

Article

Enhancing Student Learning Through Classroom Design: Exploring the Influence of Environment on Academic Performance

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Abstract: The study explores the influence of classroom design on Grade 8 students' academic performance in English. The sample consisted of teachers and students, with teachers predominantly aged between 20-29 and holding some units in their Master's degree, and all students being from Grade 8. Aspects such as Health and Well-being, Natural Lighting and Acoustic, Technology Integration, and Engagement and Motivation were evaluated to determine the status of classroom design, receiving 'Strongly Satisfactory' ratings on average. Despite students demonstrating 'Outstanding' and 'Very Satisfactory' academic performance, the correlation analysis indicated an insignificant relationship between classroom design and academic performance, suggesting other factors at play. Key issues highlighted for future improvement in classroom design include 'Inadequate Space', 'Insufficient Technology Integration', and 'Lack of Flexibility'. This study underscores the importance of well-designed learning spaces in promoting an effective learning environment, even as it indicates the need for further exploration of the dynamics between physical environment and academic performance.

Keywords: Classroom design, environment, students, academic performance



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Introduction

Classroom design refers to the intentional arrangement of physical elements within a learning space to support teaching and learning activities. It encompasses various aspects such as the layout of

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furniture, lighting, acoustics, color schemes, temperature, and the presence of educational resources (Peng et al., 2022). Importance of classroom design in education Classroom design plays a crucial role in education as it has the potential to significantly impact students' learning experiences (Alam, 2022). An effective classroom design can create a positive and conducive learning environment that fosters engagement, collaboration, and active participation (Ferrer et al., 2020). It can enhance students' motivation, attention, and overall well-being, leading to improved academic outcomes. Therefore, understanding the importance of classroom design is essential for creating optimal learning environments (Shoshani, 2021).

Classroom design directly affects their engagement and interaction with the learning environment. A well-designed classroom can promote a sense of ownership and belongingness, making students feel comfortable and supported in their learning journey (Cooper & Fry, 2020). It can stimulate their curiosity, creativity, and critical thinking skills, encouraging active exploration and knowledge acquisition. By considering students' needs and preferences in the design process, educators can create an inclusive and student-centered environment that promotes effective learning (Qureshi et al., 2021). Classroom design has a significant impact on students' academic performance. A well-designed classroom can facilitate effective teaching practices, enabling teachers to implement diverse instructional strategies and accommodate different learning styles. It can optimize the use of technology and resources, creating a technologically rich learning environment. Furthermore, factors like lighting, temperature, and acoustics can influence students' concentration, comfort, and overall well-being, which in turn affect their ability to focus and succeed academically. Therefore, a thoughtfully designed classroom can contribute to improved academic achievement among students (Lu et al., 2021).

Understanding the importance of classroom design is particularly relevant in the Philippine context, where education plays a vital role in national development. With a large and diverse student population, creating inclusive and effective learning environments becomes crucial (Fuente, 2021). Additionally, considering the resource constraints faced by many schools in the country, optimizing classroom design becomes even more essential (Sanger, 2020). Exploring the influence of classroom design on academic achievement, this study aims to provide insights and recommendations that can benefit Philippine educators and policymakers in enhancing the quality of education.

Despite the acknowledged significance of classroom design, there is still a need for further research in this area. Existing studies have mainly focused on specific elements of classroom design, such as seating arrangements or technology integration, while a comprehensive understanding of the holistic impact of classroom

design on student learning is lacking. Additionally, limited research has been conducted specifically in the Philippine context, which necessitates an exploration of the unique challenges and opportunities faced by Philippine classrooms. This study aims to bridge these research gaps and contribute to the existing body of knowledge.

To explore the influence of environment on academic achievement, this study will adopt a mixed-methods approach. Quantitative data will be collected through surveys and academic performance records to measure the relationship between classroom design and academic achievement. Qualitative data, such as observations and interviews, will provide deeper insights into students' perceptions and experiences in different classroom environments. The research findings will offer practical recommendations for educators, school administrators, and policymakers to optimize classroom design and promote student learning and academic achievement.

Methodology

To address the research questions and achieve the objectives of assessing the classroom design in relation to students' academic performance, a quantitative methods research approach will be employed. This approach provides data collection and analysis methods to provide a comprehensive understanding of the research topic. In particular, the present conditions of the respondents as regards to the implementation of classroom design will be described and analyzed through data gathered using the research instrument. Classroom design on the other on the other hand will be adopted from the study of Barrett et al. (2013), Fisher et al. (2013) and Furniture, S., & Ergonomics, C. (2010).

