

School Facilities and Class Size as Predictors of Students' Academic Performance in Public Secondary Schools in Ogun-East Senatorial District, Nigeria

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Abstract

This study determined school facilities and class size as predictors of students' academic performance in public secondary schools in Ogun-East Senatorial District, Nigeria. The study adopted the descriptive research design of the survey type. The population comprised 532 teachers of four core subjects and 33,162 students in 133 public junior secondary schools in 9 Education Zones in Ogun-East Senatorial District. A sample size of 212 teachers and 2,073 students of JS3 for the 2022/2023 academic session were selected using a multi-stage sampling procedure. Student samples were selected from intact classes. Three validated research instruments titled: School Facilities Assessment Checklist ($r=.82$), Subject Teacher Class Size Inventory ($r=.95$) and Students' Academic Achievement Tests ($r=.76$) were used for data collection. The research questions were analysed using percentage, mean and standard deviation. The hypotheses were tested using correlation and multiple regression analysis at .05 alpha level. Findings showed that the condition of school facilities available for use in 73.6% of public secondary schools was poor. The nature of class size was majorly large in 62.3% schools. There was a significant composite contribution of school facilities and class size to students' academic performance ($F_{2, 250} = 43.858$; $p < .05$). There was a significant relative contribution of school facilities ($\beta = 0.704$; $t = 7.701$) and class size ($\beta = -0.200$; $t = -2.185$) to students' academic performance. The study concluded that school facilities and class size combined are strong predictors of students' academic performance. The study recommends that the existing school facilities should be expanded to reduce overcrowded classrooms in public secondary schools.

Keyword: School facilities, class sizes, students' academic performance, public secondary schools

INTRODUCTION

The current state of education in Ogun State, Nigeria has taken its toll on the academic performance of students, particularly in the two compulsory subjects (English Language and Mathematics) in external examinations such as Basic Education Certificate Examination Council (BECE). There have been complaints in almost all quarters of the Nigerian society that the quality of education is being questioned. They claim that students' academic performance continues to deteriorate from year to year. It is unfortunate that the performance of students and schools' productivity at the end of junior secondary education has not improved. The importance of core subjects such as English Language, Mathematics, National Values (a combination of two important subjects - Social Studies and Civic Education), and Basic Science and Technology (a combination of two subjects - Basic Science and Basic Technology)

are pre-requisite subjects to promotion into senior secondary class. A credit pass in each of these subjects is compulsory and important to school administrators for properly class placement into either Science, Commercial or Art class. However, poor performance of junior secondary school students in BECE in English Language and Mathematics had made it difficult for majority of students to have proper placement at the senior secondary school level. Academic performance in this study referred to students' test scores in standardised English Language, Mathematics, National Values and Basic Science and Technology with sixty multiple choice test items measured by Student Academic Achievement Tests (SAATs).

Proficiency in English is fundamental to achieving good academic performance in school and is equally essential for living a successful and fulfilling life after school (Akinkuowo, 2025). However, the poor academic performance of secondary school students in English Language today is evident in their weak spoken skills, especially in public schools. English is a medium of instruction to teach nearly all secondary school subjects. So also, the importance of Mathematics, particularly, its influence on students' reasoning ability cannot be over emphasized. According to Adeniji (2019), mathematics involves the study of numbers, quantities, and shapes as well as reasoning and calculation. Because mathematics is so crucial, kids are expected to perform better on it as they advance through school and into adulthood, both at home and at work. The growth of secondary education has been challenging due to the persistent pattern of secondary school pupils' poor performance in mathematics (National Mathematical Centre, 2019). Additionally, low performance in mathematics among secondary school students was attributed to several factors, including students' unfavourable attitudes towards the subject due to their fear of it, a lack of skilled teachers, and inadequate teaching materials (Rehman et al., 2025; Akinkuowo, 2025). To solve the problems associated with poor students' performance of secondary school students, experts in the field of education have endeavoured to examine factors that underpin academic performance of learners. With all the variables examined, there seems to be a lack of expected improvement in school facilities and classroom environment as a greater percentage of learners still fails public examinations. Since the academic performance of students depends greatly on the school environment, it is important to examine the variables of school facilities and class size on the academic performance of students in public secondary schools.

Students' current and future decisions are negatively impacted by poor academic achievement since it prevents them from realising their full potential. Secondary school students' academic achievement not only indicates how well schools are doing, but it also plays a significant role in determining the welfare of young people and the country (Levin et al. 2014). Numerous studies have been carried out to establish the various aspects that influence students' capacity to acquire and assimilate pertinent knowledge and skills. Many of us wonder what the different factors are that cause certain children to perform better than

others. Is it a result of their greater capacity or desire for learning? Perhaps the parents' socioeconomic level, lifestyle, or personal background, as well as environmental elements like class size and school amenities, also have an impact on students' performance. Numerous studies on students' academic performance concentrate on factors such as gender, age, socioeconomic situation, environment, schooling medium, daily study schedules, accommodations, mother's employment status, marital status, and educational attainment (Alli et al., 2013; Abosede & Akintola, 2016). However, in this study, academic accomplishment, class size, and school facilities all play a significant role in kids' academic performance. Every civilisation has some type of education, whether it be traditional or formal. Nonetheless, the origins of school facilities can be found in the time of the official educational system. Even if other resources like money and people are needed, it also changes with the educational system. In addition to being adaptable to the evolving curriculum, an efficient school building should, at the at least, offer a physically pleasant, safe, secure, accessible space that is well-ventilated, well-lit, and aesthetically beautiful. In addition to the physical structure, the school facility includes a range of building systems, including security, fire suppression, telecommunications, electrical and power, plumbing, and mechanical systems. Athletes' fields, playgrounds, outdoor learning spaces, parking and vehicle access, and other features of the building grounds are also included in the facility, along with furniture, supplies, equipment, and information technology.

