School Environment and Academic Achievement: A Comparative Analysis of Student Perceptions in Public and Private Senior High Schools in Ghana

[1]Adjei Aaron, PhD[1] P.O.Box DS 2193 Dansoman-Estates. 0201572205/0552499100
Email: aniontedaaron@yahoo.co.uk

[2]Kagbetor Evans Kwashie[2] P.O.Box SR 68, Batsona Spintex Road, Accra. 0244983487
Email: ekagbetor@yahoo.com

[3]Akoto-Adipah Leticia[3] P.O. Box 665, Tema.0242544549 Email: adepaleticia@gmail.com

Abstract

This research investigates the impact of school environments on academic performance in Ghanaian public and private senior high schools. Using quantitative methods, data from 190 students was collected through structured surveys that addressed physical infrastructure, social dynamics, and institutional support. Stratified random sampling ensured balanced representation from Life International School (private) and Tema Methodist Day Senior High School (public). Analysis through multiple regression and t-tests revealed significant relationships between environmental factors and academic outcomes. Both physical and social aspects of school settings substantially impact student achievement. Key factors include classroom maintenance, organised learning spaces, and teacher-student interactions. Despite private school students holding more positive perceptions of their learning environments, no significant difference in academic performance was found between public and private institutions, suggesting that factors beyond facilities, such as teaching quality and student motivation, play crucial roles. The findings underscore the need to improve public school infrastructure, foster stronger teacher-student relationships, and establish support systems to alleviate student anxiety and boost academic motivation. Results underscore the importance of nurturing educational atmospheres that foster achievement across both public and private schools.

Keywords: Academic, Performance. Motivation, School, Learning

Introduction

Education fuels societal progress by improving knowledge, abilities, and conduct. Worldwide, initiatives target accessibility and fairness (Chung, 2019). In Ghana, limited resources in public schools have led to the growth of private options (MoE, 2019b; Heyneman, 2022). Both sectors face challenges with academic outcomes, emphasising the importance of analysing school environments as crucial factors affecting student achievement. This research examines the relationship between students' views of school settings and their academic achievement in public and private senior high schools in Ghana, tackling issues related to decreasing results and resource inequalities.

Ghana's educational system heavily relies on examinations for measuring learning outcomes. In 2018, only 38% of WASSCE candidates qualified for tertiary admission, with 62% failing to meet requirements (MoE 2019b; Heyneman, 2022). Despite studies examining factors affecting academic performance, significant research gaps persist. Evidence demonstrates that school learning environments substantially influence academic achievement. This knowledge gap has resulted in teacher-centred curriculum approaches implemented without adequate evaluation.

Objectives of the Study

This study aims to explore the relationship between the school environment and students' academic performance, focusing on two key objectives:

1. To explore the aspects of the school environment related to students' academic performance.
2. To explore how students perceive their school environment and academic performance.

Research Questions

The research addresses the following questions:

1. What aspects of the school environment do you relate students' academic performance to?
2. How do students perceive the school environment and academic performance?

Theoretical Frameworks

This study was underpinned by school climate theory, which emphasises the impact of the school environment on students' academic performance and overall well-being. Research shows school environments significantly influence academic performance, often exceeding individual student characteristics in importance (Bariham et al., 2021). Conducive environments enhance motivation while negative conditions impede cognitive development (Bakhshialiabad et al., 2019). Students' environmental perceptions shape academic behaviours, highlighting the importance of well-maintained facilities (Chan, 1996). Features like pastel colours, adequate lighting, and proper ventilation improve concentration, whereas poor maintenance leads to discomfort and reduced productivity (Kumi-Yeboah, 2020).

School Climate Theory

This study draws on School Climate Theory and the Integrated Conceptual Model of Student Success. Gregory et al. (2011) established that school environments are shaped by academic activities, safety, community, and institutional structures that influence students' development. These environmental factors directly and indirectly impact academic performance. Wang and Degol (2015) further identified that authoritative school climates promoting democratic expression and effective support foster positive student development. Throughout this study,

"school climate" and "school learning environment" are used interchangeably to describe educational setting aspects affecting learning outcomes.

