements of Items answered by the respondents were above the decision Level of 2.5 indicating that the statement of items tick for school environmental factors in the selected schools influenced students academic achievement and interest in core science subjects in Uyo senatorial District and it was recommended that Government should provide school s with more environmental variables while students and students should make good use of them in order to enhance their academic achievement and interest in science subjects in the senatorial district.*

**Keyword: School Environment, Student academic achievement, interest, sciences subject and Senatorial Districts, and Akwa Ibom State.**

**Introduction**

Scientific knowledge is an instrument “par excellence” for effective National development. It is highly rated as the most important instrument of change since any definite change in the intellectual and social outlook of the people must be preceded by an educational revolution. It is obvious that the development of any nation depends largely on the level of education attained by her citizens especially in the area of science and technology. The world has been turned into a global village as a result of inventions and innovations of science and technology (Silas, 2015). Practical changes and development of a nation are pivoted on these inventions and innovation. According to Emeka (2014), in order to be developed, most developing countries have laid more emphasis on science learning, with each country striving towards providing more and better-trained scientists and technologies. Nigeria as a developing country is not left out of this striving.



The importance of science and technology to national development in the life of any country cannot be overemphasized. This is because knowledge and skills in science and technology are very vital in the development of any society. Julius (2011) observed that the changes in applications of science and technology and the global reliance on its processes and products in all areas of human endeavour have made them invaluable that any society of country without them risks being alienated from the global village. This means that for an individual to be well-grounded in science, and competent enough to face the challenges of life in his society, he or she must have gone through a science programme that is well planned, assessed and implemented. Silas (2015) stated that when science programmes are well planned and implemented, it will promote the interests of the students which is seen in their feelings of wanting to know or learn more about sciences and also boost their academic achievement and interest in this area.

Science education programme that is well planned, assessed and implemented is undoubtedly seen as a system of production and could be viewed as a factory that requires men, money and material resources to aid production (Cletus, 2012). Cletus further added that each factory has its peculiar environment that depicts or suggests the type of production that goes on there. The school environmental factors which include libraries, peers influence, laboratories, class size, teacher's personality, equipment, machinery, class furniture, location, electrical and water supply infrastructure, noise and others could simply be likened to the capital in an industrial setting. They are very necessary to ensure the effectiveness and efficiency of the system. A simple aesthetic exterior suggestive of the purpose for which the buildings are used could be a pride to the students and could have an impressive influence on the school community as a whole.

Deteriorating conditions have encouraged incessant complaints from students. Adebajo (2012) submitted a positive relationship between school facilities and school effectiveness. Hallack (2014) also highlighted physical facilities in the school environment as a major influence of students' achievement in the school system. He emphasized that the availability, relevance and adequacy of these facilities contribute to students' performance while unattractive school buildings, crowded classrooms, non-availability of playground, flower beds and surroundings that have no aesthetic beauty can contribute to poor achievement. Ahunanya (2006) also reiterated the provision of adequate physical facilities in the school environment for effective teaching and learning to take place. Adams (2014) submitted that a quiet, cool, clean and beautiful physical school environment makes the teacher and students happy and enhances their performance and productivity. Chemistry is one of the most important disciplines in the school curriculum; its importance in the general education has a world-wide recognition. It is worth to emphasize that the field of Chemistry, science and technology are related to the economic heart of every highly developed, industrialized and technologically advanced society (Burmeister, 2012). Teaching and learning of Chemistry have significant roles towards technological development in a developing nation since Chemistry is embedded in our life and society (Hofstein, 2011).

### **Statement of the Problem**

Conducive school environmental factors are expected to be a panacea for good academic achievement of students generally and science in particular. School environmental factors like well equipped science laboratories, spacious classrooms with seats, experienced and qualified teachers, moderate class size, etc. are very likely to enhance students' academic achievement and interest in core



science subject such as biology, chemistry and physics. It is expected that stakeholders in education should ensure that adequate provisions in school environmental factors are made for effective teaching and learning of science subjects especially sciences like chemistry, biology and physics.

