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Large Class Size, Poor Infrastructural Facilities and Quality of Learning in Public Primary Schools in Obio/Akpor Local Government Area, Rivers State, Nigeria

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Abstract **Original Research Article**

This study examined teachers' perceptions of how large class size and poor infrastructural facilities affect the quality of learning in public primary schools in Obio/Akpor Local Government Area, Rivers State, Nigeria. Three research questions guided the study, which used a descriptive survey design. A total of 240 public primary school teachers, selected by stratified random sampling, responded to a 4-point rating scale of 12 items in three sections. Data were analysed with means and standard deviations, using a criterion mean of 2.50. Teachers agreed that large classes (more than 30 pupils) contribute to poor quality of learning and that inadequate infrastructural facilities reduce the quality of learning. The link between infrastructure and pupils' participation in classroom interaction was endorsed only for poor ventilation; teachers did not endorse lack of desks, lack of materials that support comprehension, or irregular electricity as constraints. The study recommends classroom construction and teacher recruitment to bring class sizes down, supply of instructional materials and furniture, improved ventilation, and training of teachers in managing large classes.

Keywords: class size, school infrastructure, quality of learning, primary schools, teachers' perceptions, Nigeria

Introduction

Teachers and parents have long argued that a teacher can give each pupil more help when the class is small. In Nigeria, the benchmark for primary schools is commonly given as about 35 pupils per teacher (Opanuga et al., 2019). Visits by the author to public primary schools in Obio/Akpor Local Government Area of Rivers State, however, show classes of more than 80 pupils per teacher in many cases. Enrolment keeps rising, but new classrooms and teaching posts do not follow at the same pace. National evidence points the same way. Satellite measurement of 1,900 rural primary schools in 19 states showed that more than 80% gave pupils less classroom space than the 1.2 square metres per pupil in the national standard (Andries et al., 2022).

Class size is only part of the picture. Schools also need classrooms, desks, ventilation, electricity and learning materials. A synthesis of international evidence concluded that the quality of school buildings and classroom conditions is associated with learning outcomes (Barrett et al., 2019), and recent work in Ogun State reports a high degree of inadequate basic infrastructure in public primary schools (Alaka & Ogunseye, 2026). Many host communities and parents have tried to fill the gap by building classroom blocks and providing furniture, but the problem remains a concern for parents, teachers and government.

The research literature on class size is not one-sided. A systematic review of studies from many countries found that smaller classes have at best a small effect on achievement (Filges et al., 2018). Others argue that this result hides the way class size affects teaching rather it changes how much attention teachers can give, how they manage groups and how pupils behave (Blatchford & Russell, 2020). Evidence from India suggests that learning is fairly

flat over a middle range of class sizes and falls only when classes become very large (Datta & Kingdon, 2021). Because class sizes in Obio/Akpor are far above those ranges, and because school conditions differ widely, local evidence is needed. This study collects the views of teachers, who see the daily effects of class size and school facilities at first hand.

Statement of the Problem

Large classes and poor school facilities are widely blamed for weak learning in Nigerian primary schools, but there is little local evidence on which effects teachers actually experience. In Obio/Akpor Local Government Area, one teacher may be responsible for 80 or more pupils, with limited room for one-to-one contact and for pupils' participation in lessons. The problem of this study is to establish the extent to which large class size and poor infrastructural facilities are perceived to lead to poor quality of learning and to reduced pupil participation in public primary schools in the area. Without such evidence, planning for classrooms, teachers and equipment cannot be targeted at the effects that matter most.

Research Questions

The following research questions guided the study:

1. To what extent does large class size contribute to poor quality of learning in public primary schools?
2. What are the effects of poor infrastructural facilities on the quality of learning in public primary schools?
3. What are the effects of poor infrastructural facilities on pupils' participation in classroom interaction?

Review of Related Literature

Conceptual Review

Class size and pupil–teacher ratio

In this study, class size means the number of pupils taught together by one teacher in a classroom. It is related to, but not the same as, the pupil–teacher ratio, which divides the number of pupils in a school by the number of teachers. Opanuga et al. (2019) regard the pupil–teacher ratio as one of the key measures of the quality of education, and they use 35 pupils per teacher as the Nigerian benchmark. Blatchford and Russell (2020) argue that class size should be judged not only by what it does to test scores but also by how it changes what happens in the classroom, including the attention a teacher can give to individual pupils, the way pupils are grouped and the way the class is managed. In their view, the number of pupils matters mainly because it shapes these everyday processes.