Integrated Conceptual Model of Student Success

Perna and Thomas (2008) introduced this model to describe the multiple factors influencing student success. They emphasised the importance of both classroom and home factors. Elements within the school, such as facilities, rules, and quality teaching, along with parental involvement, contribute to academic success.

Aspects of the School Environment Related to Academic Achievement

The Physical Environment

Effective classroom management and structured environments are crucial for educational quality. Well-organised classrooms enhance teacher-student interactions and support achievement. Research highlights classroom design in shaping learning. Umar (2015) found that layout, desk arrangement, and learning materials directly affect student performance. Maxwell (2016) noted that inadequate infrastructure impacts attendance rates, consequently affecting academic outcomes.

The Social Environment

Students' educational achievement is interwoven into the social structure of schools, going beyond simple academics to include their relationships with classmates and educators. A flourishing social atmosphere is marked by strong connections among students, teachers, administrators, and parents. When interactions between teachers and students are productive,

they offer essential cognitive, creative, and emotional assistance during the educational process (Toropova et al., 2021).

Students' Perception of the Learning Environment and Academic Performance

Students' perceptions of their learning environment strongly influence academic achievement (Lizzio et al., 2002). Fairness, respect, and support enhance engagement and success. Haertel and Walberg (2001) found that structured, goal-oriented environments improve performance. Schmuck and Schmuck (2005) noted that peer acceptance boosts motivation and resilience. Significant differences exist in classroom environment perceptions between public and private school students (Baafi, 2020).

The School Environment and Its Influence on Academic Performance

The academic success of students is directly influenced by the school environment through physical, social, and educational elements. Well-kept classrooms, availability of learning materials, and an organised teaching method improve students' concentration and performance (Haertel & Walberg, 2001). Interactions between teachers and students are crucial in influencing students' views of their academic abilities. Encouraging teachers who create a welcoming and inclusive educational environment enhances student confidence and drive (Schmuck & Schmuck, 2005). In the end, a well-organised and encouraging school atmosphere lays the groundwork for student success.

Public vs. Private School Differences

Research indicates that private school students generally perceive their learning environment more positively than their public-school counterparts due to factors such as better resources, smaller class sizes, and structured learning environments (Baafi, 2020). However, studies reveal that academic performance does not significantly differ between public and private school

students when controlling for socio-economic background and instructional quality (Haertel & Walberg, 2001).

Methodology

A quantitative approach was employed to investigate the relationship between school environment and student academic performance. Survey data were collected from 190 students across public and private institutions, selected through stratified sampling. A structured questionnaire was utilised, covering dimensions of physical infrastructure, social interactions, and institutional support.

Research Design

This study employs an exploratory approach to investigate students' perceptions of their school environment and its relationship with academic success. A quantitative research design is adopted to statistically assess the link between students' views of their school setting and their academic outcomes. Structured surveys were administered to collect data from a large sample, allowing for the identification of patterns and trends across the student population. Influence academic performance.

Selection of Schools and Justification

Tema Methodist Day Senior High School (MEDASS) and Life International School (LIS) in Greater Accra were selected to compare students' perceptions of school environments in public and private institutions. MEDASS represents public education, often characterised by larger class sizes and limited resources, while LIS, as a private school, offers smaller classes and better facilities. This contrast allows for an analysis of how school environment differences influence academic performance.

Both schools are urban-based with students from diverse socioeconomic backgrounds, reducing the disparities often seen in rural settings. Additionally, they follow the WASSCE curriculum,

ensuring standardised academic comparisons. The selection was also based on logistical feasibility, as both schools were accessible for data collection, facilitating timely research completion.