Contrarily, researchers and teachers alike complain that most environmental factors for the teaching and learning of science subjects like Chemistry are grossly inadequate in most schools. Cases of absence/ill equipped Chemistry laboratories abound in some schools in the country today. With the problem of persistent poor performance of students in Science subject in both internal and external examination, it becomes pertinent to ask whether environmental factors should be contributory to this ugly situation. The problem of this study put in question form, therefore becomes “What is the influence of school environmental factors in core science subjects and academic achievement and interest in Uyo Senatorial District of Akwa Ibom State”.

### **Objective (s) of the Study:**

The main purpose of the study is to determine the influence of school environmental factors on students’ academic achievement and interest in core science subjects in Uyo Senatorial District of Akwa Ibom State. Specifically, the study seek to determine.

1. Determine the extent to which the availability of classroom blocks influence students academic achievement in chemistry based on school location.
2. Determine the extent to which the availability of teachers influence students academic achievement in biology based on school location.
3. Determine the extent to which the availability of laboratory influence students academic achievement based on school location.
4. Determine the extent to which the availability of classroom blocks influence students interest in chemistry based on school location.
5. Determine the extent to which the availability of teachers influence students interest in biology based on school location.
6. Determine the extent to which the availability of laboratory influence students interest in physics based on school location.

### **Research Questions:**

The following research questions were formulated to guide the study.

1. To what extent does the availability of classroom blocks influence students academic achievement in chemistry?
2. To what extent does the availability of teacher influence students academic achievement in biology?
3. To what extent does the availability of laboratory influence students academic achievement in physics?
4. To what extent does the availability of classroom blocks influence students interest in chemistry?
5. To what extent does the availability of teacher influence students interest in biology?
6. To what extent does the availability of laboratory influence students interest in physics?



### **Hypotheses:**

- H01:** There is no significant difference between the responses of students from Urban schools and rural schools on the extent of influence of availability classroom blocks of school location on their achievement in chemistry.
- H02:** There is no significant difference between the responses of students from urban schools and those from rural schools on the extent of influence of availability of teachers on academic achievement of students in biology based on school location.
- H03:** There is no significant difference between the responses of students from urban schools and those from rural schools on the extent of influence of availability of laboratory on students achievement in physics based on school location.
- H04:** There is no significant difference between the responses of students from urban schools and those from rural schools on the extent of influence of availability of classroom blocks on students interest in chemistry based on school location.
- H05:** There is no significant difference between the responses of students from urban schools and those from rural schools on the extent of influence of availability of teacher on students interest in biology based on school location.
- H06:** There is no significant difference between the responses of students from urban schools and those from rural schools on the extent of influence of availability of laboratory on students interest in physics based on school location.

### **Literature Review:**

#### **Theoretical Framework**

##### **Piaget's Theory of Cognitive Development (Piaget, 1936)**

This theory was propounded by Jean Piaget in 1936. He lived between 1896 and 1980. Piaget was a Swiss psychologist and genetic epistemologist. An important implication of Piaget's theory is adaptation of instruction to the learner's developmental level. The content of instruction needs to be consistent with the developmental level of the learner. The teacher's role is to facilitate learning by providing a variety of experiences. Teacher should obviously provide opportunities for learners to explore and experience, by doing so is encouraging learner's new understandings. Piaget emphasizes the opportunities that allow learners to different cognitive levels to work together and encourage less mature students to advance to create understanding. This theory further emphasizes on the use of concrete hands of experiences to help learners learn additional suggestions. Piaget also emphasizes that teachers should allow opportunities to classify and group information to facilitate assimilating new information with previous knowledge.

#### **Empirical Research**

Aladejana (2007) reported that the influence of laboratory and academic performance of students. The modified ex-post facto design was used. A sample of 328 randomly selected students was taken from a population of all senior secondary school Chemistry students in a Lagos State, Nigeria. The research instrument for the study was Science Laboratory Environment Inventory (SLEI) that was administered on the selected students. Data analysis was done using descriptive statistics and Product



Moment Correlation. Findings revealed that students could assess the five components (Student Cohesiveness, Open-endedness, Integration, Rule Clarity, and Material Environment) of the laboratory environment. Student cohesiveness has the highest assessment while material environment has the least. The results also showed that the five components of the science laboratory environment are positively correlated with students' academic performance. The findings were discussed with a view to improving the quality of the laboratory environment, subsequent academic performance in science and ultimately the enrolment and retaining of learners in science.