School facilities are buildings and grounds, parking lots, play fields and fixed equipment. School facilities describe the school physical needs. The authors in this study conceptualised school facilities as school movable and unmovable items meant for achievement of school objectives, they include classrooms, furniture, instructional materials, audio-visual aids devices, computers, water sanitation toilet, library, laboratory, health clinic, first aid box materials and others. There is increasing evidence that students' academic performance is related to availability of adequate and useful school facilities. Most today's secondary school structures were constructed during the colonial era, and many of them are so old that they are unsafe for habitation. In contrast, students crowd the somewhat decent ones. It is necessary to rebuild, fortify, or replace these buildings to prevent a catastrophic loss of life among the occupants. These have resulted in low student performance, which has been ascribed to several factors, including inadequate facilities and a bad learning environment. According to Owoeye and Olatunde-Yara (2011), some parents would rather send their kids to schools with decent, appropriate facilities because they think they'll do better than their peers who attend schools with deteriorating buildings. Low levels of development brought on by inadequate or non-existent basic infrastructure facilities are having a major impact on pupils' academic achievement. Many educators have been discouraged from using a methodical approach to teaching as a result. Class size and other relevant elements must be considered, even if school facilities are only one of the many variables that affect students' academic success. The

size of the class has a significant impact on students' academic achievement. According to Jacob et al. (2016), referenced in Atunde and Aliyu (2019), class size has emerged as a phenomenon frequently discussed in the educational literature as having an impact on students' achievement and socialisation patterns, as well as on the quality of instruction, administration, and school budgets. Regarding class size as a predictor of students' academic success, there are differing views.

Class sizes and student performance become problematic when a school's population grows. Class size is the number of students in a certain course or classroom, more precisely the average number of students taught by teachers in a school or educational system or the number of students taught by individual teachers in a course or classroom. The phrase could also refer to the quantity of pupils taking part in the educational process. Teachers have little to no control over class size, which is essentially an administrative decision. According to Adeyemi (2008), class size is a term used in education to characterise the typical number of pupils in a class. The average number of pupils per classroom taught by a teacher in a particular subject during the 2022–2023 academic year at public Upper Basic School III in the Ogun–East Senatorial District is referred to as class size in this study. To describe big and small class sizes in this study, the benchmark of forty pupils per classroom per instructor in a subject as outlined in the 2013 updated National Policy on Education (Federal Republic of Nigeria, 2013) was used. In schools, there are big and small sizes. It is more likely that a teacher will spend more time with each student in a smaller class. Marking, planning, evaluation, student control, and classroom administration are all made more difficult in large courses. When dealing with large classes, teachers are under increased stress. Setting customised goals for each student, identifying unique needs and adapting instruction to fit them, and identifying issues and providing feedback can all be made easier in smaller classrooms. Additionally, teachers know more about each student and have better interactions with them. Smaller classrooms are linked to higher student achievement, according to Jepsen (2015). Considering this, the current study sought to determine if class size and school facilities could predict secondary school students' academic achievement.

Statement of the Problem

Due to economic downturns and rising educational costs, the number of students has increased dramatically in the twenty-first century without a commensurate increase in facilities. Existing facilities are under a lot of strain as a result. As a result, it seems that school infrastructure has been neglected. Any school needs well-maintained facilities to operate efficiently. Higher levels of education are linked to better health, reduced mortality rates, higher wages and economic mobility, and increased involvement in leadership roles in both the local and global communities, among other benefits. Numerous causes have been implicated in the decline in educational standards where they are seen and established to provide sound education globally. The problem of classroom size is one of these elements.

They negatively affect the academic achievement of secondary school pupils as well as the productivity of secondary school teachers and student learning input. Because academic success is linked to the calibre of the school, low academic achievement can affect a school's reputation. It is quite shameful that our secondary schools have such a high failure rate. Class size and school amenities were examined in this study as predictors of students' academic success in public secondary schools because of the significance of these factors in achieving educational goals.

Objectives of the Study

The main objective of this study was to determine school facilities and class size as predictors of students' academic performance in public secondary schools in Ogun-East Senatorial District. Specifically, this study determined:

1. the condition of school facilities available for use in public secondary schools in Ogun-East Senatorial District;
2. the nature of class size in public secondary schools in Ogun-East Senatorial District;
3. the level of academic performance of students in public secondary schools in Ogun-East Senatorial District;
4. the extent to which students in large, moderate and small class sizes performed in schools with good facilities condition;
5. the extent to which students in large, moderate and small class sizes performed in schools with poor facilities condition;
6. the relationship among school facilities, class size and students' academic performance in public secondary schools in Ogun-East Senatorial District;
7. the composite contribution of school facilities and class size to students' academic performance in public secondary schools in Ogun-East Senatorial District; and
8. the relative contribution of school facilities and class size to students' academic performance in public secondary schools in Ogun-East Senatorial District.

Research Questions

The following research questions were raised and answered in this study:

1. What is the condition of school facilities available for use in public secondary schools in Ogun-East Senatorial District?
2. What is the nature of class size in public secondary schools in Ogun-East Senatorial District?
3. What is the level of academic performance of students in public secondary schools in Ogun-East Senatorial District?
4. To what extent do students in large, moderate and small class sizes perform in schools with good facilities condition?

