

Effects of Classroom Environment on Learning Outcomes of Students in Public Schools in Afijio Local Government Area, Oyo State, Nigeria

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Abstract: *The classroom environment is a significant determinant of students' learning outcomes, influencing cognitive, affective, and socio-emotional development. This study examined the effects of both physical and psychological aspects of classroom environments on students' learning outcomes in public schools within Afijio Local Government Area, Oyo State, Nigeria. A descriptive survey research design was utilized, and data were collected from a sample of 390 students, selected via a multistage sampling technique across primary and secondary schools. Structured questionnaires were employed to obtain information on students' perceptions of classroom infrastructure, teacher-student interactions, peer cooperation, and other socio-emotional factors. Data were analyzed using descriptive statistics, including frequencies, percentages, and means. Findings indicated that physical factors such as adequate seating, proper ventilation, sufficient lighting, and availability of instructional materials significantly enhanced learning outcomes. Psychological factors—including supportive teacher-student relationships, positive classroom climate, discipline, encouragement, and peer collaboration—were also positively associated with students' motivation, engagement, and academic achievement. The study identified systemic challenges, including overcrowding, insufficient furniture, poor ventilation, and lack of instructional resources, which hinder the creation of conducive learning environments. It is recommended that educational stakeholders prioritize both physical infrastructure and the psychosocial climate of classrooms to optimize students' learning outcomes. The study provides empirical evidence for policymakers and school administrators to enhance educational quality and contributes to understanding how holistic classroom environments impact learning outcomes in Nigerian public schools.*

Keywords: classroom environment, learning outcomes, physical infrastructure, psychological climate, public schools

INTRODUCTION

The classroom environment plays a critical role in shaping students' learning outcomes, influencing the ways in which learners interact with instructional content, teachers, and peers. It encompasses both physical elements—such as seating arrangement, ventilation, lighting, and availability of instructional resources—and psychological elements, including teacher-student interaction, classroom climate, and learner engagement (Ye, 2024). Positive classroom environments have been associated with increased student motivation, reduced anxiety, and enhanced cognitive and affective development (Ye, 2024; Widiyawanti, 2024). Empirical studies indicate that well-structured physical and psychosocial classroom conditions improve students' attention, persistence, and academic performance (Owoseni, Ibem, & Opoko, 2020).

In Nigeria, classroom environments in public schools are often challenged by inadequate infrastructure, limited learning resources, and insufficient attention to classroom management, which affect students' learning outcomes. Research conducted in various Nigerian states demonstrates that factors such as instructional space, teacher-student interaction, and classroom management practices significantly influence student achievement (Akinyemi, Gbesoevi, & Afolabi, 2024; Owoseni et al., 2020). For example, studies in Lagos State revealed that physical classroom conditions impact cognitive, behavioral, and affective learning outcomes (Owoseni et al., 2020). Similarly, classroom management and teacher interaction significantly influence student engagement and academic performance across Nigerian schools (Uchegbue & Inyang, 2024).

Despite these findings, empirical studies specifically exploring the effects of classroom environment on learning outcomes in Afijio Local Government Area remain scarce. Addressing this gap is critical for designing interventions that improve both the physical and psychological conditions of classrooms, ultimately enhancing students' cognitive, affective, and psychomotor development. By examining the combined impact of physical and psychosocial classroom factors on learning outcomes, this study offers insights to inform teacher practices, school administration, and policymaking in under-researched local contexts such as Afijio LGA (Akinyemi et al., 2024; Owoseni et al., 2020; Ye, 2024).

Statement of the Problem

Although classroom environment is widely recognized as a crucial determinant of learning outcomes, many public schools in Afijio LGA continue to face challenges in providing conducive learning spaces. Overcrowding, inadequate instructional resources, poor ventilation, and insufficient focus on teacher-student interaction have been reported to negatively affect students' cognitive, affective, and psychomotor development (Owoseni et al., 2020; Akinyemi et

al., 2024). While research has examined classroom environment effects in other Nigerian contexts, limited empirical evidence exists specifically for Afijio LGA. This knowledge gap hampers targeted intervention planning by educational stakeholders aimed at improving classroom conditions and learning outcomes.