Umara (2017) conducted a study on the effects of availability and utilization of Biology laboratory facilities and students' academic achievement in secondary schools in Yobe State of Nigeria. The study adopted a correlational survey research design and was guided by two research questions and one null hypotheses tested at 0.05 level of significance. The population of the study comprised of all the 42 Biology teachers and 10,231 Biology students across all the senior secondary schools in Yobe State. Stratified random sampling technique was used to select the student sample (370). The entire 42 Biology teachers were used for the study since the size was manageable. A questionnaire containing a checklist (Biology Laboratory Facility) and a proforma were used for data collection. Data from research questions were analyzed using Mean and Standard Deviation while Pearson Product Moment Correlation Coefficient and Multiple Correlation Analysis were used for the null hypotheses. The reliability coefficient of the instrument was obtained to be 0.84 using Cronbach Alpha. The findings of the study revealed that Biology laboratory facilities are either not available entirely, or where they are available they are inadequate and therefore they are not utilized by the high number of students population. There was a significant relationship between Biology laboratory facility availability and utilization, and students' academic achievement  $r = .614$ ,  $n = 42$ ,  $p < 0.05$ ,  $r = .572$  and  $r = .590$ ,  $n = 370$ ,  $p < 0.05$ .

## **Research Methodology:**

### **Research Design**

Ex-post facto design was adopted for the study.

### **Area of the study**

The research was carried out in Uyo Senatorial District of Akwa Ibom State which is an embodiment of nine local government area; namely Itu, Uyo, Ibiono, Nsit Atai, Nsit Ibom, Etinan, Nsit Ubium, Uruan and Ibesikpo Asutan, Uyo Senatorial District is a political zone in Akwa Ibom State and it shares a boundary with Aruchukwu in Abia State, Eket, Okobo, Oron, Abak, Ikot Ekpene, Mkpato Enin Local Government Area. The seat of power is located within its territory. The Akwa Ibom State College of Education and the University of Uyo is located in its territory. According to the National Population Commission of Nigeria, 2006, it has a population of 167,094.

The researcher chose the area for the study because of the identified educational problems (influence of school environmental factors on students academic achievement in core science subjects in secondary school students in Uyo Senatorial District).

### **Population of the Study**

The population of the study consisted of all the 24,300 students which is combination of a total number of chemistry, physics and biology students in the co-educational secondary schools in Uyo



Senatorial District during the 2019/2020 school year (Akwa Ibom State Ministry of Education, 2019).

### **Sample and Sampling Technique**

A total of six hundred SS2 physics, chemistry and biology students (male 400 and female 200) took part in the study from the three selected schools in the study area.

A simple random sampling technique was used to select schools from the target population. The sampling techniques engages schools that were:

- (i) Schools that are currently presenting candidates for the senior secondary school certificate examination (SSSCE).
- (ii) Schools that have availability of school classroom blocks.
- (iii) Schools that have well equipped laboratory.
- (iv) Schools that have well trained teachers in core science subject which include physics, chemistry and biology.

Uyo senatorial district is made up of nine Local Government Areas. Out of the nine Local Government Areas, and three schools were randomly selected for the study. Based on the sampling technique three (3) co-educational secondary schools in the selected study area met the criteria (2 urban and 1 rural). A random sampling technique was used to select the three (3) schools, two from urban and one from rural areas.

### **Instrument for Data Collection**

Three instruments were developed by the researcher for the study namely: Influence of school environmental factors on biology students questionnaire (ISEFBSQ). Influence of school environmental factors chemistry students questionnaire (ISEFCSQ). Influence of school environmental factor of physics students questionnaire (ISEFPSQ). The three questionnaires was a four point scale with two sections.

### **Validation of Instruments**

This involved both face and content validity.

