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STUDENTS' PERCEPTIONS OF THE INFLUENCE OF CLASSROOM ENVIRONMENTAL QUALITY ON LEARNING MOTIVATION, ACADEMIC PERFORMANCE AND WELL-BEING IN SECONDARY SCHOOLS IN ONDO, NIGERIA

KAYODE, G. F.

Department of Integrated Science, Adeyemi Federal University of Education, Ondo
*Corresponding email: gracekayla03@gmail.com

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Abstract

This study assessed students' perceptions of classroom environmental quality and their learning motivation, academic performance, and well-being in secondary schools in Ondo West LGA, Ondo State. A quality classroom environment was considered in terms of classroom hygiene and spacing, ventilation, lighting, noise levels, safety, and classroom setting. A descriptive survey research design was adopted, and a structured questionnaire was administered to 250 secondary school students selected through simple random sampling from five public secondary schools. The responses were analysed using descriptive and inferential statistics. The findings showed that most students perceived a hygienic and well-spaced classroom environment (90.8%), good ventilation (87.6%), proper lighting (84.8%), and good classroom setting (76.0%) as attributes of a quality learning environment. Lower levels of agreement were recorded for reduced noise levels (65.6%) and safety from physical harassment (64.0%). The findings on learning motivation, academic performance and health were based on students' self-reported perceptions rather than objective measurements or school records. The t-test results at the 95% confidence level showed that students' perceptions of the influence of classroom environmental quality on motivation to learn, academic performance and health were statistically significant ($p < .05$). The study therefore reports students' perceptions of classroom environmental conditions and their perceived relationship with learning experiences, academic performance and well-being.

Keywords: Classroom Environmental Quality, Students' Perceptions, Learning Motivation, Academic Performance, Well-being

1. Introduction

Classroom environmental quality, climate, and management are related but empirically distinct in the broader literature on classroom environment. Environmental quality of the classroom refers to the physical and structural conditions of learning spaces. Indoor air, temperature, acoustic, and lighting conditions significantly impact students' short-term academic performance and the overall quality of learning (Brink *et al.*, 2021). On the other hand, classroom climate is the social-emotional atmosphere of the classroom that allows students to feel safe asking questions. It has been conceptually differentiated into academic, management, and emotional dimensions (Evans *et al.*, 2009). Classroom management involves good teacher-student relationships and teacher-led practices that mould students' behaviour.

Most classrooms in public secondary schools in Nigeria are bedevilled by the challenges of poorly spaced and unhygienic classrooms, insufficient infrastructure, overcrowding, poor illumination and ventilation, excessive heat, and noise pollution, which create a poor learning environment (Odeajo & Odefadehan, 2025; Toyinbo, 2025). These could be traced to factors such as insufficient funding or utilisation of available funds, poor policy implementation, and lack of adequate environmental awareness, which have been noted as additional challenges. A poor learning environment can lower students' learning motivation, concentration, and academic performance (Gilavand, 2016; Bustamante-Mora *et al.,* 2025). Poor indoor air quality or environmental conditions around the school, due to poor ventilation, air pollution, and overcrowding, can exacerbate health risks, causing respiratory infections and reduced function of the lungs (Fsadni *et al.,* 2018; Paciência *et al.,* 2019). Likewise, very high levels of noise pollution can lead to poor mental health, reduced comprehension, discomfort, headaches and irritation, among others.

The conduciveness, health, and safety of a classroom environment have a remarkable impact on the efficiency of teaching and learning activities. According to Abbott et al. (2014), the school environment is a fundamental component of teaching and learning, and without it, no functional or successful teaching-learning process can occur. In the same vein, Ihekoronye (2020) noted that promoting a conducive environment for learning is very important to teaching and learning activities, involving more than just the facilities, technology, teachers, and the students themselves. Chukwuemeka (2013) also noted that a conducive and healthy school environment influences the attitudes learners develop towards the school.

A quality and healthy classroom environment entails a hygienic and spacious classroom, good location and safe buildings, protection from excessive noise, natural light, clean indoor air and water, and healthy school-related activities (Mustafa & Officer, 2022). Bangay and Blum (2010) also stated that students who attend schools with a comfortable and positive climate are able to concentrate on their studies and attain their academic potentials and goals, thus supporting the aforementioned claims. A quality, encouraging school environment is essential to students' academic success and to the development of positive attitudes and behaviours for learning. Going further, a well-structured classroom environment is of utmost significance as it remarkably influences students' emotional health, motivation towards learning and wilful engagement in class activities, which promote optimum learning outcomes (Jacob & Blessing, 2025; Patall *et al.,* 2024). In the same vein, students who are safe and comfortable in the classroom have a good emotional connection to the school, which encourages their school attendance and learning and is likely to positively influence their academic performance (Côté-Lussier & Fitzpatrick, 2016; Shean & Mander, 2020).