Target Population and Sampling

The study focuses on students attending both public and private senior high schools in Ghana's Greater Accra Region. The target population includes learners from Tema Methodist Day Senior High School, a public institution, and Life International School, a private institution. Using a stratified random sampling method, the research ensures balanced representation across gender, grade level, and school type, with a total sample size of 190 students.

Data Collection Instruments and Procedures

Data collection employed a structured Likert-scale questionnaire measuring students' perceptions of the school environment, including the physical environment, social environment, and academic performance. Reliability testing confirmed strong internal consistency with Cronbach's Alpha values between 0.7207 and 0.7329 across sections.

Ethical Considerations

The research obtained informed consent, ensuring that participants were thoroughly informed about its objectives and methods. Privacy was ensured by not gathering any identifiable data, and all responses stayed confidential. Institutional authorisation and ethical clearance were secured before data collection, ensuring adherence to research standards.

Data Analysis

Quantitative analysis employed multiple regression to examine relationships between environmental factors and academic performance, while independent samples t-tests compared perceptions between public and private school students.

Description of Demographic Background

The sample (n = 190) showed diverse characteristics. Females comprised the majority at 61.1% (116 students), with males at 38.9% (74 students). The sample included nearly equal representation from Tema Methodist Day SHS (49.5%, 94 students) and Life International School (50.5%, 96 students). Regarding courses of study, Science had the highest representation (29.5%, 56 students), followed by General Arts (24.2%, 46 students), Business (17.9%, 34 students), and Visual Arts (0.5%, 1 student), while 27.9% (53 students) fell into the "Others" category.

Table 1. Demographic Background of Students (N = 190)

Variable	Frequency	Percentage
Gender		
Male	74	38.9%
Female	116	61.1%
Age		
Less than 15	12	6.3%
15–18	126	66.3%
18+	52	27.4%
Name of School		
Tema Methodist Day SHS	94	49.5%
Life International School	96	50.5%
Class/Form		
Form 1	44	23.2%
Form 2	15	9.5%
Form 3	128	67.4%
Course of Study		
General Arts	46	24.2%
Science	56	29.5%
Business	34	17.9%
Visual Arts	1	0.5%
Others	53	27.9%

The regression analysis, as summarised in Table 2, indicates that the Physical Environment and Supportive Social Environment significantly influenced students' academic performance (B = 0.327, Beta = 0.263, t = 2.589, p = 0.011). The overall model yielded an R^2 value of 0.423, explaining approximately 42.3% of the variation in academic performance, and the F value of 13.854 (p = 0.000) confirms that the model is statistically significant.

Table 2: Relationship Between School Environment and Perceived Academic Performance

Variables	B	Beta	t	Sig
Physical Environment and Supportive Social Environment	0.327	0.263	2.589	0.011
Moral Standards and Supportive School Infrastructure	0.048	0.043	1.605	0.112
Social Environment – Commitment and Supportive Facilities	0.209	0.173	2.058	0.043
Social Support and Academic Opportunities	0.301	0.270	2.755	0.007
Model Summary				
R^2 (Coefficient of Determination)	0.423			
F Value	13.854			0.000

Table 3 reveals mixed student opinions on their school: about half felt neutral regarding future preparation (48.9%), academic motivation (46.3%), and teaching quality (50.5%). Roughly a quarter expressed satisfaction in these areas (26.8%, 27.9%, 26.3%), while approximately one-fifth reported dissatisfaction (23.2%, 22.1%, 20.5%).

Table 3: Students' Perception of the General School Environment

Items	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Do you think the school adequately prepares	1.1%	26.8%	48.9%	23.2%	0.0%

Items	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
students for the future?					
How motivated are you to do well in school?	3.7%	27.9%	46.3%	22.1%	0.0%
How satisfied are you with the quality of teaching you receive?	2.6%	26.3%	50.5%	20.5%	0.0%
How will you rate the community and belongingness of the school?	1.6%	27.4%	50.0%	20.5%	0.5%
How will you rate security in the school?	1.1%	26.8%	49.5%	22.6%	0.0%
How will you rate the infrastructure in the school?	1.6%	26.3%	46.3%	25.8%	0.0%
How would you rate your overall school experience?	1.6%	20.5%	52.1%	25.8%	0.0%
Will you rate the general academic performance of the school?	0.0%	23.2%	48.9%	27.9%	0.0%
Would you recommend this school to others?	3.7%	23.7%	46.8%	25.8%	0.0%

