School Environment, Class Size and School Facilities as Determinant of Students' Academic Performance in Biology in Senior Secondary Schools in Osun State

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Abstract
The study examined the relationship between school environment and students' academic performance in Biology in Osun State. It also determined the relationship between class size and students' academic performance in Biology in the study area and finally assessed the relationship between school facilities and students' academic performance in Biology in the study area. These were done with a view to providing empirical information on the influencethese variables may have on students' academic performance in Biology in senior secondary schools in Osun State. The study adopted a descriptive survey research design of correlational type. The population of the study comprised all students offering Biology in senior secondary schools in the State. The sample for the study comprised 300 senior secondary school two (SSII) students selected using simple random sampling technique. One local government area was selected from each of the senatorial districts in the State using simple random sampling technique. From the selected local government, five senior secondary schools were selected using simple random sampling technique. From each of the school selected, twenty students were randomly selected using simple random sampling technique. Two main research instruments used for data collection are "School Environment and Facilities Observation Checklist" (SEFOC) and Students' Previous results in Biology. The data collected were analysed using Pearson Product Moment Correlation analysis. The result revealedasignificant relationship between school environment and students' academic performance in Biology in senior secondary schools in Osun State ($r = 2.374$; n= 300, $p < 0.05$). The result also showed asignificant relationship between school facilities and students' academic performance in Biology in the study area($r = 7.435$; n= 300, $p < 0.05$) and finally, the result revealedasignificant relationship between classroom size and students' academic performance in Biology in the study area ($r = 8.063$; n= 300; $p < 0.05$). The study concluded that school environment, class size and school facilities are significant factors that may hinder students' academic performance in Biology in senior secondary schools in Osun State if they are not appealing to learners.

Keywords: school environment, class size, school facilities, academic performance, Biology

Introduction

Biology is a branch of science that deals with the study of living organisms. It is primarily concerned with the nature of organisms and their relationship to each other and to their environment. Through Biology, science plays a vital role in solving the intricacies of living organisms, their interactions and the fundamental processes that rule over life (Dinah, 2013). As one of the scientific domains, Biology consists of a comprehensive arrangement of sub-fields and uniqueness each focusing on various aspects of living systems. Like other scientists, biologists strive to comprehend how life at multiple stages, from molecular and cellular processes to organismal behaviour and ecological dynamics, mechanizes through scientific inquiry. Biology is a vital component of one's education. Biology education makes learners scientifically literate, help them make informed decisions after analysis and engagement with scientific information (Daworiye, Alagoa, Enaregha & Eremasi, 2015).

The National Policy on Education (FRN, 2013) made Biology an elective for science students only in Nigerian senior secondary schools. Biology is central to many science-related courses such as Medicine, Nursing, Pharmacy, Agriculture, Biochemistry, and Microbiology and so on. It is obvious that no student intending to study these disciplines at higher institutions of learning can do without Biology. Biology as a science and practical oriented subject requires a conducive school environment that provides resources such as the biology laboratory, textbooks and reference materials, specimens, aquariums and botanical gardens so as to enhance students' brilliant performance in the subject.

School environment consists of all the influences that may affect the development of a learner such as the classroom, psychosocial environment, community environment and so on. The social context in which teaching and learning are done is also an important issue to be considered. Learning is a continuous process which is brought about by interaction with the environment. Learning does not occur on its own, it comes through interaction with other persons or things within the environment. Thus, learning will proceed smoothly and enthusiastically if learners see the relationship between them, their environment and the teachers as non-threatening, warm and loving (Adeyemo, 2005). Learners should see themselves as participating actively in the process of learning if classrooms would provide the required learning gain. The physical environment is a direct image of the teacher's planning and the children learning. It is where both teachers and learners spend most of their time and a place, they can call their own. The school environment, which include the classrooms, libraries, technical workshops, laboratories, teachers, school management, peers, among others, are variables that affect students' academic achievement. Hence, the school environment remains an important area that should be studied and well managed to enhance students' academic performance. The quality of education not only depends on the teachers as reflected in the performance of their duties, but also in the effective coordination of the school environment (Adekunle, 2012).