### **Method of Data Collection**

The researcher visited all the schools selected for the study and explained the purpose of the study to the respondents, that the study would help in knowing the influence of school environmental factors on students academic achievement and interest in core science subjects such as chemistry, physics and biology in the study area. After the explanation, the researcher administered the three questionnaire namely; (i) influence of school environmental factors on chemistry students academic achievement questionnaire (ISEFCSQ), (ii) influence of school environmental factors physics students questionnaire (ISEFPSQ) and (iii) influence of school environmental factors of biology students questionnaire (ISEFBSQ) were use to extracts information from students from the three schools in the study area that were randomly selected for the study. Six hundred students participated in the achievement test. 60 statement of items were formulated by researcher to measure the sub-independent variables both in schools located in urban and rural area.

The independent variables includes: Availability of classroom blocks, availability of teachers and availability of school laboratory: The data collected were analyzed and used for the final analysis.

### **Method of Data Analysis**



The data collected were statistically analyzed using mean and standard deviation to answer the research questions and independent t-test was used in testing the hypotheses at 0.05 level of significance.

## Results and Discussion

### Research Question One:

To what extent does the availability of classroom blocks influences the academic achievement of students in chemistry based on school location in Uyo Senatorial District?.

**Table 1: Mean rating and standard deviation of students on the extent of influence of school location based on availability of classroom blocks on chemistry students' academic achievement.**

S/N	Factors of availability of classroom blocks based on school location that influence students academic achievement	VGE	GE	LE	VLE	Mean ( $\pi$ )	Std	Decision
1.	Supply of qualified teachers.	161	213	167	89	2.70	1.00	GE
2.	Availability of quality classroom blocks	226	189	126	89	2.88	1.07	GE
3.	Availability of Desk and chairs	188	237	130	75	2.86	1.04	GE
4.	Equipping of chemistry laboratory	217	217	105	91	2.78	1.01	GE
5.	Regularity of teachers	192	182	179	77	2.63	1.12	GE
6.	Provision of instructional material	118	243	187	82	2.54	1.05	GE
7.	Maintenance of classroom blocks	149	161	200	120	2.56	1.22	GE
8.	Truancy	197	113	163	157	2.98	1.99	GE
9.	Study habit	225	243	85	77	2.66	0.99	GE
10.	Procurement of reagent	191	187	129	123	2.71	1.10	GE

Where VGE = very great extent, GE = great extent, LE = little extent and VLE = very little extent

The results in Table 1 revealed students' responses on the factors of availability of teachers on school location influence on students academic achievement in chemistry. Their mean rating scores on the 10 factors ranges from 2.54 to 2.98 which is above 2.50 that is the decision level. This indicates that each factor influences chemistry students academic achievement to a very great extent based on the location of the school.

### Research Question Two:

To what extent does the availability of teachers on influence of students academic achievement in biology based on school location?

**Table 2: Mean rating and standard deviation of students on the extent of availability of teacher's influences students academic achievement in biology based on school location?**

S/N	Availability of teachers influence on students academic achievement in biology	VGE	GE	LE	VLE	Mean ( $\pi$ )	Std	Decision
1.	Confidence and stability	253	188	125	65	3.00	1.00	GE
2.	Good communication skills	175	196	138	121	2.68	1.09	GE
3.	Conscientiousness	202	213	85	130	2.78	1.11	GE
4.	Collaborative skills	177	212	104	137	2.68	1.10	GE
5.	Caring	145	198	187	100	2.63	1.10	GE
6.	Flexibility	191	188	129	123	2.71	1.09	GE
7.	Patient	232	154	147	97	2.83	1.02	GE
8.	Passion for subjects	200	220	125	85	2.85	1.21	GE
9.	Accessibility	209	103	143	175	3.10	1.01	GE
10.	Accommodating	208	219	124	79	2.88	1.01	GE

Where VGE = very great extent, GE = great extent, LE = little extent and VLE = very little extent



Students’ opinion as shown on Table 2 is that the availability of teachers influences students academic achievement in biology in urban schools in Uyo Senatorial District to a great extent. Their mean ratings on each of the 10 items are above the decision level of 2.50 implying that each of the items influences students academic achievement to a great extent.

**Research Question Three:**

To what extent does the availability of laboratory influence students academic achievement in physics?