5. To what extent do students in large, moderate and small class sizes perform in schools with poor facilities condition?

Hypotheses

The following null hypotheses were formulated to guide the study and tested at 0.05 level of significance:

H₀₁: There is no significant relationship among school facilities, class size and students' academic performance in public secondary schools in Ogun-East Senatorial District.

H₀₂: There is no significant composite contribution of school facilities and class size to students' academic performance in public secondary schools in Ogun-East Senatorial District.

H₀₃: There is no significant relative contribution of school facilities and class size to students' academic performance in public secondary schools in Ogun-East Senatorial District.

METHODOLOGY

The design adopted for this study was descriptive research design of the survey type. The main goal of this type of research design was to describe the data and characteristics about what is being studied because the researcher did not manipulate any of the variable of the study (school facilities, class size and academic performance). The population for this study comprised 532 teachers of four core subjects in public junior secondary schools and 33,162 public junior secondary school students in 133 public junior secondary schools in 9 Education Zones in Ogun-East Senatorial District (Ijebu-East, Ijebu-North, Ijebu-North-East, Ijebu-Ode, Ikenne, Odogbolu, Ogun Waterside, Remo North, and Sagamu). The population of teachers included those who taught English Language, Mathematics, National Values and Basic Science and Technology at the JSS3 level. National Values teachers were either Social Studies or Civic Education teachers. Basic Science and Technology teachers were either Basic Science or Basic Technology teachers. The sample size for study was 212 teachers which represented 40 per cent of the teachers' total population in Ogun-East Senatorial District. Also, 2,073 students of junior secondary school 3 for the 2022/2023 academic session formed part of the sample. The justification behind the chosen teachers' sample size was that the sample included thousands of students who participated in achievement test administration at junior secondary school level. A multi-stage simple random sampling and purposive sampling techniques were adopted. At first stage, 55 per cent education zone were randomly selected from nine education zones. At second stage sixty-four per cent of the schools were randomly selected from schools in the sampled education zones or local governments. This totalled 53 schools selected for the study. At third stage, four (4) teachers were purposively selected in each of the randomly selected school. These teachers were JSS3 English Language, Mathematics, National Values and Basic Science and Technology teachers. This summed up to a total of 212 teachers as respondents.

At the same time, an intact class of JSS 3 students was randomly selected for the purpose of test administration in each of the selected school. In total, 2,073 students participated in the study.

Three research instruments were used for data collection. These included checklist, inventory and achievement tests. The first instrument ‘School Facilities Assessment Checklist (SFAC)’ is an instrument adapted from School Facilities Availability and Utilisation Checklist (SFAUC) developed by Esongo (2017). The original instrument with reliability coefficients of .87 and .91 has a total of twenty-three (23) items on school facilities availability and utilisation respectively. Items on the instrument was developed using a four Likert scale response of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). The instrument was also used by Akinkuowo (2025) to investigate the influence of school facilities availability and utilization on performance of public secondary school students. This instrument was modified by the researcher to suit the purpose of the current study. This instrument was completed by teachers. The School Facilities Assessment Checklist has a total of twenty-three items on the status of utilisation of the available facilities in public junior secondary schools in Ogun-East Senatorial District. The response option for the checklist was modified to a four-point Likert response option of: Available in Good Condition for Use, Available in Poor Condition for Use, Available but Not for Use, and Not Available with scoring format of 3, 2, 1, and 0 respectively. The highest obtainable score from the instrument is 69 implying that school facilities are in good condition for adequate use by teachers and students. The lowest possible obtainable score from the instrument is 0 implying that school facilities are not available for use by teachers and students. The latter is rare because some items in SFAC are essential for school operations.

The second instrument ‘Subject Teacher Class Size Inventory (STCSI)’ is an instrument designed by the authors specifically to obtain a numerical value of class size classification for the reference core subjects considered in this study. These core subjects were: English Language, Mathematics, National Values, and Basic Science and Technology. Items included in this inventory are class taught by the respondent (teacher), subject taught by the respondent, total number of students taught, total number of teaching classroom, class size estimate, and class size classification. This instrument was completed by the researchers from school records. Class size classification could either be large, moderate or small. The inclusion of identifiers such as ‘class taught’ and ‘subject taught’ in this instrument was to serve the purpose of identification. This helped the researchers to ensure that respondents to this instrument were core subject teachers in public junior secondary school III. The third instrument ‘Students’ Academic Achievement Tests (SAATs)’ was developed by the researchers and was used to measure students’ academic performance score based on achievement test scores in English Language, Mathematics, National Values, and Basic Science and Technology subjects. This instrument was administered on test takers (that, JSS 3 students). The instrument consists of sixty (60) multiple choice items (questions) with

four-five options (A to D/E). The test items contained in the instrument are on comprehension, vocabulary, and grammar (twenty test items for English Language), arithmetic and algebra (twenty test items for Mathematics), social studies and civic education (ten test items for National Values), and basic science and basic technology (ten test items for Basic Science and Technology) as contained in Basic Education Certificate Examination (BECE) curriculum.