What counts as a large class is not the same everywhere. Wadesango (2021) notes that teachers in different countries have different opinions about what a large class is, and that almost all teachers think their own classes are too large. It is therefore useful to judge class size against a clear standard, such as the benchmark of 35 pupils per teacher. Large classes also tend to arise when enrolment rises faster than the supply of teachers and buildings (Barnes-Story et al., 2026), and their effects on the teaching of reading have been noted in northern Nigeria (Adamu et al., 2022).

School infrastructure

School infrastructure is used here to mean the buildings and physical conditions of the school such as classrooms, desks and chairs, ventilation, electricity, and learning materials and equipment. Barrett et al. (2019) take a broad view in which infrastructure covers not only the building but also classroom conditions such as light, temperature, air quality and furniture, and they argue that these conditions together form the environment in which pupils learn.

Alaka and Ogunseye (2026) stress that infrastructure must be managed as well as provided, and they recommend preventive maintenance rather than repair after decay has set in. This means that poor infrastructure can mean the absence of facilities, their poor condition, or both. Barrett et al. (2019) take the view that school buildings should be judged by the conditions they create in the classroom, such as comfort, light and air quality, and not only by whether they exist. A classroom that is standing but is hot, dark or full of broken furniture may do little for learning.

Quality of learning and pupils' participation

Quality of learning in this study refers to the conditions that allow pupils to understand lessons, receive help and take part. Blatchford and Russell (2020) propose that such conditions are best understood as classroom processes. That is, how much attention teachers can give, how pupils interact with the teacher and with one another, and how engaged pupils remain during lessons. Pupils' participation, which includes asking and answering questions and joining in activities, is one of these processes. It depends on whether pupils can hear the teacher, are comfortable enough to stay attentive, and have materials to work with.

Participation also has a social side. Blatchford and Russell (2020) stress that classroom learning is social, so that the way pupils relate to the teacher and to one another is part of what makes learning good or poor. In a very large class, chances to speak and be corrected become fewer for each pupil, and quiet or slower pupils may be the first to be left out.

Teachers' perceptions

Teachers are in a position to observe the effects of class size and facilities every day. Blatchford and Russell (2020) draw heavily on teachers' and observers' accounts of classroom life in making their case that class size changes teaching, and they argue that such accounts help to explain why test-score results alone can be misleading. On this view, teachers' perceptions are a useful, though not a complete, source of evidence. They show where the pressure is felt, and they can guide where direct measurement of learning should be carried out. This is the sense in which teachers' ratings are used in the study.

Large classes and classroom management

Managing a large class takes time and skill. Blatchford and Russell (2019) treat class size, grouping practices and classroom management as linked: the number of pupils shapes how a teacher can group them, and grouping and management in turn shape how much learning takes place. Barnes-Story et al. (2026) note that in large classes the time spent on organising tasks and controlling behaviour can reduce the time left for teaching, and that group work, often suggested as a remedy, depends on space, materials and time that crowded schools may lack. A teacher's ability to cope with a large class therefore depends partly on the conditions around the teacher and not only on the teacher's own skill.

Infrastructure, space and maintenance

Class size and infrastructure meet most directly in classroom space. Andries et al. (2022) use the national standard of 1.2 square metres per pupil to decide whether a classroom is overcrowded, which shows that overcrowding is a question of space as well as numbers. Alaka and Ogunseye (2026) add that buildings change over time and that, without regular maintenance, even well-built facilities decay. A complete view of school conditions therefore asks whether facilities exist, whether they are in good condition, and whether there is enough space for the pupils who use them.

Theoretical framework

The study draws on the process view of class size set out by Blatchford and Russell (2020). In this view, class size and the physical setting do not act directly on pupils' achievement. They act through classroom processes such as teacher attention, pupil engagement and the activities that are possible. Large classes limit the time a teacher can spend with each pupil, and crowded or poorly equipped classrooms limit the activities that can take place. The framework leads to the expectation that teachers, who work within these processes every day, will perceive large classes and poor facilities as lowering the quality of learning and the level of pupil participation.

