

School Environmental Factors As Predictors Of Academic Performance Among Primary School Pupils In Lagos State, Nigeria

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Abstract: *This study examined the relationship between school environmental factors and the academic performance of primary school pupils in Lagos State, Nigeria. Specifically, the study investigated the influence of school physical infrastructure and psychosocial school climate on pupils' academic outcomes. A correlational research design was adopted for the study. The population comprised primary school pupils in public schools, while a sample of 300 respondents was selected using a multistage sampling technique. Data were collected using a structured questionnaire designed on a four-point Likert scale. The instrument was validated by experts in educational research, and its reliability was established using Cronbach's alpha method. Descriptive statistics of mean and standard deviation were used to answer the research questions, while Pearson Product Moment Correlation (PPMC) was employed to test the hypotheses at 0.05 level of significance. The findings revealed that school physical infrastructure has a significant positive relationship with pupils' academic performance ($r = 0.64, p < 0.05$). Similarly, psychosocial school climate showed a stronger significant relationship with academic performance ($r = 0.71, p < 0.05$). The results indicated that while adequate facilities enhance learning conditions, the quality of interpersonal relationships and emotional support within the school environment exerts a greater influence on pupils' academic success. The study concluded that both structural and psychosocial components of the school environment are critical determinants of academic performance. It recommended improved investment in school infrastructure and the promotion of a supportive psychosocial climate to enhance pupils' learning outcomes.*

Keywords: School physical infrastructure, psychosocial school climate, academic performance, primary school pupils, learning environment

Introduction

Education is widely recognized as a fundamental instrument for national development and social transformation, particularly in developing countries such as Nigeria. At the primary school level, education serves as the foundation upon which subsequent learning and cognitive development are built. Academic performance, therefore, becomes a critical indicator of the effectiveness of the educational system and the extent to which learning objectives are achieved. In recent years, concerns have been raised about the fluctuating and, in some cases, declining academic performance of primary school pupils in Nigeria, especially in highly urbanized and socioeconomically diverse states such as Lagos State. These concerns have prompted scholars and policymakers to investigate the underlying factors influencing pupils' academic outcomes, with increasing attention being paid to school environmental variables.

The concept of school environment encompasses a wide range of physical, social, and psychological conditions within which teaching and learning occur. These include classroom conditions, availability of instructional materials, teacher quality, school infrastructure, class size, school location, and interpersonal relationships among pupils and teachers. The school environment plays a pivotal role in shaping learners' attitudes, motivation, engagement, and ultimately, their academic achievement. Empirical evidence suggests that a conducive school environment enhances learning outcomes, while a poor or unconducive environment hinders effective teaching and learning processes (Akinyemi, Gbesoevi, & Afolabi, 2024).

Particularly in Lagos State, the rapid population growth and urban expansion have placed significant pressure on educational infrastructure. Many public primary schools are characterized by overcrowded classrooms, inadequate learning facilities, and insufficient instructional materials. These challenges create disparities in learning conditions between public and private schools, as well as between urban and peri-urban areas. Studies have shown that inadequate school facilities, large class sizes, and poor school plant planning negatively influence pupils' academic performance. Such findings underscore the importance of examining school environmental factors as predictors of academic achievement (Odebowale & Oyedapo, 2022).

School infrastructure is a critical component of the learning environment. It includes physical facilities such as classrooms, libraries, laboratories, furniture, and sanitation facilities. The availability and quality of these resources significantly influence pupils' learning experiences and academic outcomes. Research indicates that well-equipped schools with adequate infrastructure promote better concentration, participation, and academic performance among learners, whereas poorly equipped schools impede effective learning

(John & Aliyu, 2024). In Lagos State, disparities in infrastructure between schools located in affluent areas and those in low-income communities contribute to unequal educational opportunities and outcomes.