The School Facilities Assessment Checklist (SFAC) and Subject Teacher Class Size Inventory (STCSI) instruments were validated by evaluation experts from Tai Solarin University of Education. These instruments were subjected to proper scrutiny. The experts' comments and researcher supervisor's comments and suggestions were taken to prepare the final draft of the two instruments. The Students' Academic Achievement Tests (SAATs) was validated by four experts in the fields of study of the four core subjects (English Language, Mathematics, National Values, and Basic Science and Technology). Comments and suggestions made by these experts were incorporated to produce the final version of the instrument which was adjudged to be adequate for the study. To ensure the content validity of the SAATs, a test blueprint (also, known as Table of Specification) was used to show the spread of the test items as presented in Table 1. A test re-test method was used to determine the reliability of the instruments. The instruments were administered on twenty (20) teachers and thirty (30) students from five schools (that were not part of the study's sample but part of the population). Two weeks after, the instruments were readministered on the same respondents. The data collected on the two tests were analysed using the Pearson Product Moment Correlation and a correlation coefficient of 0.82, 0.95 and .76 were obtained for School Facilities Assessment Checklist (SFAC), Subject Teacher Class Size Inventory (STCSI) and Students' Academic Achievement Tests (SAATs) respectively. The values showed that, the three instruments have a good psychometric property.

The authors collected a letter of introduction from the Head of Department of Educational Management, Tai Solarin University of Education, Ijagun indicating their intention and sought an approval to administer the instruments to the respondents of the study samples. The letter of introduction was taken to Ogun State Universal Basic Education Board for further approval and the approval given was taken to the various schools for administration of the instruments. The research questions raised for the study were analysed with descriptive statistics, of frequency count, mean, standard deviation, percentages and line graph. The three null hypotheses formulated were analysed with inferential statistics, viz, Multiple Correlation Analysis and Multiple Regression Analysis. The hypotheses were tested at 0.05 level of significance.

Table 1: Test Blueprint for the four core subjects in the SAATs instrument

Subjects	Knowledge	Comprehension	Application	Total
English language	2, 6 (10.0%)	1, 3, 4, 5, 7, 8, 16, 17, 18 (45.0%)	9, 10, 11, 12, 13, 14, 15, 19, 20 (45.0%)	20 (33.3%)
Mathematics	1, 2, 4, 8, 11 (25.0%)	3, 5, 6, 7, 9, 10, 12 (35.0%)	13, 14, 15, 16, 17, 18, 19, 20 (40.0%)	20 (33.3%)
National Values	1, 2, 3 (30.0%)	4, 5, 6 (30.0%)	7, 8, 9, 10 (40.0%)	10 (16.7%)
Basic Science and Technology	1, 2, 3 (30.0%)	4, 5, 6 (30.0%)	7, 8, 9, 10 (40.0%)	10 (16.7%)
Total	13 (21.7%)	22 (36.7%)	25 (41.7%)	60 (100%)

Source: The Researchers (2023)

RESULTS

The presentation and interpretation of results obtain from the analysed data after field work are presented below.

Research Question 1: What is the condition of school facilities available for use in public secondary schools in Ogun-East Senatorial District?

Table 2: Mean and Standard Deviation of Responses Indicating the Condition of School Facilities in Public Junior Secondary Schools

Condition of school facilities	Score range	Frequency	Percentage (%)	Mean	S.D	Remark
Available in Good Condition for Use	(47-69)	14	26.4	36.75	10.103	Poor condition
Available in Poor Condition for Use	(24-46)	39	73.6			
Available but Not for Use	(1-23)	0	0.0			
Not Available	(0)	0	0.0			
Total	(0-69)	53	100			

Results in Table 2 showed that out of 53 schools surveyed, 14 representing 26.4% of the schools had available school facilities with good condition for use, and about 73.6% of the schools had available school facilities with poor condition for students and teachers’ use. The overall condition of school facilities in public junior secondary schools in Ogun-East Senatorial District was poor since the mean score of 36.75 (S.D = 10.103) obtained lies between the range score of 24-46 defined for available school facilities in poor condition for use.

Research Question 2: What is the nature of class size in public secondary schools in Ogun-East Senatorial District?

Table 3: Nature of Class Size in Public Junior Secondary Schools in Ogun-East Senatorial District

Variable	Categories	Frequency	Percentage (%)
Class size classification	Large {> 40 students per class}	33	62.3
	Moderate {=40 students per class}	7	13.2
	Small {< 40 students per class}	13	24.5
	Total	53	100

The distribution presented in Table 3 showed that 33 schools representing 62.3% of the surveyed schools operated large class size, 7 schools representing 13.2% of the surveyed schools operated moderate class size, and 13 schools representing 24.5% of the surveyed schools operated small class size. The results mean that many public junior secondary schools in Ogun-East Senatorial District had large class size.

Research Question 3: What is the level of academic performance of students in public secondary schools in Ogun-East Senatorial District?

Table 4: Mean and Standard Deviation of Achievement Scores Indicating the Level of Academic Performance of Students in Public Secondary Schools

Academic performance	Score range	Frequency	Percentage (%)	Mean	S.D	Remark
High	(45-60)	16	30.2	28.65	15.542	Low academic performance
Moderate	(30-44)	9	17.0			
Low	(15-29)	20	37.7			
Very low	(0-14)	8	15.1			
Total	(0-60)	53	100			

Results in Table 4 showed that 16 intact classes representing 30.2% of schools produced an average class achievement score within the range of 45-60 which represented a high level of academic performance. About 9 intact classes representing 17.0% of schools produced an average class achievement score within the range of 30-44 which represented a moderate level of academic performance. About 20 intact classes representing 37.7% of schools produced an average class achievement score within the range of 15-29 which represented a low level of academic performance. About 8 intact classes representing 15.1% of schools produced an average class achievement score within the range of 0-14 which represented a very low level of academic performance. The overall academic performance score of respondents (students) was 28.65 with standard deviation score of 15.542 which falls within the range of 15-29 implied that students' academic performance in public junior secondary schools in Ogun-East Senatorial District was low.