**Table 3: Mean rating and standard deviation of influence of laboratory on physics students’ academic achievement.**

S/N	Influence of laboratory on students academic achievement in physics	VGE	GE	LE	VLE	Mean ( $\pi$ )	Std	Decision
1.	Power supply	283	40	107	30	3.18	0.88	GE
2.	Charts and models	262	233	105	30	3.15	0.87	GE
3.	Equipment	207	253	98	72	2.94	0.97	GE
4.	Water supply	187	239	102	2.81	2.81	1.03	GE
5.	Provision of desk, stools, benches	198	269	102	62	2.95	0.93	GE
6.	Supply of consumables (reagents)	165	209	107	143	2.66	1.21	GE
7.	Current chemistry textbooks	186	241	93	97	2.82	1.02	GE
8.	Apparatus	208	235	97	95	2.88	1.03	GE
9.	Provision of textbooks	194	203	131	137	2.72	1.12	GE
10.	Provision of first aids box	219	189	131	95	2.83	1.06	LE

Where VGE = very great extent, GE = great extent, LE = little extent and VLE = very little extent

The above table shows the mean rating scores of between 2.66 and 3.18 on each of the first 9 items of availability of laboratory which are above the decision level of 2.50 indicating that each of these items of laboratory influence students academic achievement to a great extent. It was only one item on the provision of safety materials and first aid box that their opinions varies. This item influences students’ achievement to a little extent.

**Research Question Four:**

To what extent does the availability of classroom blocks influence students interest in chemistry?

**Table 4: Mean rating and standard deviation of influence of classroom blocks on chemistry students’ interest.**

S/N	Influence of laboratory on students interest in chemistry	VGE	GE	LE	VLE	Mean ( $\pi$ )	Std	Decision
1.	Power supply	281	210	107	30	3.18	0.88	GE
2.	Charts and models	263	233	105	30	3.15	0.87	GE
3.	Equipment	206	253	98	72	2.94	0.97	GE
4.	Water supply	186	239	102	2.81	2.81	1.03	GE
5.	Provision of desk, stools, benches	197	269	102	62	2.95	0.93	GE
6.	Supply of consumables (reagents)	164	209	107	143	2.66	1.21	GE
7.	Current chemistry textbooks	186	241	93	97	2.82	1.02	GE
8.	Apparatus	208	235	97	95	2.88	1.03	GE
9.	Provision of textbooks	194	203	131	137	2.72	1.12	GE





10. Provision of first aids box	219	189	131	95	2.83	1.06	LE
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Where VGE = very great extent, GE = great extent, LE = little extent and VLE = very little extent

The above table shows the mean rating scores of between 2.95 and 3.18 on each of the first 9 items of availability of classroom blocks which are above the decision level of 2.50 indicating that each of these items of classroom blocks influence students interest to a great extent. It was only one item on the provision of supply of consumable that their opinions varies. This item influences students' interest to a little extent.

**Research Question Five:**

To what extent does the availability of teachers influence students interest in biology?

**Table 5: Mean rating and standard deviation of influence of teachers on biology students' interest.**

S/N	Influence of laboratory on students interest in biology	VGE	GE	LE	VLE	Mean ( $\pi$ )	Std	Decision
1.	Power supply	281	210	107	30	3.20	0.85	GE
2.	Charts and models	263	233	105	30	3.15	0.86	GE
3.	Equipment	206	253	98	72	2.94	0.97	GE
4.	Water supply	186	239	102	2.81	2.81	1.03	GE
5.	Provision of desk, stools, benches	197	269	102	62	2.99	0.93	GE
6.	Supply of consumables (reagents)	164	209	107	143	2.66	1.21	GE
7.	Current chemistry textbooks	186	241	93	97	2.82	1.02	GE
8.	Apparatus	208	235	97	95	2.88	1.03	GE
9.	Provision of textbooks	194	203	131	137	2.44	1.12	GE
10.	Provision of first aids box	219	189	131	95	2.83	1.06	LE

Where VGE = very great extent, GE = great extent, LE = little extent and VLE = very little extent

The above table shows the mean rating scores of between 2.99 and 3.20 on each of the 9 items of availability of teachers which are above the decision level of 2.50 indicating that each of these items of teachers influence students interest to a great extent. It was only one item on the provision of textbooks that their opinions varies. This item influences students' interest to a little extent.