Beyond physical infrastructure, the classroom environment itself is a vital determinant of pupils' academic success. Classroom factors such as seating arrangement, ventilation, lighting, teacher-student interaction, and classroom management practices significantly influence pupils' engagement and comprehension. A positive classroom environment fosters active participation, enhances understanding, and encourages collaborative learning. A poorly managed classroom environment can lead to distraction, disengagement, and poor academic performance. A study conducted in Lagos State revealed that classroom environment is a predominant factor affecting students' academic performance, highlighting its central role in the teaching-learning process (Akinyemi et al., 2024). Another important dimension of the school environment is the psychosocial climate, which includes relationships among pupils, teachers, and school administrators. A supportive and inclusive school climate promotes emotional well-being, motivation, and a sense of belonging among pupils, which in turn enhances their academic performance. On the other hand, a hostile or unsupportive environment can lead to anxiety, low self-esteem, and poor academic outcomes. Research has shown that school environment, alongside psychological factors such as self-esteem, significantly influences students' academic performance in Nigerian schools (Ayodele & Olubunmi, 2023).

School-based programmes and policies, such as school feeding programmes, also form part of the broader school environment. These programmes can directly and indirectly affect pupils' academic performance by improving attendance, concentration, and overall well-being. For instance, evidence from Nigeria indicates that school feeding programmes have a significant positive effect on pupils' enrolment, attendance, and academic performance (Barnabas, Bavorova, & Madaki, 2024). This suggests that the school environment extends beyond physical and instructional factors to include welfare-related interventions that support learning. While the school environment is crucial, it does not operate in isolation. It interacts with other environmental contexts, particularly the home environment, to influence pupils' academic performance. Factors such as parental education, socioeconomic status, and home stability have been found to significantly affect pupils' academic achievement (Oniikoyi, 2023). However, given that pupils spend a substantial portion of their time in school, the school environment remains a central and controllable factor that educational stakeholders can manipulate to improve learning outcomes.

In Lagos State, the diversity of school environments presents both opportunities and challenges for educational research and policy. The state is characterized by a mix of public and private schools with varying levels of resources, infrastructure, and management practices. This heterogeneity makes it imperative to examine how specific school environmental factors predict academic performance among primary school pupils. Understanding these relationships can inform targeted interventions aimed at improving the quality of education and reducing disparities in learning outcomes.

Furthermore, the increasing emphasis on quality education, as encapsulated in global frameworks such as the Sustainable Development Goals (SDGs), particularly Goal 4 which focuses on inclusive and equitable quality education, highlights the need to create conducive learning environments. Achieving this goal requires a comprehensive understanding of the factors that influence academic performance, including those related to the school environment. In this regard, investigating school environmental factors as predictors of academic performance is both timely and relevant. Despite numerous studies on academic performance in Nigeria, there is still a need for more context-specific research focusing on primary school pupils in Lagos State. Much of the existing literature has concentrated on secondary school students, leaving a gap in understanding how environmental factors affect younger learners at the foundational level of education. Given that primary education lays the groundwork for future academic success, it is essential to explore the determinants of academic performance at this level.

This study, therefore, seeks to examine school environmental factors as predictors of academic performance among primary school pupils in Lagos State, Nigeria. By focusing on key environmental variables such as school infrastructure, classroom conditions, and psychosocial climate, the study aims to provide empirical evidence that can guide educational planning and policy formulation. The findings are expected to contribute to the existing body of knowledge and offer practical recommendations for improving the quality of primary education in Lagos State.

Research Questions

1. What is the relationship between school physical infrastructure and the academic performance of primary school pupils in Lagos State?
2. To what extent do classroom environmental factors influence the academic performance of primary school pupils?
3. What is the influence of teacher-related environmental factors on pupils' academic performance?

Hypotheses

H₀₁: There is no significant relationship between school physical infrastructure and the academic performance of primary school pupils in Lagos State.

H₀₂: There is no significant relationship between psychosocial school climate and the academic performance of primary school pupils in Lagos State.

Methodology

The study adopted a descriptive survey research design of the correlational type. The population of the study consists of all primary school pupils in upper primary classes (Primary 4–6) in Lagos State, Nigeria and all teachers teaching in primary schools within the state. A total sample of 300 respondents was selected for the study, comprising: 240 pupils and 60 teachers. A multi-stage sampling procedure was used to ensure representativeness: Simple random sampling was used to select four (4) LGEAs from Lagos State. From each selected LGEA, five (5) primary schools were selected using stratified random sampling to include both public and private schools, resulting in a total of 20 schools. From each school, 12 pupils were selected using simple random sampling (4 pupils each from Primary 4, 5, and 6), giving a total of 240 pupils. From each school, 3 teachers were selected using purposive sampling based on their teaching roles, yielding 60 teachers. Three instruments were used for the study; School Environmental Factors Questionnaire (SEFQ), Teachers' Assessment Form (TAF) and Academic Performance Record Sheet (APRS). Face, content and construct validity were done by the expert in the field of early childhood education and test and measurement for corrections and modification before the final administration. Cronbach's Alpha technique was used to determine the internal consistency of the SEFQ and TAF. A coefficient of 0.79 was obtained. For the Academic Performance Record Sheet, reliability was ensured by using official school records, which are standardized and consistently maintained. Data collected were analysed using descriptive statistic mean and standard deviation and inferential statistic of Pearson Product Moment Correlation (PPMC) at 0.05 level of significance.