Results and Discussion

Table 1. Health and Wellbeing

Indicators	Students		Teachers	
	Mean	VD	Mean	VD
The classroom design promotes a sense of calm and relaxation in learning English.	4.27	SS	4.23	SS
The classroom design supports good air quality and ventilation in learning English.	4.17	SS	4.14	S
The classroom design maintains comfortable temperatures in learning English.	4.25	SS	4.11	S
The classroom design incorporates elements that positively impact my well-being in learning English.	4.27	SS	4.23	SS
The classroom design contributes to a healthy and positive learning environment in learning English.	4.17	S	4.24	SS
Grand Mean	4.23	SS	4.19	S

The table presents the ratings given by both students and teachers on various indicators related to health and well-being in the classroom design for learning English. The indicators include promoting a sense of calm and relaxation, supporting good air quality and ventilation, maintaining comfortable temperatures, incorporating elements that positively impact well-being, and contributing to a healthy and positive learning environment. Overall, both students and teachers expressed high levels of satisfaction with the classroom design in terms of health and well-being. The mean ratings for all indicators were above 4.0, indicating that the classroom design is perceived positively by both groups. The grand mean for students was 4.23, indicating a strong level of satisfaction, while the grand mean for teachers was slightly lower at 4.19, indicating a slightly lower satisfaction level. The implications of these findings suggest that the current classroom design successfully promotes a sense of calm and relaxation, supports good air quality and ventilation, maintains comfortable temperatures, and incorporates elements that positively impact the well-being of both students and teachers in the context of learning English. These findings highlight the importance of considering health and well-being factors when designing classrooms for language learning. A well-designed classroom that prioritizes the physical and emotional well-being of students and teachers can contribute to a positive and engaging learning environment. Creating a sense of calm, ensuring good air quality and temperature control, and incorporating elements that positively impact well-being, students and teachers are more likely to feel comfortable, motivated, and engaged in the process of learning English. This, in turn, can potentially lead to improved academic performance and overall satisfaction with the learning experience.

Table 2. Natural Lighting and Acoustic

Indicators	Students		Teachers	
	Mean	VD	Mean	VD
The classroom design utilizes natural lighting effectively in learning.	4.31	S	4.26	SS
The classroom design creates a well-lit and bright learning environment in learning English.	4.33	S	4.31	SS
The classroom design minimizes glare and eye strain in learning English.	4.29	SS	4.23	SS
The classroom design manages noise levels to reduce distractions in learning English.	4.25	S	4.13	S
The classroom design provides a comfortable acoustic environment for learning in learning English.	4.19	S	4.21	SS
Grand Mean	4.27	SS	4.23	SS

The table presents the ratings given by both students and teachers on indicators related to natural lighting and acoustics in the classroom design for learning English. The indicators include the effective utilization of natural lighting, creating a well-lit and bright environment, minimizing glare and eye strain, managing noise levels, and providing a comfortable acoustic environment. The findings reveal that both students and teachers expressed high levels of satisfaction with the classroom design in terms of natural lighting and acoustics. The mean ratings for all indicators were above 4.0, indicating positive perceptions from both groups. The grand mean for students was 4.27, indicating a strong level of satisfaction, while the grand mean for teachers was slightly lower at 4.23, indicating a slightly lower satisfaction level. These findings imply that the current classroom design effectively utilizes natural lighting to create a well-lit and bright learning environment. Additionally, the classroom design is perceived to manage noise levels, minimizing distractions and creating a comfortable acoustic environment for learning. The implications of these findings suggest that the incorporation of natural lighting and appropriate acoustic considerations in the classroom design positively impacts the learning experience. Adequate natural lighting can improve mood, focus, and overall well-being, while proper acoustic conditions reduce distractions and enhance communication between teachers and students. These factors contribute to a conducive learning environment and can potentially improve student engagement, concentration, and learning outcomes in the context of learning English. Considering the importance of natural lighting and acoustics in the classroom design can lead to more effective language instruction and a better overall learning experience.