**Research Question Six:**

To what extent does the availability of laboratory influence students interest in physics?

**Table 6: Mean rating and standard deviation of influence of availability of laboratory on physics students' interest.**

S/N	Influence of laboratory on students interest in physics	VGE	GE	LE	VLE	Mean ( $\pi$ )	Std	Decision
1.	Supply of physics teachers.	210	170	130	120	2.75	1.02	GE
2.	Availability of physics materials	139	137	260	94	2.51	0.97	GE
3.	Equipping of physics laboratory	189	157	180	104	2.68	1.06	GE
4.	Regularity of teachers' attendance to classes	200	190	110	130	2.70	1.08	GE
5.	Provision of funds for the procurement instructional materials	200	175	150	105	2.75	1.13	GE
6.	Provision of reading/instructional materials	230	103	85	212	2.56	1.02	GE
7.	Truancy	315	89	63	163	3.88	0.89	GE
8.	Regularity of practical classes	203	210	170	152	3.07	1.03	GE
9.	Use of electronic media	187	143	140	160	2.57	1.08	GE



10. Study habit	105	200	262	63	2.55	1.04	GE
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Where VGE = very great extent, GE = great extent, LE = little extent and VLE = very little extent

The above table shows the mean rating scores of between 2.75 and 3.07 on each of the 9 items of availability of laboratory which are above the decision level of 2.50 indicating that each of these items of laboratory influence students interest to a great extent. It was only one item on the availability of physics materials that their opinions varies. This item influences students’ interest to a little extent.

**Hypotheses One**

There is no significant difference on the influence of availability of classroom blocks on academic achievement of students in physics based on school location.

**Table 1: t-test analysis of the difference between the responses of students from urban schools and those from rural schools on the extent of influence of school location on their achievement in chemistry.**

Groups	N	Mean	SD	df	Sig.	t-cal	t-crit	Decision
Rural	278	26.18	4.581	638	0.05	1.764	1.962	Accepted
Urban	352	25.60	3.770					

The above data shows that the t-calculated value of 1.764 is less than t-critical value of 1.962 at 638 degrees of freedom and 0.05 significant level. This implies that there is no significant difference between the responses of students from urban schools and those from rural schools in Uyo Senatorial District on the extent of influence of school on their academic achievement in chemistry.

**Hypotheses Two**

There is no significant difference on the influence of availability of teachers on students achievement in biology based on school location.

**Table 2: t-test analysis of the difference between the responses of students from urban schools and those from rural schools on the extent of influence of school location on their academic achievement in biology based on school location.**

Groups	N	Mean	SD	df	Sig.	t-cal	t-crit	Decision
Urban	278	25.87	4.680	638	0.05	1.260	1.962	Accepted
Rural	352	25.40	3.642					

The above table shows that t-calculated value of 1.260 is less than t-critical value of 1.260 is less than t-critical value of 1.962 at 628 degrees of freedom and at 0.05 level of significance. This implies that there is no significant difference between the responses of students from schools in Uyo Senatorial District rural and those from urban schools on the extent of influence of school location on their achievement in biology based on school location.

**Hypotheses Three**

There is no significant difference on the influence of availability of laboratory on students achievement in physics based on school location.

**Table 3: t-test analysis of the difference between the responses of students from urban schools and those from rural schools on the extent of influence of school location on their academic achievement in physics.**



Groups	N	Mean	SD	df	Sig.	t-cal	t-crit	Decision
Urban	278	27.18	4.521	638	0.05	1.360	1.962	Accepted
Rural	352	25.60	3.700					

The table above indicate that the t-calculated value is 1.360 is lesser than t-critical value of 1.962 at 638 degree of freedom and 0.05 significant level. This implies that there is no significant difference between the responses of student from urban schools and those from school location on their achievement in physics.

#### Hypotheses Four

There is no significant difference between the responses of students from urban schools and those from rural schools on the extent of influence of availability of classroom blocks on students interest in chemistry based on school location.