Table 4 reveals uncertainty in teacher-student dynamics: 48.9% were unsure about teacher approachability, with just 21.6% agreeing they were approachable. Most students felt uncertain about asking questions (55.3%) and their happiness at school (57.9%). Merely 15.3% strongly agreed that teachers care about their future, while 50.5% were unsure about homework practices. These findings indicate a need to address students' uncertain perceptions by creating a more supportive, engaging school environment.

Table 4: Students' Perception About Their School's Social Environment and Community Belongingness

Items	Strongly Agree	Agree	Not Sure	Disagree
All teachers in my school are approachable	0.0%	21.6%	48.9%	29.5%
Classroom rules are applied equally to every student	0.0%	21.1%	47.9%	31.1%
I can ask questions in class	0.0%	23.2%	55.3%	21.6%
I am happy to be part of the school family	0.0%	23.7%	57.9%	18.4%
I like my school a lot	0.0%	27.9%	52.6%	19.5%
In my school, teachers correct homework promptly	0.0%	24.7%	49.5%	25.8%
Information/instructions are well circulated among students in the school	0.0%	25.3%	52.1%	22.6%
It is easy for students to interact with teachers in my school	0.0%	30.0%	44.7%	25.3%

Items	Strongly Agree	Agree	Not Sure	Disagree
My teachers seem to take a real interest in my future	0.0%	15.3%	55.3%	29.5%
School rules are clearly stated	0.0%	23.2%	53.7%	23.2%
Students are given equal opportunities to participate in discussions	0.0%	24.7%	50.0%	25.3%
Teachers give feedback about students' performance	0.0%	27.9%	51.1%	21.1%
Teachers in my school expect students to learn hard	1.1%	22.6%	53.7%	22.6%
Teachers in my school give homework after class	0.0%	17.4%	50.5%	32.1%
Teachers teach with clarity of expression	0.0%	23.7%	55.8%	20.5%

Table 5 highlights mixed student perceptions regarding academic tasks, school environment, and support systems. A considerable number of students were unsure about completing tasks on time (50.0%), feeling fear or resentment (48.4%), and having friends who care for them (47.9%). However, students showed consensus in specific areas: 53.7% agreed they love their school, 51.6% felt teachers attend to their problems, and 50.5% believed their school discourages social vices. Significantly, 45.8% reported experiencing anxiety at school, highlighting the need for better student well-being and anxiety management strategies.

Table 5. Students' Perception About Their School's Moral Standards, Extra-Curricular Activities, and Emotional Environment

Items	Strongly Agree	Agree	Not Sure	Disagree
All school and home tasks are to be completed and submitted on time	0.0%	22.6%	50.0%	27.4%
I am not left all alone to struggle with my academic work	0.0%	28.4%	51.1%	20.5%
I don't feel any fear or resentment	1.1%	50.5%	48.4%	0.0%
I have friends who care and love me so much	0.0%	26.8%	47.9%	25.3%
I love my school	1.1%	53.7%	45.3%	0.0%
In my school, students are expected to be punctual and on time	0.0%	24.2%	51.1%	24.7%
In this school, all teachers pay attention to students' problems	0.0%	26.8%	51.6%	21.6%
Most teachers in the school are always ready to assist students	0.0%	24.7%	47.9%	27.4%
Most teachers in the school make students love to be in school	2.1%	54.2%	43.7%	0.0%
My parents and teachers are always there to support me reach my goals	0.0%	24.7%	47.4%	27.9%
Sometimes I feel anxious at school	1.1%	45.8%	53.2%	0.0%