Research Question 4: To what extent do students in large, moderate and small class sizes perform in schools with good facilities condition?

Table 5: Academic Performance of Students in Large, Moderate and Small Class Sizes with Good Condition of School Facilities

Class size	Level of academic performance	Score range	Frequency	Percentage (%)	Mean	S.D	Remark
Large	High	(45-60)	4	100	45.42	0.696	High academic performance
	Moderate	(30-44)	0	0.0			
	Low	(15-29)	0	0.0			
	Very low	(0-14)	0	0.0			
	Total	(0-60)	4	100			
Moderate	High	(45-60)	2	50.0	37.76	11.177	Moderate academic performance
	Moderate	(30-44)	1	25.0			
	Low	(15-29)	1	25.0			
	Very low	(0-14)	0	0.0			
	Total	(0-60)	4	100			
Small	High	(45-60)	6	100	50.78	1.669	High academic performance
	Moderate	(30-44)	0	0.0			
	Low	(15-29)	0	0.0			
	Very low	(0-14)	0	0.0			
	Total	(0-60)	6	100			

Results in Table 5 indicated that respondents in small class size with good condition of school facilities had the highest mean achievement score of 50.78 (S.D= 1.669) followed by respondents in large class size with mean achievement score of 45.42 (S.D= 0.696) and those in moderate class size with mean achievement score of 37.76 (S.D= 11.177). These results implied that students’ academic performance was high in small and large class sizes with good condition of school facilities while students’ academic performance was moderate in moderate class size with good condition of school facilities.

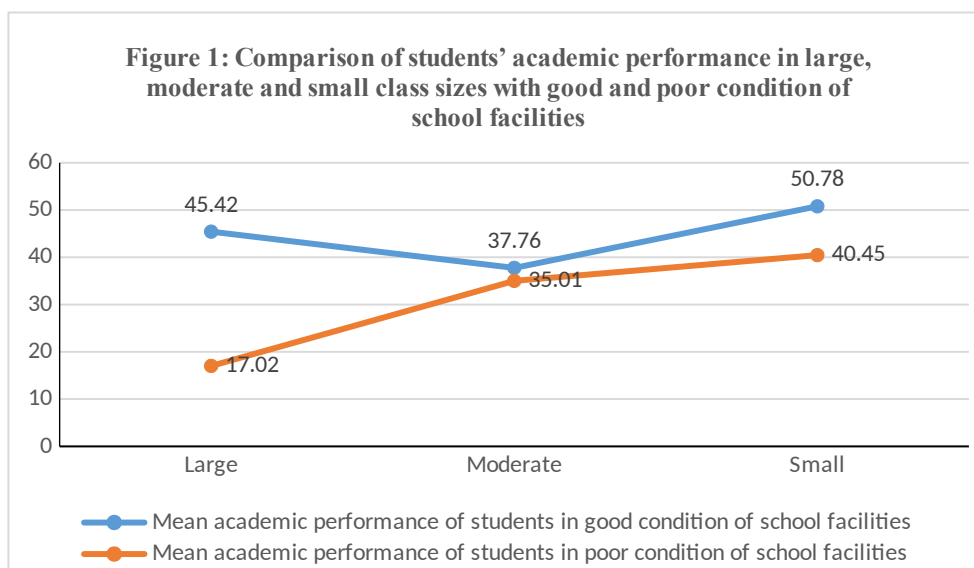
Research Question 5: To what extent do students in large, moderate and small class sizes perform in schools with poor facilities condition?

Table 6: Academic Performance of Students in Large, Moderate and Small Class Sizes with Poor Condition of School Facilities

Class size	Level of academic performance	Score range	Frequency	Percentage (%)	Mean	S.D	Remark
Large	High	(45-60)	0	0.0	17.02	7.778	Low academic performance
	Moderate	(30-44)	4	13.8			
	Low	(15-29)	17	58.6			
	Very low	(0-14)	8	27.6			
	Total	(0-60)	29	100			
Moderate	High	(45-60)	2	66.7	35.01	13.100	Low academic performance
	Moderate	(30-44)	0	0.0			
	Low	(15-29)	0	0.0			
	Very low	(0-14)	1	33.3			
	Total	(0-60)	3	100			
Small	High	(45-60)	2	28.6	40.45	7.537	Moderate academic performance
	Moderate	(30-44)	4	57.1			
	Low	(15-29)	1	14.3			
	Very low	(0-14)	0	0.0			
	Total	(0-60)	7	100			

Results in Table 6 indicated that respondents in small class size with poor condition of school facilities had the highest mean achievement score of 40.45 (S.D= 7.537) followed by respondents in moderate class size with mean achievement score of 35.01 (S.D= 13.100) and those in large class size with mean achievement score of 17.02 (S.D= 7.778). These results implied that students’ academic performance was moderate in small class size with poor condition of school facilities while students’ academic

performance was low in moderate and large class sizes with poor condition of school facilities. The graphical illustration of students’ academic performance in different class sizes and school facilities conditions is shown in Figure 1.



Hypothesis 1: There is no significant relationship among school facilities, class size and students’ academic performance in public secondary schools in Ogun-East Senatorial District.