**Table 4: t-test analysis of the difference between the responses of students from urban schools and those from rural schools on the extent of influence on the availability of classroom blocks of students interest in chemistry.**

Groups	N	Mean	SD	df	Sig.	t-cal	t-crit	Decision
Urban	268	27.18	4.501	638	0.05	1.250	1.962	Accepted
Rural	352	25.60	3.700					

The table above indicate that the t-calculated value is 1.250 is lesser than t-critical value of 1.962 at 638 degree of freedom and 0.05 significant level. This implies that there is no significant difference between the responses of student from urban schools and those from rural schools on the extent of influence of availability of classroom blocks of students interest in chemistry.

#### Hypotheses Five

There is no significant difference between the responses of students from urban schools and those from rural schools on the extent of influence of availability of teachers on students interest in biology based on school location.

**Table 5: t-test analysis of the difference between the responses of students from urban schools and those from rural schools on the extent of influence on the availability of teachers of students interest in biology.**

Groups	N	Mean	SD	df	Sig.	t-cal	t-crit	Decision
Urban	258	26.18	4.000	638	0.05	1.320	1.962	Accepted
Rural	350	25.60	3.000					

The table above indicate that the t-calculated value is 1.320 is lesser than t-critical value of 1.962 at 638 degree of freedom and 0.05 significant level. This implies that there is no significant difference between the responses of student from urban schools and those from rural schools on the extent of influence of availability of teachers of students interest in biology.

#### Hypotheses Six

There is no significant difference between the responses of students from urban schools and those from rural schools on the extent of influence of availability of laboratory on students interest in



physics based on school location.

**Table 6: t-test analysis of the difference between the responses of students from urban schools and those from rural schools on the extent of influence on the availability of laboratory of students interest in physics.**

Groups	N	Mean	SD	df	Sig.	t-cal	t-crit	Decision
Urban	258	26.18	4.210	638	0.05	1.362	1.952	Accepted
Rural	350	25.60	3.241					

The table above indicate that the t-calculated value is 1.362 is lesser than t-critical value of 1.962 at 638 degree of freedom and 0.05 significant level. This implies that there is no significant difference between the responses of student from urban schools and those from rural schools on the extent of influence of availability of laboratory of students interest in physics.

### Discussion of Findings

In this study six research questions and six hypotheses were carefully formulated to guide the study on the identified influence of school environmental factors on students academic achievement and interest in core science subjects (chemistry, physics, biology) in Uyo Senatorial District of Akwa Ibom State.

### Influence of Availability of Classroom Blocks on Academic Achievement of Chemistry Student Based on School Location

The result of the first research question revealed that the mean rating scores which is between 2.88 and 2.98 was gotten from the first 10 items of availability of classroom block which are above the decision level of 2.50 indicating that each of these items on classroom blocks influences students academic achievement in chemistry to a great extent. This means that items on classroom blocks effectively measures the influence of students achievement in chemistry.

The findings also showed that the use of a well built and furnished classroom blocks enhances students achievement and also helps them to understand difficult concept in chemistry. It is pertinent to know that when chemistry are taught without a good classroom, students achievement in the concept are seen to be poor. This study is in line with the work of Harry (2017) who stated that the use of a well equipped classroom block enhances students achievement in chemistry.

### Availability of Well Trained Teachers Influences Students Achievement in Biology

The result of the second research question revealed that availability of qualified teachers influences biology students academic achievement to a great extent. Their mean ratings on each of the 10 items are above the decision level of 2.50 implying that each of the 10 items influences students academic achievement of a great extent. This means that the items which are meant to measure availability of teachers on the achievement of biology students correctly measure the sub-variable. Availability of teachers will enhance students achievement in the concept of biology, hence non availability of qualified teachers in biology will have a negative effect on students out come in the concept of biology.

This study is in line with the work of Menser (2019) who observed in a study to establish the influence of teachers personality on students achievement in physics.



### **Influence of Availability of Laboratory on Academic Achievement of Students in Physics**

The result of the third research question which states that to what extent does the availability of laboratory influence students achievement in physics. The mean rating scores which is between 3.18 and 2.95 on 8 out of the 10 items on the availability of laboratory indicates that laboratory enhances students achievement in physics to a great extent. This implies that a higher percentage of items written measure influence of laboratory on student achievement in physics. It is very rare to see students building interest on subjects taught without the use of laboratory. This study is in line with Raymond (2013) that the availability of laboratory enhances students achievement in physics.