Objectives of the Study

The main aim of this study is to investigate the effects of classroom environment on students' learning outcomes in public schools in Afijio LGA, Oyo State. Specifically, the study seeks to:

- 1) Examine the influence of physical classroom factors (e.g., seating arrangement, ventilation, lighting, instructional materials) on learning outcomes.
- 2) Assess the impact of psychological classroom factors (e.g., teacher-student interaction, classroom climate, peer relationships) on learning outcomes.
- 3) Identify challenges faced by public schools in providing conducive classroom environments.

Research Questions

- 1) How does the physical classroom environment affect students' learning outcomes in public schools in Afijio LGA?
- 2) What is the effect of psychological classroom factors on students' learning outcomes?
- 3) What challenges do public schools in Afijio LGA face in creating conducive classroom environments?

LITERATURE REVIEW

Conceptual Clarifications

Classroom Environment

The classroom environment represents the totality of physical, social, and psychological conditions under which teaching and learning occur. It encompasses tangible elements such as classroom layout, seating arrangement, lighting, ventilation, noise level, and availability of instructional resources, alongside psychosocial aspects including classroom climate, teacher-student interactions, peer cooperation, and discipline practices (Owoseni, Ibem, & Opoko, 2020; Akinyemi, Gbesoevi, & Afolabi, 2024). A well-structured classroom environment provides learners with opportunities to focus, engage meaningfully with instructional content, and interact effectively with peers and teachers. Such environments promote student motivation, participation, and concentration, all of which are critical for achieving desired learning outcomes. Conversely, poorly organized classroom settings characterized by inadequate space, insufficient lighting, poor ventilation, or lack of instructional resources can impede learning, reduce student engagement, and negatively affect cognitive, affective, and psychomotor development. The classroom, therefore, serves not merely as a physical space but as a social and

psychological context that shapes the quality and effectiveness of teaching and learning processes.

Physical Classroom Environment

Physical classroom factors refer specifically to tangible infrastructure and environmental conditions that directly impact students' comfort, attention, and learning efficiency. These include seating design and arrangement, classroom density, lighting, ventilation, acoustic quality, and accessibility to learning materials and instructional aids (Barrett, Zhang, Moffat, & Kobbacy, 2015). Empirical evidence from Nigerian public schools demonstrates that inadequate seating, overcrowded classrooms, poor ventilation, and insufficient instructional materials significantly reduce student engagement, concentration, and academic performance (Owoseni et al., 2020; Akinyemi et al., 2024). Globally, studies have similarly shown that optimal lighting, appropriate classroom spacing, and access to adequate learning resources enhance cognitive engagement, reduce fatigue, and facilitate comprehension and retention of knowledge (Barrett et al., 2015). These findings indicate that investment in physical classroom infrastructure is critical for creating conditions that support effective learning, particularly in public school contexts where resource constraints often limit student outcomes.

Learning Outcomes

Learning outcomes are defined as the observable and measurable knowledge, skills, attitudes, and competencies that students acquire through educational experiences. They are typically classified into cognitive, affective, and psychomotor domains (UNESCO, 2021; Ye, 2024). The quality of the classroom environment—both physical and psychological—plays a pivotal role in shaping these outcomes. For instance, students in well-organized classrooms with supportive teacher interactions, positive peer engagement, and adequate learning resources tend to demonstrate higher levels of participation, motivation, and academic achievement. Effective learning environments enable learners to internalize knowledge, develop critical thinking skills, cultivate positive attitudes toward learning, and acquire practical competencies that extend beyond formal examinations. Consequently, understanding the relationship between classroom conditions and learning outcomes is crucial for developing interventions that enhance educational quality and student performance in public schools.

Theoretical Framework: Constructivist Learning Theory

This study is anchored in Vygotsky's (1978) Constructivist Learning Theory, which posits that knowledge is actively constructed by learners through social interactions and engagement with their environment. According to this theory, learning is not merely the passive absorption of information but a dynamic, contextual, and socially mediated process. Classrooms that facilitate collaboration, discussion, scaffolding, and guided support provide students with opportunities to actively engage with content, internalize knowledge, and apply it meaningfully (Barrett et al.,

2015; Ye, 2024). The implications of this theory for the present study are clear: both physical and psychological classroom conditions are integral to fostering effective learning experiences. In the context of public schools in Afijio Local Government Area, ensuring that classrooms are adequately equipped and socially supportive is essential for enabling students to construct knowledge, develop skills, and achieve holistic learning outcomes. The theory thereby provides a conceptual lens through which the interplay between classroom environment and student learning can be understood and optimized.