In addition, Anderson *et al.* (2004) and Moreno-Rosa *et al.* (2024) asserted that there is a significant correlation between the classroom's climatic conditions, students' self-concept, motivation to attend classes, comportment during lessons, and academic achievement. Classroom setting is also an important component of the classroom's physical environment, which includes classroom management, the physical state of the classroom, students' seating arrangement, and could either improve or impede a student's ability to learn, comfort in the class and significantly impact their academic performance (Taylor & Enggass, 2009, as cited in Kinahan, 2017; Ali *et al.,* 2024). So, the conduciveness of the students' learning environment is likely to determine the extent to which students excel in their academics.

1.1. Statement of the Problem

The physical environment of the classroom covers the classroom size, lighting, seat arrangement, and noise levels and can either increase or decrease a student's interest in learning and feeling comfortable as a member of the class. Likewise, students' wellness and academic outcomes may be threatened in a poor learning environment. Although previous studies have examined aspects of the physical learning environment and students' learning experiences, there is limited evidence from the study area on how students perceive classroom environmental conditions in relation to their learning motivation, academic performance and health. In the light of this, this study therefore seeks to assess students' perceptions of classroom environmental quality and their perceived influence on learning motivation, academic performance and health in secondary schools in Ondo West LGA of Ondo State.

1.2. Aim and Objectives of the Study

The aim of this study is to assess students' perceptions of classroom environmental quality and their perceived influence on learning motivation, academic performance and health in public secondary schools in Ondo West LGA, Ondo State.

i. examine the attributes of a quality learning environment as perceived by students;

ii. assess students' perceptions of the influence of classroom environmental quality on their motivation to learn in public secondary schools;

iii. assess students' perceptions of the effect of the classroom environment on students' academic performance in public secondary schools; and

iv. evaluate perceived implications of a poor learning environment on students' well-being in public secondary schools

1.3. Research Questions

i. What are the attributes that characterise a quality learning environment as perceived by students?

ii. What is students' perception of the influence of classroom environmental quality on their motivation to learn in public secondary schools?

iii. What is the students' perception of the extent to which classroom environment affects students' academic performance in public secondary schools?

iv. What is the students' perception of the implications of a poor learning environment on their well-being in public secondary schools?

1.4. Research Hypotheses

Based on the research questions for this study, the following hypotheses were raised.

1. Null hypothesis one (H01): Students' perception of the influence of classroom environmental quality has no significant influence on their motivation to learn in public secondary schools.

Alternative hypothesis one (HA1): Students' perception of the influence of classroom environmental quality has a significant influence on their motivation to learn in public secondary schools.

2. Null hypothesis two (H02): Students' perception of the classroom environment has no significant implications on their academic performance in public secondary schools.

Alternative hypothesis two (HA2): Students' perception of the classroom environment has significant implications on their academic performance in public secondary schools.

3. Null hypothesis three (H03): Students' perception of poor classroom environment has no significant implications on their well-being in public secondary schools.

Alternative hypothesis three (HA3): Students' perception of poor classroom environment has ~~no~~ significant implications on their well-being in public secondary schools.

2. Methodology

2.1. Research design

This study employed a descriptive survey research design to assess students' perceptions of classroom environmental quality, learning motivation, academic performance and health in Ondo West LGA, Ondo State, Nigeria. The design was used as it helped in obtaining data and carrying out an investigation across some secondary schools in a regular setting and describing the situation in schools based on the obtained and analysed data.

2.1. Research Instrument

A structured closed-ended questionnaire titled 'Assessment of Classroom Environmental Quality and its Implications for Students' Learning Motivation, Academic Performance and Health in Secondary School' was used to gather students' responses on the areas of research interest in the study. The questionnaire measured students' perceptions of classroom environmental conditions and their reported experiences concerning learning motivation, academic performance and health; it did not provide objective measurements of environmental conditions, academic performance or health. It was structured on a four-point Likert scale: Strongly Agree (SA), Agree (A), Strongly Disagree (SD), and Disagree (D) from which students chose based on their opinions on the items of the research questions raised for the study. In order to ensure the face and content validity of the instrument, it was subjected to review by experts in educational management to establish that the items were clear and relevant to the study.

2.3. Population, Sample Size and Sampling Technique

Five randomly selected public secondary schools in Ondo West LGA, Ondo State, were used for the study, from which 250 secondary school students were selected through simple random sampling. The schools were selected through a simple random sampling procedure, such that each public secondary school had an equal chance of being selected and similarly for the students in the selected schools. The 250 students who participated in the study constituted the sample for the study. Necessary consent was sought and approval obtained from the school authority before proceeding with the instrument administration to the students. Likewise, the students assented to the procedure, and the confidentiality of the instrument was guaranteed.