### **Influence of availability of classroom blocks on students interest in chemistry.**

The result of the fourth research question which states that to what extent does the availability of classroom blocks influences students interest in chemistry. The mean rating scores which is between 2.95 and 3.18 on 9 out of the 10 items on the availability of classroom blocks indicates that classroom blocks enhances students interest in chemistry to a great extent. This implies that a higher percentage of items written measure influence of classroom blocks on students interest in chemistry. It is very rare to see students building interest on subjects taught without the use of a good classroom block. This study is in line with Robert (2018) that the availability of classroom blocks enhances students interest in chemistry.

### **Influence of availability of teachers on students interest in biology.**

The result of the fifth research question which states that to what extent does the availability of teachers influences students interest in biology. The mean rating scores which is between 2.99 and 3.20 on 9 out of the 10 items on the availability of qualified teachers indicates that teachers enhances students interest in biology to a great extent. This implies that a higher percentage of items written measure influence of teachers on students interest in biology. It is very rare to see students building interest on subjects taught without being taught by well trained teachers. This study is in line with Albert (2013) that the availability of well trained teachers enhances students interest in biology.

### **Influence of availability of laboratory on students interest in physics.**

The result of the sixth research question which states that to what extent does the availability of laboratory influences students interest in physics. The mean rating scores which is between 2.75 and 3.07 on 9 out of the 10 items on the availability of well equipped laboratory indicates that laboratory enhances students interest in physics to a great extent. This implies that a higher percentage of items written measure influence of laboratory on students interest in physics. It is very rare to see students building interest on subjects taught without the use of well equipped laboratory and it is very rare to see student taught physics without being exposed to practical exercises. This study is in line with Raymond (2013) who stated that the presence of laboratory boost students interest in the physics.

### **Summary of the Study**

The main purpose of the study was investigate the influence of schools environmental factors on students academic achievement and interest in core science subject in Uyo Senatorial District. Six purposes of study, six research questions and six hypotheses were formulated and tested at 0.05 level of significance. The research design was ex-post facto was adopted for the study. The population for the study will be 24,300 core science students in the 2012/2020 in academic session and sample size will be 600 core science student selected from the three core science subject which is chemistry, biology and



physics selected from schools in the study area. The purpose of the study consisted of all the 2019/2020 core science SS2 students in all public secondary schools in Uyo Senatorial District. Three public secondary schools were selected for the study and sample size was 600 core science students selected from three schools in the study area.

A simple random sampling technique were used in selecting the students for the study and three questionnaires develop by the researcher was used in extracting answers from the respondents and were subsequently used for the data analysis. The findings reveals that the availability of classroom blocks, teachers and laboratory influences students academic achievement and interest to a very great extent because their mean score were above the decimal point of 2.05 and it was recommended that government at all level should provide schools in Uyo Senatorial District with well equipped classroom blocks, well equipped laboratory as well as recruitment of qualified teachers to enhance the effective teaching of core science subjects in public schools in Uyo Senatorial District.

### **Conclusion**

Based on the data collected and analyzed in the study, it was concluded that there is no significant difference between the responses of students from urban schools and those from rural schools on the extent of influence of availability of classroom blocks, qualified teachers and laboratory on students academic achievement and interest in core science subjects in the three selected schools in Uyo Senatorial District of Akwa Ibom State.

### **Recommendations**

The following recommendations are made base on the findings of this study.

1. The Akwa Ibom State Ministry of Education and State Secondary Education Board should henceforth ensure that secondary schools are provided with standard laboratory/instructional materials to enhance students understanding of the concept of Chemistry taught.
2. Principals of public secondary schools in Akwa Ibom State should ensure that core science teachers should frequently used laboratory in teaching the students to make the subject looks more visible and practical.
3. The State Ministry of Education and State Secondary Education Board should organize seminars and workshops for all public secondary school teachers on the importance of teachers training.

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