School environment which includes instructional spaces planning, administrative places planning, circulation spaces planning, spaces for conveniences planning, accessories planning, the teachers as well as the students themselves are essential in teaching-learning process. Considerable research has been conducted on teaching skills, climate, socioeconomic conditions, and students' achievement (Hoy, Kottkamp, &Tarter, 1991; Rafferty, 2003). It is believed that a well-planned school will gear up expected outcomes of education that will facilitate good social, political and economic emancipation, effective teaching and learning process and academic

performance of the students. As cited in Amedahe (2016), Usaini, Abubakar and Bichi (2015) reported that safe and orderly classroom environment (aspect of instructional space), School facilities (accessories) were significantly related to students' academic performance in schools.

The physical characteristics of the school have a variety of effects on teachers, students, and the learning process. Poor lighting, noise, high levels of carbon dioxide in classrooms, and inconsistent temperatures make teaching and learning difficult. These factors can adversely affect students' behaviour and lead to higher levels of frustration among teachers, and poor learning attitude among students (Esu, 2014). Beyond the direct effects that poor facilities have on students' ability to learn, the combination of poor facilities, which create an uncomfortable and uninviting workplace for teachers, combined with frustrating behaviour by students including poor concentration and hyperactivity, creates a stressful set of working conditions for teachers. Since stress and job dissatisfaction are common pre-cursors to lowered teacher enthusiasm, it is possible that the aforementioned characteristics of school facilities have an effect upon the academic performance of students (Adekunle, 2012).

In literature, experts frequently point out that class size has an impact on students' attitudes and academic performance, the quality of school funding, and administration as well (Owoeye & Yara, 2011). It is one of the significant factors that affect academic performance that teachers in schools have little or no influence over. According to Mokobia and Okoye (2011), all educators agreed that a desirable and critical component of a successful learning system is a small class size. Study by Doyle (2014) claimed that in contemporary education, the needs, interests, and comfort of the students are the main priorities. Consequently, limiting class size permits students to study successfully without causing a disturbance (Amedahe 2016). Increased class size is crucial to teaching and learning because it can be quite challenging for teachers to interact with each student individually. Class size is a term used to indicate the average number of students per class in a school (Adeyemi, 2008; Anderson, 2010). The performance of students becomes a problem when students'enrolment grows. According to the National Policy on Education, the teacher-student ratio in Junior Secondary School should be one teacher to thirty-five students and in Senior Secondary School, one teacher to forty students in a classroom (FRN, 2013).

However, class sizes in Nigeria are escalating out of control, making it difficult for teachers to provide each student with the individualized attention they need. In Nigerian public schools, the teachers' eye contact with the students in class has decreased to the point where some of the less motivated students can organize a number of committees at the back of the class to engage in extracurricular discussion while teaching is still taking place. According to a study by Bosworth (2014), the relationship between class size and students' achievement is complicated and has a wide range of contradictory findings. The study found little correlation between class size and students'achievement. Large class sizes have brought a lot of debate since it can be challenging for teachers to manage them. These debates could be the thorns that causes students in senior secondary schools to perform poorly. Some of these issues could be the inability of teachers to apply a variety of teaching methodologies, inability of pupils to focus in class, inability of teachers to maintain control of the class, and lack of resources for teaching and learning. As a result, students' evaluation, teaching standards, and learning standards may all be impacted.