Table 7: Correlation Matrix Showing the relationship among School Facilities, Class Size and Students' Academic Performance

Variables	N	Mean	S.D	School Facilities	Class Size	Academic performance
School facilities	53	36.75	10.103	1		
Class size	53	46.43	12.454	-0.362*	1	
Academic performance	53	28.66	15.542	-0.454**	.776**	1

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed)

The result in Table 7 indicated that there was a significant negative weak relationship between school facilities and class size ($r = -0.362$, $df = 51$, $p < 0.05$). There was a significant negative moderate relationship between school facilities and students’ academic performance ($r = -0.454$, $df = 51$, $p < 0.05$), and there was a significant positive strong relationship between class size and students’ academic performance ($r = 0.776$, $df = 51$, $p < 0.05$). Therefore, the null hypothesis one which stated that, there is no significant relationship among school facilities, class size and students' academic performance in public secondary schools in Ogun-East Senatorial District was rejected.

Hypothesis 2: There is no significant composite contribution of school facilities and class size to students’ academic performance in public secondary schools in Ogun-East Senatorial District.

Table 8: Regression Model Summary Indicating the Composite Contribution of School Facilities and Class Size to Students' Academic Performance

R	R Square	Adjusted R Square	Std. Error of the Estimate			
.798	.637	.622	9.55037			
ANOVA						
Model	Sum of Squares	df	Mean Square	F	Sig.	Remark
Regression	8000.480	2	4000.240	43.858	.000	Sig.
Residual	4560.482	50	91.210			
Total	12560.962	52				

Dependent Variable: Academic performance; **Predictors:** (Constant), class size, school facilities.

The regression model summary in Table 8 indicated that the two independent variables (school facilities and class size) jointly contributed significantly to students' academic performance in public junior secondary schools in Ogun-East Senatorial District ($F_{2, 250} = 43.858$; $p < .05$). The R^2 adjusted indicated that 62.2% of the variance in students' academic performance was because of the composite contribution of school facilities and class size. Therefore, the null hypothesis two which stated there is no significant composite contribution of school facilities and class size to students' academic performance in public secondary schools in Ogun-East Senatorial District was rejected.

Hypothesis 3: There is no significant relative contribution of school facilities and class size to students' academic performance in public secondary schools in Ogun-East Senatorial District.

Table 9: Standardized Regression Coefficients Showing the Relative Contribution of School Facilities and Class Size to Students' Academic Performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.434	8.734		.050	.961
School facilities	1.083	.141	.704	7.701	.000
Class size	-.249	.114	-.200	-2.185	.034

Dependent Variable: Academic performance

Results in Table 9 showed that the relative contribution of school facilities ($\beta = 0.704$; $t = 7.701$; $p < 0.05$) to students' academic performance was significant. The relative contribution of class size ($\beta = -0.200$; $t = -2.185$; $p < 0.05$) to students' academic performance was also significant. In terms of predictive powers of the two independent variables, school facilities were the most potent predictor followed by class size. Thus, the statement of the null hypothesis three was rejected.

DISCUSSION OF FINDINGS

Results from the analysed research question one revealed that almost three-quarter of schools had poor condition of school facilities in public junior secondary schools in Ogun-East Senatorial District. This means that school facilities were available in majority of schools but were available in poor condition for use. Only few proportion (about one-quarter) of schools had school facilities available in good condition for use. The study discovered that there were no schools with school facilities without being utilised. Some of these school facilities are classrooms, ceiled and spacious classrooms, staff offices, office furniture, students' desk/tables and chairs, averagely equipped library and science laboratory. Others

were English textbooks, Mathematics textbooks, instructional materials, computer system, power supply (electricity), generator, functional potable water, and averagely equipped first aid box. Another school facilities were sport facilities, toilet facilities for staff (male and female separated), toilet facilities for students (male and female separated), chalkboard (old/modern), school fence, technical workshop, notice board and school bus. The finding is consistent with the findings of Peter and Ligembe (2022), who reported that public secondary schools' infrastructure remained unaltered despite the rise in student enrolment, resulting in crowded classrooms. The scenario puts the teaching and learning process in jeopardy and makes the demand for enough classrooms to address the issue of secondary schools' overcrowding worse.

Results from the analysed research question two which sought to find out the nature of class size in public junior secondary schools in Ogun-East Senatorial District revealed that majority of schools in Ogun-East Senatorial District had large class size. Findings showed that nearly one-quarter of schools operated small class size and at least one-tenth of schools operated moderate class size. The nature of class size revealed in this study implied that over sixty per cent of public junior school III in Ogun-East Senatorial District had more than forty students in a single class. Thirteen per cent of schools in Ogun-East Senatorial District operated moderate class size with forty students per class, and twenty-four per cent of schools operated small class size with less than forty students per class. Large class size leads to a high teacher-student ratio. This imbalanced interaction derails and interferes with the effectiveness of the teachers and the actual instructional process. The outcome of this finding is expected because schools financed by communities, local or state governments are often characterized by high annual enrolment rate since basic education up to the Upper Basic School is free and compulsory. This usually create overpopulation of students within the school system which the existing school facilities may not support the large numbers of students thereby leading to overcrowded classroom that could barely sustain optimal teaching and learning. The present finding also suggest why today's public-school teachers are dissatisfied the classroom condition they find themselves. This is since parents and teachers find it appealing when there are fewer pupils in the classroom. According to Juldiz (2025), teachers believe that smaller courses foster more interaction between students and teachers, enabling a more comprehensive assessment of students' performance following teaching. For instance, Woo et al. (2022) defined the atmosphere in a mathematics class as the conditions in the classroom and argued that students' performance improved if they had a good perception of the classroom environment. Kurtovic and Bajramovic (2021) provided evidence in favour of this theory by defining classroom atmosphere as the ratio of students to teachers. This implies that pupils will perform better if their numbers do not exceed those of teachers. This will allow teachers to address the individual variations that are thought to occur in every classroom to some degree. However, if the situation were reversed, it would be very difficult for

both professors and students to teach the material properly and for the students to understand it successfully.