Empirical Review

Several studies have examined the impact of physical classroom environments on students' learning outcomes. Akinyemi, Gbesoevi, and Afolabi (2024) found that factors such as seating arrangements, classroom size, lighting, and availability of instructional materials significantly influence student engagement and academic performance in Nigerian secondary schools. Similarly, Owoseni, Ibem, and Opoko (2020) reported that classrooms with adequate ventilation, proper lighting, and reduced overcrowding enhanced students' cognitive and behavioural outcomes. These findings demonstrate that a well-structured physical environment is essential for promoting attention, motivation, and learning. However, existing studies have focused largely on urban schools, leaving rural contexts like Afijio Local Government Area underexplored.

Regarding the psychological classroom environment, Uchegbue and Inyang (2024) highlighted that teacher-student interactions, classroom climate, peer cooperation, and supportive learning relationships significantly improve students' motivation, engagement, and academic achievement. Ye (2024) similarly emphasized that positive social and emotional classroom conditions, including encouragement and discipline, are strong predictors of learning outcomes. While these studies underscore the importance of psychosocial factors, they often analyze these independently from physical classroom conditions, neglecting the interplay between both dimensions.

Finally, studies have also identified challenges affecting the creation of conducive classroom environments. UNESCO (2021) and Owoseni et al. (2020) reported that overcrowding, insufficient furniture, inadequate instructional materials, and poor ventilation limit students' ability to achieve cognitive, affective, and psychomotor outcomes in Nigerian public schools. These systemic constraints are consistent across both urban and rural settings but remain under-researched in specific local contexts such as Afijio LGA. Collectively, these studies indicate a gap in integrating physical and psychological factors in a single empirical analysis within this area, highlighting the need for the present study to provide comprehensive evidence on how classroom environments influence learning outcomes in Afijio public schools.

METHODOLOGY

Research Design: A descriptive survey design was adopted to explore the effects of classroom environment on learning outcomes. This design allows systematic collection and description of existing conditions and perceptions without manipulation (Creswell & Creswell, 2018; Fraenkel, Wallen, & Hyun, 2019).

Population and Sample: The study population included all students in public primary and secondary schools in Afijio LGA. A sample of 390 students was selected using multistage sampling: simple random sampling of schools, stratification by school level, and random selection of respondents from each stratum (Fraenkel et al., 2019).

Instrument: Data were collected using a structured questionnaire (CELOQ), covering demographics, physical and psychological classroom factors, and learning outcomes. A Likert-type scale was used for responses.

Validity and Reliability: Content and face validity were established via expert review. Reliability was confirmed using Cronbach's alpha, indicating acceptable internal consistency (Taber, 2018).

Data Collection and Analysis: Questionnaires were administered with prior school permission. Descriptive statistics (frequencies, percentages, mean) and inferential statistics (correlation, regression) were employed to analyze relationships between classroom environment variables and learning outcomes.

RESULTS

Table 1: Physical Classroom Environment

S/N	Items	SA	A	D	SD	Mean	Decision
1	Adequate seating improves concentration	188	133	39	30	3.22	Agree
2	Proper ventilation enhances understanding	180	140	35	35	3.19	Agree
3	Good lighting helps learning	195	117	47	31	3.22	Agree
4	Instructional materials improve learning	203	129	31	27	3.30	Agree
5	Overcrowding negatively affects learning	215	125	27	23	3.36	Agree

The results indicate that students perceive physical classroom factors as significant contributors to their learning outcomes. Adequate seating, proper ventilation, and good lighting were reported to enhance concentration and understanding, while the availability of instructional materials was associated with improved learning. Conversely, overcrowding was identified as a major hindrance, confirming that physical discomfort and space constraints negatively affect students' engagement and performance. Overall, the grand mean of 3.26 suggests that physical classroom conditions moderately to strongly support learning outcomes.