2.4. Data Analysis

The data gathered for the study were analysed using descriptive statistics, including percentages, means, and standard deviations to summarise students' responses. The inferential t-test results reported in the manuscript were for the purpose of hypothesis testing. The findings are therefore presented as results based on students' reported perceptions.

3. Results

Based on the data analysis, the following results were obtained:

Table 1: Result (%) on Attributes of a Quality Learning Environment

Items	SA (%)	A (%)	D (%)	SD (%)
Hygienic and well-spaced classroom environment	70.0	20.8	6.8	2.4
Good ventilation	64.0	23.6	10.0	2.4
Proper lighting	64.8	20.0	12.0	3.2
Reduced noise levels	44.0	21.6	24.0	10.4
Safety from physical harassment	33.6	30.4	20.0	16.0
Proper classroom setting	58.0	18.0	16.8	7.2

Table 1 shows students' responses to the various environmental conditions assessed as attributes of a good learning environment. From the results, there were higher positive responses in all the items. This indicates that a large number of the respondents agreed with the conditions presented as attributes of a conducive learning environment. In descending order, the percentage responses obtained from those who agreed to the various attributes were hygienic and well-spaced classroom environment (90.8%), good ventilation (87.6%), proper lighting (84.8%), good classroom setting (76.0%), reduced noise levels (65.6%), and safety from physical harassment (64.0%). These responses show that the students generally perceived the conditions assessed as important attributes of a quality learning environment.

Null hypothesis one (H01): Students' perception of the influence of classroom environmental quality has no significant influence on their motivation to learn in public secondary schools.

Alternative hypothesis one (HA1): Students' perception of the influence of classroom environmental quality has significant influence on their motivation to learn in public secondary schools.

Table 2: T-test result for hypothesis 1 on students' perception of the influence of classroom environmental quality on students' motivation to learn

Group	N	Mean	Std. Dev.	df	T	Sig. (2-tailed)	Remark
Agree	5	211.40	4.28	8	41.322	< .001	Sig. (Reject $H_0$1)

Disagree	5	38.6	4.28

Table 2 reveals the t-test result for hypothesis one. The mean value of the agree responses obtained for the five question items raised to determine the students' perception of the influence of classroom environmental quality on students' motivation to learn was 211.40 ± 4.28, as against 38.6 ± 4.28 obtained for the disagree response group. A high t-value (41.322) was obtained from the result which is indicative that between the two respondent groups, there exists a strong difference statistically. Likewise, the mean result obtained showed a higher value for the responses received from respondents who agreed to the items raised in the research question than those who disagreed, denoting a higher student perception that the learning environment influences students' motivation to learn. Also, given the p-value of < .001 obtained from the t-test, there is a statistically significant difference ($p < .05$) between the two response groups (agree and disagree); therefore, the null hypothesis was rejected at the .05 significance level. This indicates that students' perception of the influence of classroom environmental quality has a significant influence on their motivation to learn in public secondary schools.

Null hypothesis two (H02): Students' perception of the classroom environment has no significant implications on their academic performance in public secondary schools.

Alternative hypothesis two (HA2): Students' perception of the classroom environment has significant implications on their academic performance in public secondary schools.

Table 3: t-test result for hypothesis 2 on students' perception of the effect of classroom environment on students' academic performance

Group	N	Mean	Std. Dev.	df	t	Sig. (2-tailed)	Remark
Agree	5	210.40	4.93	8	35.218	< .001	Sig. (Reject H02)
Disagree	5	39.60	4.93				

From Table 3, the result revealed the mean values were 210.40 ± 4.93 and 39.60 ± 4.93 for agree and disagree response groups respectively. This suggests that higher response rates were received from respondents who agreed to the items on whether the quality of the learning environment affects students' academic performance. In addition, the result of the hypothesis test showed that there was a significant difference ($p < .05$) between the groups of responses, as connoted by the p-value being < .001. Therefore, the null hypothesis was rejected and the alternative hypothesis was accepted, so students' perception of the classroom environment has significant implications on their academic performance in public secondary schools.

Null hypothesis three (H03): Students' perception of poor classroom environment has no significant implications on their well-being in public secondary schools.

Alternative hypothesis three (HA3): Students' perception of poor classroom environment has significant implications on their well-being in public secondary schools.

Table 4: Result for hypothesis 3 on students' perception of implications of poor classroom environment on students' well-being.

Group	N	Mean	Std. Dev.	df	t	Sig. (2-tailed)	Remark
Agree	5	214.80	6.54	8	28.697	< .001	Sig. (Reject H03)
Disagree	5	35.20	6.54				

Table 4 reveals the t-test result which showed that there is a significant difference at $p < .05$ between the responses obtained from the respondents given that the p-value was < .001. This therefore calls for the rejection of the null hypothesis and acceptance of the alternative hypothesis that students' perception of the implications of a poor classroom environment on their well-being in public secondary schools is significant.