Results from the analysed research question three which sought to find out the level of academic performance of students in public junior secondary schools in Ogun-East Senatorial District revealed that majority of schools in Ogun-East Senatorial District had a low level of students' academic performance. Findings further showed that a significant proportion of schools had high level of students' academic performance. This was recorded in thirty per cent of the schools surveyed in this study. Moderate and very low levels of students' academic performance were recorded among seventeen and fifteen per cent of schools respectively. The overall academic performance rate signified that students performed poorly in the combined core subjects comprising English Language, Mathematics, National Values, and Basic Science and Technology. This finding could be explained from the outcomes of research question one and two which found poor condition of school facilities and large class size respectively. This finding resonates the outcries of several scholars in the field of education on the state of academic performance of secondary school students in Nigeria. According to current data, Ibrahim et al. (2017) discovered that, on average, Nigerian secondary school pupils do poorly academically. In support of this, Durojaiye (2025) proposed that the West African Examinations Council (WAEC) consistently failed many students in the senior secondary school examinations (SSCE). According to Imoh (2023), many secondary schools in Nigeria appear to have inadequate school plant planning, which may be related to the observed low academic achievement of secondary students. Lato (2025) bemoaned the fact that when educational spaces like classrooms, libraries, technical workshops, and laboratories are fundamentally flawed, excellent academic achievement may not be guaranteed.

Results from the analysed research question four which sought to find out the extent to which students in large, moderate and small class sizes performed in schools with good facilities condition in Ogun-East Senatorial District revealed that academic performance of students were high in small class size and large class size however, it was moderate in moderate class size. These results suggest that good condition of school facilities supports students' academic performance in both large and small class sizes. The finding conforms to our expectation that good condition of school facilities will bring out desirable changes in students' learning, activities and behaviours. It can thus be inferred that a relationship may exist between school facilities condition and students' academic performance in public junior secondary schools. This result runs counter to well-known findings by researchers such as Peter and Ligembe (2022), who found that both large and small class sizes affect students' performance and that students perform poorly in large classes due to insufficient resources, poorer student performance, and ineffective teaching methods. Additionally, their study determined the difficulties teachers faced when teaching large classes; the findings indicated that ineffective classroom instruction, poor classroom

management, and student disruption throughout the teaching and learning process were among the issues. The factor "school facilities," which was not considered among the tested schools, must be the cause of the study's findings. According to Adeyemi's (2008) research, senior secondary schools with an average class size of 35 or fewer performed better than those with more than 35 pupils.

Results from the analysed research question five which sought to find out the extent to which students in large, moderate and small class sizes performed in schools with poor facilities condition in Ogun-East Senatorial District revealed that academic performance of students were moderate in small class size however, it was low in large and moderate class sizes. These results suggest that poor condition of school facilities may hinder good academic performance of students in both large and moderate class sizes. The outcome was anticipated because, if in poor condition, school instructional facilities—including laboratory equipment, introductory technological equipment, wall clocks, puzzles, televisions, radios, VCD plates and players, pianos, flutes, chalkboards, cardboards, dusters, science practical apparatus, models, picture charts, and other items—may not support the achievement of the intended learning objectives in the classroom. The result is comparable to that of Tsafe (2014), who discovered that classroom size has an impact on students' performance in scientific classes. This depends on how many students are enrolled in the course and how many pieces of equipment each student has in the labs. Some students, such as those conducting chemistry experiments in the laboratory for practical, might not have a retort stand to perform basic titration. This is also evident in junior secondary school practical projects involving basic science and technology.

The hypothesized statement that there is no significant relationship among school facilities, class size and students' academic performance in public secondary schools in Ogun-East Senatorial District was rejected. Findings showed that school facilities and class size are significantly negatively related, school facilities and students' academic performance are significantly negatively related, and class size and students' academic performance are significantly positively related. In terms of strength of the relationship among the variables, the coefficient of correlation between school facilities and class size was low, the coefficient of correlation between school facilities and students' academic performance was moderate, and the coefficient of correlation between class size and students' academic performance was high. The implication of these findings is that the larger the class size, the lower the condition of school facilities available in public junior secondary schools in Ogun-East Senatorial District. Conversely, students' academic performance decreases with increasing conditions of school facilities, and students' academic performance increases with increasing size of the class. The unexpected direction of this finding can partly be explained from the fact that school facilities and class size interact negatively and could affect the academic performance outcome in large, moderate and small class sizes.