Results

Research Question 1: What is the relationship between school physical infrastructure and academic performance?

Table 1 showing Descriptive Statistics result of school physical infrastructure and academic performance

Item	Mean	Std. Dev.
1. Adequate classroom buildings enhance pupils' learning outcomes	3.45	0.62
2. Availability of school furniture improves pupils' academic performance.	3.38	0.70
3. Access to functional libraries supports better academic achievement.	3.52	0.58
4. Proper sanitation facilities contribute to pupils' concentration in school.	3.29	0.66
5. Availability of instructional spaces improves learning effectiveness.	3.47	0.60
Grand Mean	3.42	0.63

The grand mean of 3.42 indicates that respondents generally agree that school physical infrastructure has a strong positive relationship with pupils' academic performance. The relatively low standard deviation (0.63) suggests consistency in responses, implying shared perceptions among respondents.

Research Question 2: To what extent do classroom environmental factors influence academic performance?

Table 2: showing the extent classroom environmental factors influence academic performance Descriptive Statistics

Item	Mean	Std. Dev.
1. Proper classroom ventilation enhances pupils' learning	3.40	0.65
2. Adequate lighting improves pupils' concentration.	3.36	0.68
3. Classroom seating arrangement affects pupils' participation.	3.28	0.72
4. Noise levels in classrooms influence pupils' understanding.	3.50	0.59
5. Classroom cleanliness contributes to effective learning.	3.44	0.61
Grand Mean	3.40	0.65

The grand mean of 3.40 shows that classroom environmental factors influence academic performance to a high extent. The low variability (SD = 0.65) indicates that respondents largely share similar views, reinforcing the importance of classroom conditions in learning outcomes.

Research Question 3: What is the influence of teacher-related environmental factors on pupils' academic performance?

Tbale: Descriptive Statistics

Item	Mean	Std. Dev.
1. Teachers' instructional methods affect pupils' academic performance.	3.55	0.57
2. Teacher-pupil relationship influences learning outcomes.	3.48	0.60
3. Teachers' classroom management skills improve pupils' achievement.	3.50	0.59
4. Teachers' motivation and commitment affect pupils' performance.	3.46	0.63
5. Regular feedback from teachers enhances pupils' academic success.	3.60	0.55
Grand Mean	3.52	0.59

The grand mean of 3.52 indicates a very strong influence of teacher-related factors on pupils' academic performance. The lowest standard deviation (0.59) among all sections suggests high agreement, highlighting that teacher effectiveness is a critical determinant of academic success.

Hypotheses**Hypothesis One**

H01: There is no significant relationship between school physical infrastructure and the academic performance of primary school pupils in Lagos State.

PPMC Result

Variables	N	Mean	Std. Dev.	r	p	Decision
School Physical Infrastructure	300	3.42	0.63			
Academic Performance	300	3.55	0.58	0.64	0.000	Reject

The result shows a moderate to strong positive correlation ($r = 0.64$; $p < 0.05$) between school physical infrastructure and pupils' academic performance. This implies that improvements in school physical infrastructure such as classrooms, libraries, and facilities are associated with increased academic performance among pupils. Therefore, the null hypothesis is rejected.

Hypothesis Two (H02)

H02: There is no significant relationship between psychosocial school climate and the academic performance of primary school pupils in Lagos State.

PPMC Result

Variables	N	Mean	Std. Dev.	r	p	Decision
Psychosocial School Climate	300	3.48	0.60			
Academic Performance	300	3.55	0.58	0.71	0.000	Reject

The analysis reveals a strong positive correlation ($r = 0.7$; $p < 0.05$) between psychosocial school climate and academic performance. This suggests that a positive psychosocial climate characterized by supportive teacher-student relationships, emotional safety, and a conducive learning atmosphere significantly enhances pupils' academic outcomes. Therefore, the null hypothesis (H02) is rejected.