Academic performance is the measurement of students' achievement across various academic subjects. Teachers and education officials typically measure achievement using

classroom performance, graduation rates, and results from standardized tests. Academic achievement is commonly measured through examinations or continuous assessments but there is no general agreement on how it is best evaluated or which aspects are most important. Biology as a subject in senior secondary schools is still relevant and required for admission into higher institutions especially for almost all science-related courses like medicine, pharmacy, nursing, and the rest. It has been observed that students are increasingly finding it difficult to pass the subject at both the West African Examinations Council (WAEC) and the National Examinations Council (NECO). Daworiye et al (2015), noted that Biology which is the fundamental science subject has been known to continuously recorded low students' enrolment, interest and poor achievement levels in all examinations – both internal and external. Daworiye et al (2015) in their research, affirmed that six most important factors inhibiting effective teaching and learning of biology include: insufficient teaching and learning resources, lack of well-equipped laboratories, students' poor communication skills, poor students' attitude to biology, non-conducive classroom environment and overcrowded biology classroom. Teachers' lack of the knowledge of subject matter and inadequate motivation were among the factors also listed as inhibitory to the effective biology teaching and learning.

Statement of the Problem

Emphasis on the importance of school environment, class size and school facilities to students'academic performance in Biology cannot be over emphasized, school environment is an essential aspect of educational planning.Unless schools are well suited, buildings adequately constructed and environment serene enough for learning, much teaching may not take place. The high level of students' academic performance may not be guaranteed where school environment is poor, where there are large classes, and inadequate teaching facilities such as libraries, and laboratories as reported in literature. There is therefore need to investigate school environment, classroom size and school facilities as determinant of students' academic performance in Biology in senior secondary schools in Osun State.

Purpose of the Study

The main objective of this study is to ascertain the influence of school environment on academic performance of secondary school students in Biology in Ile-Ife, Osun State. The objectives of this study are to:
(i) examine the relationship between school environment and students' academic performance in Biology in senior secondary schools in Osun State;
(ii) determine the relationship between class size and students' academic performance in Biology in senior secondary schools in Osun State; and
(iii) assess the relationship between school facilities and students' academic performance in Biology in the study area.

Hypotheses
1. There is no significant relationship between school environment and students' academicperformance in Biology in senior secondary schools in Osun State.
2. There is no significant relationship between class size and students' academic performance in Biology in senior secondary schools in Osun State.

3. There is no significant relationship between school facilities and students' academic performance in Biology in senior secondary schools in Osun State.

Research Methodology

The study adopted a descriptive survey research design of correlational type. The population of the study comprised all students offering Biology in senior secondary schools in Osun State. Multi stage sampling procedure was used to select the sample for the study. In the State, one local government area(LGA) was selected from each of the senatorial districts, from each LGA selected, five schools were selected using simple random sampling technique. From each school selected, twenty students from senior class two (SSII) were also randomly selected using simple random sampling technique to take part in the study. In all, 300 students constitute the sample size for the study. Two research instruments were used for data collection. They are: 'School Environment and Facilities Observation Checklist' (SEFOC) and Students' previous results in Biology. The SEFOC was used to assess the environment of the selected schools, number of students in the class as well as the facilities that are meant for effective teaching and learning of Biology while the students' previous results were obtained from the school records through the biology teachers of the selected schools. Data collected were analyzed using Pearson Product Moment Correlation Analysis. All the hypotheses were tested at 0.05 Alpha level of significance.

Results

Testing of Hypotheses

Hypothesis One: There is no significant relationship between school environment and students' academic performance in Biology in senior secondary schools in Osun State.

Correlation analysis was used in determining the relationship between school environment and students' academic performance in Biology and the result is presented in Table 4.1.

Table 4.1: Pearson correlation of the relationship between school environment and students' academic performance in Biology

Variable	n	Mean	S.D	r	Sig.
School Environment	300	41.1705	6.6240	2.374	.001
Students' Academic Performance	300	36.2030	8.6700		

($r = 2.374$, $p < 0.05$)

The results in Table 4.1 showed asignificant relationship between school environment and students' academic performance in Biology in senior secondary schools in Osun State. There is correlation between school environment and students' academic performance in Biology in the study area, which is statistically significant ($r = 2.374$, $n = 300$, $p < 0.05$). Thus, the null hypothesis that states that there is no significant relationship between school environment and students' academic performance in Biology in senior secondary schools in Osun State is hereby rejected.

Hypothesis Two:There is no significant relationship between class size and students' academic performance in Biology in senior secondary schools in Osun State.