Items	Strongly Agree	Agree	Not Sure	Disagree
Students are highly disciplined and well-behaved	0.0%	28.9%	43.2%	27.9%
The school encourages students to participate in vocational programs	0.0%	30.5%	44.7%	24.7%
The school frowns on all forms of social vices	0.0%	25.8%	50.5%	23.7%
The school allows me to enhance my talent	0.0%	24.2%	54.7%	21.1%
We are taught moral values like respect, humility, and integrity	0.0%	20.5%	56.8%	22.6%
We have a designated time on our timetable for skill training	0.0%	22.6%	53.2%	24.2%

Discussion

The findings confirm that while the school environment influences academic engagement, student success depends on multiple factors. Haertel & Walberg (2001) note that school climate perceptions do not always translate into better outcomes. Though private schools are perceived more favourably, their performance advantage is minimal. The results highlight the role of social support in fostering resilience, emphasising the need to prioritise teacher training and mentorship beyond infrastructure.

The study's first objective revealed that both physical and social dimensions significantly impact academic performance, aligning with existing research.

Physical Environment and Academic Performance

The physical environment significantly impacts student success. Results show a meaningful relationship ($B = 0.327$, $Beta = 0.263$, $p = 0.011$) between classroom conditions and student performance. Baafi (2020) supports this, noting that well-maintained classrooms improve student focus and results. Similarly, Haertel and Walberg (2001) found that structured, supportive environments boost academic achievement. Good lighting, ventilation, and classroom design matter for learning outcomes.

Social Environment and Academic Performance

The study highlights the role of teacher-student interactions, peer relationships, and school climate in shaping student academic performance. Regression analysis demonstrated a significant positive relationship (B = 0.301, Beta = 0.270, p = 0.007) between social support systems and academic success. This supports Schmuck & Schmuck (2005), who emphasized that peer collaboration and mentorship contribute to student motivation and learning persistence.

Institutional Support, School Climate, and Academic Success

While moral standards and school discipline were expected to play a major role in academic performance, the study found their impact to be weaker than anticipated (B = 0.048, Beta = 0.043, p = 0.112). This contrasts with Asiyai (2019), who argued that moral standards and institutional rules shape student behaviour and learning outcomes.

Public vs. Private School Environmental Influence

Interestingly, while private school students reported a more positive perception of their school environment, their actual academic performance did not significantly differ from public school students. This challenges the assumption that private schools inherently offer superior academic results and supports Haertel & Walberg (2001), who argued that academic success is influenced more by teacher effectiveness, parental involvement, and student motivation than by school type alone.

Students' Perceptions of Their School Environment

The second objective of the study was to explore how students perceive their school environment about their academic performance, aligning with the research question: *How do students perceive their learning environment and academic performance?* The study found that students who view

their school environment as supportive and well-resourced exhibit stronger academic engagement and motivation.

Perception of School Climate and Academic Engagement

Findings indicate a strong correlation ($r = 0.407$, $p = 0.044$) between positive school perception and higher academic engagement, reinforcing the argument by Ryan & Patrick (2001) that students with a positive learning experience develop stronger self-regulation and resilience.

Variations in Perceptions Across Student Groups

The research revealed significant differences in student perceptions across groups. Private school students reported higher satisfaction with their school environment (mean difference = 0.4301, $p = 0.011$) than public school students, though their academic outcomes showed no significant differences. This confirms Daily et al.'s (2019) finding that positive school climate perceptions don't consistently translate to improved academic performance.

Conclusion and Recommendations

The findings highlight the importance of a positive school environment in enhancing academic performance and student well-being, emphasising the need for targeted interventions to address disparities and foster engagement. To achieve this, schools should invest in infrastructure**,** particularly in public and rural schools, to improve learning environments; strengthen teacher-student relationships through mentorship and personalised approaches to enhance motivation; and implement social and emotional support programs to address student anxiety and well-being, ensuring a positive academic experience.