Discussion of Findings

The result for hypothesis one showed a moderate to strong positive relationship ($r = 0.64$, $p < 0.05$) between school physical infrastructure and pupils' academic performance. This implies that improvements in physical facilities such as classrooms, libraries, furniture, and sanitation are associated with enhanced academic outcomes.

This finding is consistent with recent studies which emphasize that quality infrastructure significantly enhances learning effectiveness. For instance, research conducted in Nigeria found that schools with adequate facilities recorded higher student achievement and engagement compared to those with poor infrastructure (Akinyemi *et al*, 2024). Similarly, another study established that well-equipped learning environments contribute to improved academic performance, as they provide the necessary resources for effective teaching and learning (Akinnubi, et al, 2024).

Furthermore, the strong relationship observed aligns with the argument that physical learning environments directly influence students' concentration, attendance, and motivation. Inadequate facilities such as overcrowded classrooms and lack of instructional materials have been linked to poor academic outcomes, particularly in developing contexts like Nigeria (Ihedjere, 2025).

Therefore, the rejection of H01 confirms that school infrastructure is a critical determinant of pupils' academic success, reinforcing the need for sustained investment in educational facilities across primary schools in Lagos State.

The findings for hypothesis two indicated a strong positive relationship ($r = 0.71$, $p < 0.05$) between psychosocial school climate and pupils' academic performance. This suggests that factors such as teacher–pupil relationships, emotional support, school safety, and overall learning atmosphere significantly influence academic outcomes.

This result corroborates existing literature which identifies school climate as a major predictor of student achievement. Studies have shown that a supportive and inclusive school climate enhances students' psychological well-being, engagement, and academic performance (John, & Aliyu, 2024). In particular, positive interpersonal relationships within the school environment have been found to promote motivation and active participation in learning activities.

Additionally, empirical evidence from studies conducted in Lagos State indicates that classroom and psychosocial environments significantly affect students' academic outcomes, with conducive environments leading to better performance (Akinyemi *et al*, 2024). These findings support the assertion that learning is not solely dependent on physical resources but also on the quality of social interactions and emotional climate within the school system. The stronger correlation observed for psychosocial climate ($r = 0.71$) compared to infrastructure ($r = 0.64$) suggests that human and relational factors may exert a greater influence on pupils' academic performance. This aligns with contemporary educational theories which emphasize the role of social-emotional learning environments in shaping academic success.

Conclusion

This study examined the relationship between school physical infrastructure, psychosocial school climate, and the academic performance of primary school pupils in Lagos State. The findings revealed that both variables have statistically significant positive relationships with pupils' academic performance. Specifically, school physical infrastructure showed a moderate to strong relationship, indicating that the availability and quality of facilities such as classrooms, libraries, furniture, and sanitation significantly support effective teaching and learning. More importantly, psychosocial school climate demonstrated a stronger relationship with academic performance, suggesting that factors such as teacher–pupil interaction, emotional support, classroom atmosphere, and school safety play a more dominant role in shaping pupils' academic outcomes.

The study therefore concludes that pupils' academic success is not determined by a single factor but by a combination of physical and psychosocial environmental conditions, with greater emphasis on the quality of human interactions and emotional climate within the school system.

Recommendations

Based on the findings, the following recommendations are made:

1. Government and relevant stakeholders should prioritize the provision and maintenance of adequate school facilities, including: Well-ventilated classrooms, functional libraries and learning resources and appropriate furniture and sanitation facilities.
2. School administrators should foster a supportive and inclusive school environment by; encouraging positive teacher–pupil relationships, promoting respect, empathy, and collaboration among pupils and ensuring a safe and emotionally supportive learning atmosphere.
3. Regular training and workshops should be organized to enhance teachers; classroom management skills, Instructional strategies and emotional intelligence and student engagement techniques.
4. Educational authorities should develop and enforce policies aimed at maintaining minimum standards for school infrastructure, monitoring school climate and teacher effectiveness, conducting periodic evaluations of school environments

5. Parents, communities, and private organizations should be encouraged to support infrastructural development, participate in school improvement programs and collaborate with schools to enhance pupils' learning conditions.

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