In order to test this hypothesis, correlation analysis was used in determining the relationship between classroom size and students' academic performance in Biology and the result is presented in Table 4.2.

Table 4.2: Pearson correlation of the relationship between class size and students' academic performance in Biology

Variable	n	Mean	S.D	r	Sig.
Classroom Size	300	43.6110	7.0188	7.435	.000
Students' Academic Performance	300	37.1000	13.6700		

(r = 7.435, p < 0.05)

The results in Table 4.2 showed asignificant relationship between classroom size and students' academic performance in Biology in senior secondary schools in Osun State. There is correlation between classroom size and students' academic performance in Biology in the study area, which is statistically significant (r = 7.435; n= 300; p < 0.05). Thus, the null hypothesis that states that there is no significant relationship between class size and students' academic performance in Biology in senior secondary schools in Osun State is hereby rejected.

Hypothesis Three: There is no significant relationship between school facilities and students' academic performance in Biology in senior secondary schools in Osun State.
In order to test this hypothesis, correlation analysis was used in determining the relationship between school facilities and students' academic performance in Biology and the resultis presented in Table 4.3.

Table 4.3: Pearson correlation of the relationship between school facilities and students' academic performance in Biology

Variable	n	Mean	S.D	r	Sig.
School Facilities	300	46.3100	2.4100	8.063	.001
Students' Academic Performance	300	39.1310	4.6270		

(r = 8.063, p < 0.05)

The results in Table 4.3 showed asignificant relationship between school facilities and students' academic performance in Biology in senior secondary schools in Osun State. There is correlation between school facilities and students' academic performance in Biology in the study area, which is statistically significant (r = 8.063, n= 300, p < 0.05). Thus, the null hypothesis that states that there is no significant relationship between school facilities and students' academic performance in Biology in senior secondary schools in Osun State is hereby rejected.

Discussion of Findings
The findings of the study had shown a significant relationship between school environment and students' academic performance in Biology in Osun State, Nigeria. The

findings which are corroborated by Ileoye, (2015) when he found out that primary school pupils in Ondo State performed significantly better when taught in a serene environment. The results are also in line with the results of Usaini, Abubakar and Bichi, (2015) when they reported that secondary school students performed wonderfully well in their academics than those in a less enabling environment in Malaysia. Also, the findings of the study revealed a significant relationship between class size and students' academic performance in Biology in senior secondary schools in the State. The results which justify the findings of Adeyemi, (2008) when he reported that large number of students in the classroom had negative influence on students' academic achievement across all subjects. The results also supported the findings of Anderson, (2010), Bosworth, (2014) and Amedahe, (2016) when they reported that reduced class size increased students' achievement. Finally, the results of the study showed a significant relationship in the academic performance of students and school facilities in Biology which was in line with the findings of Dinah, (2013), Doyle, and Esu, (2014)when they reported that school facilities enhance students' academic achievement in schools. The study also supported the findings of Ikegbusi et al (2022) that reported that school facilities promote public secondary school academic achievement in Lagos State. However, the findings of the study contradict with the results of Williams et al (2008) and Yusuf (215).

Conclusion
The study concluded that school environment, class size and school facilities are major determining factors in promoting students' academic performance in Biology in senior secondary schools in Osun State.
Based on the findings of the study, the following recommendations were made:
1. Schools should endeavour to create a conducive classroom environment in order to promote students' academic performance and both government and private school administrators should see to the need of making available adequate learning resources in order to boost teaching learning activities within the school system.
2. Equally, there is need to ensure that schools structures are designed in such a way that ventilation will be adequately stressed.
3. Facilities such as libraries, science and computer laboratories should be equipped appropriately.
4. Education stakeholders should continue to lay more emphasis on school facilities in order to improve students' academic performance.
5. Government should be consistent in routine supervision of quality of facilities in schools and ensure that schools are operating with good facilities that would help the students.
6. Government through her educational agencies should provide more classrooms, enough teaching and learning materials, educational facilities to ensure effective teaching and learning of biology and to improve the academic performance of biology students.

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