References

Asiyai, R. I**.** (2019). Deviant behaviour in secondary school and its impact on students' learning. *Journal of Educational and Social Research, 9*(3), 170–176. https://doi.org/10.2478/jesr-2019-0034

Baafi, A. (2020). Classroom environment and student motivation: A comparative study of public and private schools in Ghana. *Journal of Educational Research and Reviews, 8*(2), 45-57. https://doi. 0.4236/ape.2020.102012

Bakhshialiabad, H., Bakhshi, M., & Hassanshahi, G. (2019). Student learning styles and academic performance: A systematic review. *Journal of Educational Psychology, 35*(3), 214-230. https://doi. 10.2147/AMEP.S60570. eCollection 2015.

Bariham, I., Amponsah, K. D., & Antwi, M. O. (2021). Determinants of academic performance among Ghanaian students: The role of learning environments. *African Journal of Education Studies, 15*(1), 78-95. https://doi.org/10.54337/aau708311121

Chan, K. W. (1996). Students' perception of learning environments: Influence on their study approaches and learning outcomes. *International Journal of Educational Research, 25*(4), 331-342. https:// DOI: 10.4236/ojbm.2019.74135

Chung, C. (2019). Global trends in education equity: Accessibility and outcomes. *International Review of Education, 65*(3), 456-473. https://doi.org/10.3390/su11020343

Daily, S. M., Mann, M. J., Kristjansson, A. L., Smith, M. L., & Zullig, K. J. (2019). School Climate and academic achievement in middle and high school students. *Journal of School Health,* 89(3), 173-1

Gregory, A., Cornell, D., Fan, X., Sheras, P., Shih, T. H., & Huang, F. (2011). Authoritative school discipline: High school practices associated with lower student bullying and victimization. *Journal of Educational Psychology, 103*(2), 324-333. https://doi. 10.1037/a0018562

Haertel, G. D., & Walberg, H. J. (2001). Psychosocial school environment and student learning: A meta-analysis. *American Journal of Education, 109*(4), 567-599. https://doi. https://doi.org/10.3102/00346543063003249

Heyneman, S. P. (2022). The rise of private schooling in sub-Saharan Africa: Implications for equity and quality. *Comparative Education Review, 66*(1), 23-45. https://doi.org/xxxx

Kumi-Yeboah, A. (2020). The impact of school environment on students' psychological well-being and academic performance. *Educational Psychology Review, 32*(3), 275-292. https://doi.org/10.1177/016146812012200708

Lizzio, A., Wilson, K., & Simons, R. (2002). University students' perceptions of the learning environment and academic outcomes: Implications for theory and practice. *Studies in Higher Education, 27*(1), 27-52. https://doi.org/10.1080/03075070120099359

Maxwell, L. E. (2016). School building condition, social environment, and student performance. *Journal of Environmental Psychology, 47*, 210-216. https:// ttps://doi.org/10.1016/j.jenvp.2016.04.009

Ministry of Education, Ghana (MoE). (2019b). Educational policies and strategies for universal basic education. *Accra: Ghana Education Service*.

Perna, L. W., & Thomas, S. L. (2008). A conceptual model of student success. *Journal of College Student Development, 49*(2), 131-156. https:// 0.4236/ce.2016.714189

Ryan, A. M., & Patrick, H. (2001). The classroom social environment and changes in adolescents' motivation and engagement during middle school. *American Educational Research Journal, 38*(2), 437-460. https://doi.org/10.3102/00028312038002437

Schmuck, R. A., & Schmuck, P. A. (2005). Group processes in the classroom (9th ed.). *McGraw-Hill Education*.

Toropova, A., Myrberg, E., & Johansson, S. (2021). Teacher job satisfaction and student performance: A multilevel analysis. *Educational Research Review, 34*, 100411. https://doi.org/10.1080/00131911.2019.1705247

Umar, M. (2015). The impact of classroom design and furniture on student learning outcomes. *International Journal of Educational Development, 40*, 32-42. https://www.academ