4. Discussion of findings

The results obtained from the analysis of data revealed the characteristics of a quality learning environment in secondary schools in the study area, as well as the perceptions of students on the implications of a poor classroom environment on the students' motivation to learn, academic performance and health. The study revealed attributes of a quality learning environment and these include a spacious, hygienic, well-ventilated, illuminated, and well-arranged classroom, with minimal noise levels and should be free from bullying or any form of physical harassment, either from co-learners or teachers. This is in line with the study by Hamre and Pianta (2010) and Shaheen *et al.* (2020) who posited that promoting quality education requires a supportive classroom environment which encompasses a broad range of educational concepts, including the physical setting, psychological environment and physical climate. Likewise, Adderley *et al.* (2003) speculated that the classroom is "home away from home", hence, it should be made comfortable, attractive and functional. The study by Ahmad *et al.* (2015) also stated that the provision of a conducive classroom environment for learners must adhere to special conditions that make it appropriate, comfortable, well-defined, and safe to maximise their learning.

The findings further revealed a high percentage of responses from those who agreed to classroom setting being one of the attributes of a quality classroom environment. Good classroom setting and management are believed to foster better teacher-student interaction and learning engagement in the class in public secondary schools. In line with this, Havik and Westergård (2020) indicated that when students perceive a high level of instructional support from teachers, they appear to be more serious with their studies in the class. Also, Furrer *et al.* (2014) noted that students develop better engagement and achievement in their academic work when properly monitored by their teachers and with good teacher-student relationships. So, the physical conditions, spatial planning, quality of furniture, and safety features are important physical attributes to consider for a conducive learning environment.

The findings showed that students perceived classroom environmental conditions as relevant to their motivation to learn and academic performance in public secondary schools. This finding is similar to the findings by Asiyai (2014), who revealed that the condition of the physical learning environment had a great impact on students' learning and motivation to attend school regularly and actively partake in academic activities, and can also influence their personal behaviour. Students who learn in an environment free from physical or psychological discomfort and with good lighting conditions are enthusiastic about classroom tasks, and this improves their performance in class (Gilavand, 2016; Pradhan *et al.,* 2024). This was also supported by Sleegers *et al.* (2013), Choi and Suk (2016), who emphasized that adequate classroom lighting is an essential prerequisite in any learning environment and may produce a positive effect on students by arousing certain psychological and emotional behaviours in learners and improving their school performance. Besides these, there is a significant relationship between the rate of ventilation and temperature in the learning environment and students' academic performance (Haverinen-Shaughnessy & Shaughnessy, 2015). So, learning activities are enhanced and efficiently carried out in a quality classroom environment.

The students' responses also indicated that they perceived poor classroom environmental conditions as having relevance to their overall well-being. This is in line with the findings of Annesi-Maesano *et al.* (2013) that school children's health may be affected by poor air quality due to air pollutants within the learning environment, especially in the area of their respiratory health, which could consequently affect their school attendance and academic performance. Similarly, Rajagopalan *et al.* (2022) noted that school children less than 15 years old and who stay for an extended time within the classroom are at higher risk of the consequences of poor air quality within their learning environment, with respect to temperature, ventilation and concentration of CO2, and recommended the need to increase the levels of indoor ventilation. In line with the findings, it was reported that poor air quality within the learning environment can lead to severe and prolonged respiratory health effects among school children (Madureira *et al.,* 2015; Fsadni *et al.,* 2018; Paciência *et al.,* 2019).

5. Conclusion

From the findings, the study concluded that students generally perceived hygiene and adequate space, ventilation, lighting, classroom setting, reduced noise and safety as important attributes of a quality learning environment. The students' responses also indicated that they significantly perceived classroom environmental conditions as related to their learning motivation, academic performance and health.

6. Recommendations

i. Adequate school funding should be provided to put the learning environment in good condition

ii. Government should design and build standard and climate-friendly classrooms, with a focus on appropriate lighting and good ventilation

iii. Inculcation of environmental education into the curriculum to cultivate awareness of the ecosystem, and prepare students to handle the impacts of climate change and promote better and healthier lifestyles.

iv. Good classroom furniture should be provided and properly arranged to enhance students' comfort and give teachers free movement in the class

v. Learning environment should be sited away from noisy areas

vi. Ensure ~~a~~ long-term monitoring of the indoor environmental quality

7. Limitations of the study

The study is limited in that these findings are based on the self-reported perceptions of students and should not be taken as an objective measure of the relationship between classroom environmental conditions, academic performance and overall well-being of students, and may therefore be affected by self-report and common-method bias.

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Conflict of Interest

The author declare no conflict of interest.

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