Empirical Review

Opanuga et al. (2019) examined records of 133 public primary schools in a local government area of Ogun State and found that only 19% had an acceptable pupil–teacher ratio below 35, 39% had a moderate ratio between 35 and 50, and 42% had a ratio above 50. Andries et al. (2022) used satellite images of 1,900 rural primary schools in 19 states and reported that 81.4% were overcrowded by the national space standard. David and Emunemu (2021) studied public secondary schools in Ogun State and concluded that physical and instructional facilities should be kept up to date because their availability makes a visible difference to learning outcomes. Alaka and Ogunseye (2026), in a study of twenty public and private primary schools in Ijebu-Ode, found significant differences in the availability and decay of basic infrastructure, with public schools doing worse, and concluded that this poses serious challenges to effective teaching and learning.

The conceptual literature suggests that class size and school facilities influence learning through classroom processes. The empirical literature shows that crowded classes and inadequate facilities are common in Nigerian primary schools, that the effect of class size on test scores is small in many studies, and that good classroom conditions, such as ventilation, are associated with better performance. What is missing is local evidence from Rivers State on which of these effects teachers themselves perceive. This study provides that evidence for public primary schools in Obio/Akpor Local Government Area.

Methodology

The study used a descriptive survey design. It was carried out in Obio/Akpor Local Government Area of Rivers State, part of the Port Harcourt metropolitan area. The respondents were 240 teachers in public primary schools in the area, selected by stratified random sampling with school location and urbanisation as the basis for stratification.

Data were collected with a researcher-designed rating scale. After a background section (Section A), three sections contained 12 items, four for each research question: class size and quality of learning (Section B), infrastructure and quality of learning (Section C) and infrastructure and pupils' participation (Section D). Items on class size referred to classes of more than 30 pupils. Responses were Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1). The scale was validated by the supervisor of the work and two senior lecturers in the department. Reliability was established with the split-half method on 20 teachers who were not part of the sample. The correlation between the two halves was .68, and the Spearman–Brown correction gave a coefficient of .81, which indicates that the scale is reliable.

The purpose of the study was explained to the respondents before the scale was administered. Data were analysed with means and standard deviations. The criterion mean was 2.50, so an item with a mean of 2.50 or above was interpreted as "Agree", and an item below 2.50 as "Disagree". Cluster means were obtained by averaging the item means within each section. Item means were checked against the response frequencies.

Results

Research Question 1: To what extent does large class size contribute to poor quality of learning in public

primary schools?

Table 1: *Teachers' Ratings of the Contribution of Large Class Size to Poor Quality of Learning*

Item	M	SD	N	Decision
Dull pupils find it hard to gain the teacher's attention for further explanation	3.01	0.70	240	Agree
Pupils at the back may not hear the teacher's voice	3.22	0.63	240	Agree
Understanding concepts is difficult because of limited close interaction with the teacher	3.06	0.66	240	Agree
Large classes generate noise that hinders learning	2.90	0.78	240	Agree
Cluster mean	**3.05**	**0.69**	**240**	**Agree**

Table 1 shows that all four items had means above 2.50, from 2.90 to 3.22. Teachers agreed that large classes contribute to poor quality of learning. The highest-rated item was that pupils at the back may not hear the teacher, followed by limited close interaction and the difficulty dull pupils have in getting the teacher's attention. Noise was also seen as a hindrance.

Research Question 2: What are the effects of poor infrastructural facilities on the quality of learning in public primary schools?

Table 2: *Teachers' Ratings of the Effects of Poor Infrastructural Facilities on Quality of Learning*

Item	M	SD	N	Decision
Lack of relevant learning materials hinders teachers' demonstrations	3.11	0.53	240	Agree
Lack of relevant materials hinders learners' manipulative skills	2.93	0.65	240	Agree
Lack of relevant teaching materials results in poor comprehension of concepts	2.94	0.52	240	Agree
Poor infrastructure, such as lack of classrooms, reduces learners' attention span	2.68	0.86	240	Agree
Cluster mean	**2.92**	**0.64**	**240**	**Agree**

As Table 2 shows, item means ranged from 2.68 to 3.11, all above the criterion. Teachers agreed most strongly that lack of relevant learning materials hinders demonstrations. The lowest rating, although still above the criterion, was for the statement that lack of classrooms reduces pupils' attention span.