The results are consistent with those of Peter and Ligembe (2022), Kusi and Manful (2019), and Olugbenga (2019). Students in large classrooms did worse than those in small ones, according to Kusi and Manful (2019), who found an inverse association between class size and academic achievement. They added that a teacher's ability to improve an efficient teaching process is diminished when there are too many pupils in a single classroom. Additionally, it was shown that elements related to big class sizes included absenteeism, unruliness, noisemaking, and student concentration, particularly among slow learners. The outcome also supports the findings of a study by Peter and Ligembe (2022), who found that students' poor academic performance was caused by their inability to focus during instruction due to the disproportionate teacher-student ratio. This resulted in low comprehension and retention of the subject matter. Additionally, a manageable class size allows professors to employ instructional facilitation techniques appropriately, whereas a high-class size may force the employment of the lecture style as the primary instructional facilitation technique, which is inappropriate for students. Additionally, according to Anashie, Ebuta, and Adie (2013), the pressure on students and the size of the class have a detrimental impact on teaching and learning and make it challenging for teachers to provide and grade tests and assignments. Abubakar, Diri, Shuaibu, Dakin-Gari, and Dakin-Gari (2023) also showed an inverse association between classroom size and academic achievement, supporting the negative relationship between the two. According to Olugbenga (2019), instructors' and students' academic performance in secondary school is adversely affected by inadequate or subpar school infrastructure.

The tested null hypothesis two revealed that school facilities and class size contributed jointly and significantly to students' academic performance in public secondary schools in Ogun-East Senatorial District. This led to the rejection of the statement of null hypothesis two. The tested hypothesis also showed that the two independent variables of this study (school facilities and class size) were good predictors of students' academic performance at the JSS 3 level and thus, explained sixty-two per cent of variance in students' academic performance. The remaining variation in students' academic performance (thirty-eight per cent) can be attributed to unexplained variables not under the scope of this study. This corroborates with the findings of study carried out by Tsafe (2014) which indicated that class size dependently and independently has effect on the academic achievement of students. Additionally, Vandenberg's (2012) regression results demonstrated that the class size, the proportion of gifted students, and the rate of economically disadvantaged children were all significant predictors of reading achievement levels.

The tested null hypothesis three revealed that the two independent variables of this study (school facilities and class size) relatively contributed to students' academic performance in public secondary schools in Ogun-East Senatorial District. This led to the rejection of the statement of null hypothesis three. While school facilities positively influenced students' academic performance, class size negatively

influenced academic performance of students. The predictive interpretation of this finding means that, for every .704 unit increase in the condition of school facilities, the average academic performance score of students increase by one unit. This implies that as the condition of school facilities increases, the students' academic performance also increases in a positive direction. Similarly, the predictive interpretation for class size means that, for every .200 unit decrease in the number of class size, the average academic performance score of students increases by one unit. This implies that as class size reduces, the students' academic performance increases in a positive direction. The finding by Cortes et al. (2012) that students in smaller classes learn and perform better than those in bigger class sizes because they do not encounter disruptions during lessons was recognised by the negative predictive value of class size in relation to school facilities. While students in the bigger classes had worse grades and disruptive behaviour made it challenging for teachers to maintain order, participation in learning activities and group projects in the smaller classes led to higher scores and solid discipline. Peter and Ligembe (2022) identified inadequate resources, shortage of infrastructures, ineffective teaching and learning and poor stakeholders' participation as some of the challenges for management of big class sizes that could negatively affect students' academic performance. In the same vein, Peter and Ligembe also found that this problem can be addressed with surplus of school infrastructure.

CONCLUSION AND RECOMMENDATIONS

Based on the findings, the study concludes that students benefited in terms of high academic performance in small class size with good condition of school facilities at the Junior Secondary School (JSS) level of education. The study revealed that school facilities and class size combined are strong predictors of students' academic performance. Therefore, for effective teaching and learning, a reasonable class size, devoid of inconveniencies such as students' congestion, poor students' sitting arrangement, inadequate instructional materials, infrastructural deficits and the like have to be ensured. This will enable the teaching to be conducted successfully and ensure conducive atmosphere for learning to all students. It was also revealed that class size played a significant role in affording students the opportunity to partake fully in all class activities in poor condition of school facilities despite affecting their level of learning. Thus, when the class has overcrowded structure, it will not allow for effective learning to take place. The students as well as the teachers will find it extremely difficult to grasp what is being taught in the class on students' part and for the teachers too, they will find it difficult to teach effectively.

This study recommends the following based on findings:

- 1) The researcher recommends that the existing school facilities should be expanded to reduce the number of overcrowded classrooms in public secondary schools.

- 2) School management should engage community leaders and philanthropists to donate more classrooms and buildings to schools to enable students in schools with large size to seat comfortably in a conducive environment.
- 3) More teachers should be recruited into schools by the State Universal Basic Education Board to complement the growing number of students population in public junior secondary school system to reduce the existing large class size.
- 4) In a circumstance where class size is inevitably large, teachers should devise a means of dividing students into segments or adopting grouping method so that existing school facilities such as instructional materials and pedagogical strategies to be used and applied by teachers will enable the students to effectively harness the lesson very well.
- 5) Government and policymakers should plan for renovation and replacement of school facilities having poor conditions before being used by students before school year enrolments. This can help to minimize the occurrence of poor academic performance due to inadequate school facilities for teaching and learning.
- 6) Other educational stakeholders such as non-government organisations, corporate social responsibility groups, parents and the community should work in collaboration to build more modern schools with adequate facilities that will ameliorate the problem of poor students' academic performance occasioned by the large class sizes that is widespread in most public school system.
- 7) The current students-classroom ratio of forty students per classroom should be encouraged by school administrators, as stipulated by the National Policy on Education. This will enable teachers to teach well and to ensure good classroom management without many difficulties and challenges.
- 8) Educational planners and school leaders should carryout extensive inspection of school facilities to identify those in need of renovation, retrofitting and replacement.

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