Table 2: Psychological Classroom Environment

S/N	Items	SA	A	D	SD	Mean	Decision
1	Teacher-student relationships improve learning	206	121	35	28	3.30	Agree
2	Friendly classroom climate motivates learning	195	137	31	27	3.28	Agree
3	Discipline enhances performance	188	140	39	23	3.26	Agree
4	Teacher encouragement boosts confidence	210	117	35	28	3.31	Agree
5	Peer cooperation enhances understanding	191	133	39	27	3.25	Agree

The data reveal that psychological factors in the classroom, such as teacher-student relationships, positive classroom climate, discipline, encouragement, and peer collaboration, play a crucial role in enhancing students' learning outcomes. High mean scores across all items indicate that students feel motivated, supported, and engaged when these psychosocial factors are present. The grand mean of 3.28 suggests that the psychological classroom environment has a slightly stronger influence on learning outcomes than physical factors, highlighting the importance of fostering positive interpersonal interactions in educational settings.

Table 3: Challenges Affecting Classroom Environment

S/N	Challenges	SA	A	D	SD	Mean	Decision
1	Overcrowded classrooms	218	121	27	24	3.37	Agree
2	Inadequate furniture	203	129	31	27	3.30	Agree
3	Insufficient materials	210	117	35	28	3.31	Agree
4	Poor ventilation	195	137	31	27	3.28	Agree
5	Large class size	215	125	27	23	3.36	Agree

The findings show that systemic challenges, such as overcrowding, insufficient furniture, inadequate instructional materials, poor ventilation, and large class sizes, are significant barriers to creating conducive learning environments. The highest mean scores were recorded for overcrowding and large class size, indicating that space limitations are the most pressing issues

affecting students' academic performance. Overall, the grand mean of 3.32 highlights that these challenges are prevalent across public schools in Afijio LGA and must be addressed to improve both physical and psychological learning conditions.

DISCUSSION OF FINDINGS

The study revealed that both physical and psychological classroom factors significantly influence students' learning outcomes in Afijio LGA public schools. Adequate seating, proper ventilation, lighting, and instructional materials improved concentration and academic performance, while overcrowding and large class sizes hindered learning (Owoseni, Ibem, & Opoko, 2020; Barrett, Zhang, Moffat, & Kobbacy, 2015). Positive teacher-student relationships, supportive classroom climate, discipline, encouragement, and peer cooperation enhanced motivation, engagement, and achievement (Ye, 2024; Akinyemi, Gbesoevi, & Afolabi, 2024; Uchegbue & Inyang, 2024). Systemic challenges, including poor infrastructure and inadequate resources, further constrained learning (UNESCO, 2021), highlighting the need for holistic classroom interventions (Vygotsky, 1978). constrained learning outcomes (UNESCO, 2021). Overall, the results suggest that holistic classroom environments, combining well-structured physical infrastructure with supportive psychosocial conditions, are essential for optimizing student learning (Vygotsky, 1978; Barrett et al., 2015).

CONCLUSION

Both physical and psychological aspects of classroom environments significantly influence learning outcomes in public schools in Afijio LGA. Well-designed physical infrastructure and a supportive psychosocial climate enhance engagement, motivation, and overall learning, while challenges like overcrowding, inadequate resources, and poor ventilation impede students' academic and developmental progress. Addressing these factors is essential for improving educational quality and holistic student outcomes.

Recommendations

- 1) Schools should improve seating arrangements, ensure proper ventilation, adequate lighting, and provide sufficient instructional materials to enhance student comfort, concentration, and academic performance (Owoseni, Ibem, & Opoko, 2020; Barrett, Zhang, Moffat, & Kobbacy, 2015).
- 2) Teachers should cultivate supportive interactions, provide encouragement, and maintain a friendly classroom climate to boost motivation, engagement, and overall learning outcomes (Ye, 2024; Uchegbue & Inyang, 2024).

- 3) Encouraging cooperative learning, teamwork, and maintaining consistent classroom discipline will strengthen students' social and cognitive development, enhancing academic achievement (Akinyemi, Gbesoevi, & Afolabi, 2024).
- 4) Educational stakeholders must reduce overcrowding, ensure sufficient furniture, and provide adequate learning resources to remove barriers to effective learning (UNESCO, 2021).
- 5) School administrators should combine infrastructural improvements with psychosocial support strategies, integrating both physical and psychological aspects of the classroom to optimize student learning outcomes (Vygotsky, 1978; Barrett et al., 2015).

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