Research Question 3: What are the effects of poor infrastructural facilities on pupils' participation in classroom interaction?

Table 3: *Teachers' Ratings of the Effects of Poor Infrastructural Facilities on Pupils' Participation in Classroom Interaction*

Item	M	SD	N	Decision
Lack of desks and chairs causes tiredness among pupils who stand	2.17	0.52	240	Disagree
Poor infrastructural materials do not enhance learners' comprehension of concepts	2.27	0.54	240	Disagree
Poor ventilation causes discomfort and loss of attention	2.77	0.77	240	Agree
Lack of regular electricity limits the use of electronic media to enhance participation	1.75	0.43	240	Disagree
Cluster mean	**2.24**	**0.57**	**240**	**Disagree**

Table 3 shows a different pattern. Only poor ventilation was endorsed. Teachers did not endorse the statements that lack of desks and chairs causes tiredness, that poor infrastructural materials do not enhance comprehension, or that irregular electricity limits the use of electronic media. The cluster mean of 2.24 is below the criterion, so the overall link between infrastructure and pupils' participation was not endorsed.

Discussion of Findings

Class size and quality of learning

Teachers agreed that large classes reduce the quality of learning, mainly because pupils at the back cannot hear and close interaction is limited. This agrees with the process view, in which class size matters through the attention teachers can give and the way the class is managed (Blatchford & Russell, 2020). Pupils' engagement can also suffer in larger classes, which teachers may experience as noise and distraction. The result does not contradict the finding of Filges et al., (2018) that class size has only a small effect on test scores, because the present study examined the conditions of learning rather than academic scores. Nigerian evidence on pupil–teacher ratios and overcrowding further indicates that such conditions are common, supporting the view that this is a real and widespread challenge (Andries et al., 2022; Opanuga et al., 2019).

Infrastructure and quality of learning

Teachers agreed that inadequate facilities lower the quality of learning, with the strongest concern being that missing materials prevent demonstrations. This is consistent with evidence that school infrastructure is associated with learning outcomes (Barrett et al., 2019). Similarly, inadequate infrastructure in public primary schools has been identified as a major challenge to effective teaching and learning (Alaka & Ogunseye, 2026). The importance of up-to-date physical and instructional facilities in supporting classroom activities has also been emphasised (David & Emunemu, 2021). The lowest rating in this cluster was for the lack of classrooms reducing attention

span. One possible reason is that teachers see the absence of instructional materials as a more direct obstacle to teaching than the lack of classroom space.

Infrastructure and pupils' participation

This was the only cluster below the criterion mean. Teachers endorsed poor ventilation as a problem, which agrees with evidence that classroom air quality and temperature are related to pupils' performance (Wargocki et al., 2019, 2020). However, they did not endorse lack of desks, lack of comprehension-supporting materials or irregular electricity as major constraints to pupils' participation. The finding on electricity may reflect the limited use of electronic media in these schools, meaning that the absence of regular electricity is not experienced as a daily instructional constraint. This interpretation is consistent with evidence that technology-based educational interventions in Africa have produced mixed results, suggesting that the importance of particular instructional resources should not be assumed across all school contexts (Evans & Mendez Acosta, 2021).

Conclusion

Effective teaching and learning in public primary schools depend not only on teachers' professional competence but also on the conditions under which classroom instruction takes place. Where classes are excessively large and essential school facilities are inadequate, the ability of teachers to provide meaningful instructional support becomes constrained. Addressing these challenges is therefore not simply a matter of increasing the number of classrooms or providing additional teaching materials; it requires creating an environment in which teachers can give pupils adequate attention and provide learning experiences that encourage understanding and participation.

Recommendations

Based on the findings, the following recommendations are made:

1. Government and host communities should build more classrooms and recruit more teachers so that pupil–teacher ratios move towards the national benchmark.
2. Pending reductions in class size, teachers should be trained in strategies for large classes, including routines for monitoring pupils' class work and keeping the class orderly.
3. Schools should be supplied with instructional materials and equipment in sufficient quantity for demonstrations and pupil activity, and teachers should be encouraged to improvise where supplies fall short.
4. Classrooms should be designed and maintained to ensure adequate ventilation, and school facilities should be maintained regularly rather than repaired only after decay.

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