Table 3. Technology Integration

Indicators	Students		Teachers	
	Mean	VD	Mean	VD
The classroom design provides easy access to technology tools and resources in learning English.	4.31	SS	4.18	S
The classroom design facilitates seamless integration of technology into lessons in learning English.	4.27	SS	4.17	S
The classroom design enhances my learning experience through technology in learning English.	4.26	SS	4.12	S
The classroom design supports interactive and engaging use of technology in learning English.	4.23	SS	4.09	SS
The classroom design encourages me to explore and utilize digital resources in learning English.	4.40	SS	4.09	S
Grand Mean	4.30	SS	4.13	S

The table presents the ratings given by both students and teachers on indicators related to technology integration in the classroom design for learning English. The indicators include easy access to technology tools and resources, seamless integration of technology into lessons, enhancement of the learning experience through technology, support for interactive and engaging use of technology, and encouragement to explore and utilize digital resources. The findings indicate that both students and teachers have a high level of satisfaction with the classroom design in terms of technology integration. The mean ratings for all indicators were above 4.0, indicating positive perceptions from both groups. The grand mean for students was 4.30, indicating a strong level of satisfaction, while the grand mean for teachers was slightly lower at 4.13, indicating a slightly lower satisfaction level. These findings imply that the current classroom design provides easy access to technology tools and resources, facilitating their integration into English language lessons. The design is perceived to enhance the learning experience by leveraging technology, support interactive and engaging use of technology, and encourage students to explore and utilize digital resources. The implications of these findings highlight the importance of effective technology integration in the classroom design for learning English. Furthermore, encouraging students to explore and utilize digital resources expands their access to information, promotes self-directed learning, and prepares them for the digital age. Considering technology integration in the classroom design, educators can leverage the potential of technology to enhance language instruction and support students' language acquisition and development. Providing easy access to technology, incorporating it seamlessly into lessons, and creating an environment that encourages exploration and utilization of digital resources can lead to more interactive, engaging, and personalized learning experiences.

Table 4. Engagement and Motivation

Indicators	Students		Teachers	
	Mean	VD	Mean	VD
The classroom design stimulates my interest in learning in learning English subject.	4.37	SS	4.32	SS
The classroom design makes me excited to come to class in learning English subject.	4.35	SS	4.26	SS
The classroom design encourages me to actively participate in class activities in learning English subject.	4.27	SS	4.28	SS
The classroom design helps me stay focused during lessons in learning English subject.	4.29	SS	4.26	SS
The classroom design enhances my overall motivation to learn in learning English subject.	4.25	SS	4.29	SS
Grand Mean	4.31	SS	4.28	SS

The table presents the ratings given by both students and teachers on indicators related to engagement and motivation in the classroom design for learning the English subject. The findings indicate that both students and teachers have a high level of satisfaction with the classroom design in terms of engagement and motivation. The mean ratings for all indicators were above 4.0, indicating positive perceptions from both groups. The grand mean for students was 4.31, indicating a strong level of satisfaction, while the grand mean for teachers was slightly higher at 4.28, indicating a slightly higher satisfaction level. These findings imply that the current classroom design effectively stimulates students' interest in learning, generates excitement to attend class, encourages active participation, promotes focus during lessons, and enhances overall motivation to learn English. The design creates an environment that fosters student engagement, involvement, and a positive attitude towards the learning process. The implications of these findings highlight the crucial role of classroom design in fostering student engagement and motivation in learning the English subject. By designing a classroom that stimulates interest, generates excitement, and encourages active participation, teachers can create a positive and conducive learning environment. When students are engaged and motivated, they are more likely to be attentive, participate actively, and develop a deeper understanding of the language. This can lead to improved language acquisition, retention, and overall academic performance. Creating a classroom design that enhances focus during lessons further supports students' learning experience. When distractions are minimized and the learning environment is optimized for concentration, students can better absorb information, comprehend language concepts, and retain knowledge. Additionally, the positive overall motivation to learn English, fostered by the classroom design, can contribute to students' long-term language learning goals and their willingness to invest effort and time in improving their language skills. In conclusion, a well-designed classroom that promotes engagement and motivation in learning English is essential for fostering a positive and effective language learning environment. By considering the indicators of engagement and motivation, educators can design classrooms that stimulate interest, generate excitement, encourage active participation, promote focus, and enhance overall motivation, leading to improved language learning outcomes and student satisfaction.

Conclusion

In conclusion, the study reveals that while classroom design is rated strongly satisfactory by both teachers and Grade 8 students in regards to learning English, its correlation with students' academic performance remains insignificant. The teachers, predominantly younger females with substantial teaching experience and advanced

education, perceive the classroom environment positively, especially in terms of engagement and motivation. Students echo these sentiments and have also demonstrated impressive academic performance in various competencies. However, there are still crucial concerns to address, with 'Inadequate Space', 'Insufficient Technology Integration', and 'Lack of Flexibility' topping the list. These areas present opportunities for continued improvement to further enhance the learning environment. The role of classroom design in the educational process remains crucial, but the full potential of its impact on academic performance is yet to be unlocked. Continued exploration in this field can provide valuable insights to optimize the interplay between physical learning environments and educational outcomes.

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