



Impact of Classroom Environment on Students' Learning Outcomes

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ABSTRACT

The classroom environment plays an important role in shaping students' learning experiences, academic engagement, and educational development. A supportive and well-organized classroom can provide students with opportunities to participate actively, interact with teachers and peers, and develop positive attitudes towards learning. The present study aimed to examine gender differences in students' perceptions of classroom environment and their learning outcomes. A quantitative research design was adopted for the study. A sample of 200 students, comprising 100 male and 100 female students, was selected from secondary and senior secondary educational institutions. Data were collected using a Classroom Environment Scale and students' academic achievement scores as an indicator of learning outcomes. An independent samples t-test was used to examine differences between male and female students. The study was designed to determine whether significant differences exist in perceived classroom environment and learning outcomes across gender. The findings are expected to provide useful insights for teachers and educational institutions in developing supportive, inclusive, and student-centred classroom environments that facilitate effective learning.

Keywords: Classroom Environment, Learning Outcomes, Academic Achievement, Students, Gender Differences, Classroom Climate, Education

1. Introduction

Education is a continuous and dynamic process through which individuals acquire knowledge, skills, values, attitudes, abilities, and competencies necessary for personal growth, social adjustment, and overall development. It not only prepares individuals to meet academic and professional requirements but also contributes to the development of responsible, confident, and socially competent members of society. The effectiveness of education does not depend solely on the curriculum, instructional strategies, or teaching methods; it is also significantly influenced by the environment in which teaching and learning take place. A supportive and stimulating educational environment can facilitate learning, whereas an unfavourable environment may create barriers to students' participation, motivation, and academic development. The classroom is one of the most important environments in the educational process because students spend a substantial amount of their academic time interacting with teachers, peers, learning materials, and classroom facilities.

Classroom environment refers to the overall physical, social, emotional, and instructional conditions in which students learn and participate in educational activities. It represents the quality and nature of interactions, experiences, and conditions that students encounter within the classroom. It includes several aspects such as teacher-student relationships, peer interaction, classroom management, student participation, learning resources, discipline, communication patterns, teaching practices, and the psychological atmosphere of the classroom. The physical arrangement of the classroom, availability of learning materials, opportunities for active participation, and clarity of classroom rules may also influence students' learning experiences. Similarly, respectful communication, emotional support, cooperation, and positive relationships among teachers and students contribute to the development of a healthy classroom climate.

A positive classroom environment can make students feel safe, respected, valued, accepted, and psychologically comfortable. Such an environment encourages students to express their ideas, ask questions, participate actively in classroom activities, and develop positive attitudes towards learning. It may also strengthen students' motivation, confidence, interpersonal relationships, and sense of belongingness. In contrast, an environment characterized by excessive discipline, poor teacher-student interaction, lack of support, fear, discrimination, or inadequate learning resources may negatively influence students' engagement and academic experiences. Thus, classroom environment is an important factor in understanding the quality of educational experiences and the overall development of students (Bharti, 2016; Bharti & Bhatnagar, 2018). (Bharti, 2026).

Fraser (1998) emphasized that students' perceptions of their classroom environment provide important information about the quality of teaching and learning. The classroom environment is not merely a physical space; it also includes the interpersonal relationships and learning experiences developed within that space. When students perceive their classroom as supportive and cooperative, they may demonstrate greater involvement in academic activities.

Teacher behaviour is another important component of the classroom environment. Teachers who encourage students, listen to their concerns, provide constructive feedback, and maintain positive relationships can create an atmosphere conducive to learning. Similarly, effective classroom management

can reduce disruptive behaviour and provide students with a structured environment in which they can concentrate on academic tasks (Bharti, 2020a). Peer relationships also contribute significantly to classroom experiences. Positive peer interaction can encourage cooperation, communication, sharing of ideas, and collaborative learning (Bharti & Bhatnagar, 2020). In contrast, conflict, bullying, exclusion, or unhealthy competition may negatively affect students' participation and emotional comfort. The physical environment of the classroom is also relevant. Adequate lighting, ventilation, seating arrangements, cleanliness, availability of learning resources, and appropriate classroom space can contribute to students' comfort and concentration. However, classroom environment extends beyond physical facilities and includes the overall emotional and social climate experienced by students. Learning outcomes represent the knowledge, understanding, skills, competencies, and academic achievements that students acquire through the educational process. Academic achievement is commonly used as one measurable indicator of learning outcomes. Students' learning outcomes may be influenced by several factors, including intelligence, motivation, study habits, family background, teaching methods, socioeconomic conditions, and classroom environment. Research has consistently emphasized the importance of supportive educational environments for students' academic and psychosocial development (Bharti, 2020b; Bharti, 2024). Thapa et al. (2013) reported that a positive school climate is associated with important student outcomes, including academic achievement, motivation, and engagement. (Bharti et al., 2026).

Similarly, Allen et al. (2018) highlighted the importance of positive educational environments and supportive relationships for students' academic and social-emotional development. Students may also differ in how they perceive their classroom environment and how they perform academically. Gender is one demographic variable that can be examined when studying such differences. Understanding whether male and female students differ in their classroom experiences and learning outcomes can help teachers and educational institutions identify areas requiring greater attention. The present study therefore focuses on examining differences between male and female students in their perception of classroom environment and learning outcomes. An independent samples t-test is used to determine whether the mean differences between the two groups are statistically significant. The study is particularly relevant because it provides a simple and practical approach for understanding students' classroom experiences and academic outcomes within an educational setting. (Bharti & Singh, 2026).

2. Research Methodology

2.1 Research Design

The present study employed a quantitative, descriptive-comparative research design to examine gender differences in classroom environment and students' learning outcomes. The study used an independent samples *t*-test to compare the mean scores of male and female students.

2.2 Participants

The study included **200 students** selected from secondary and senior secondary educational institutions. The sample consisted of 100 male students and 100 female students. Students were selected from the accessible population using a convenience sampling technique.

2.3 Objectives of the Study

The study was conducted with the following objectives:

1. To assess the perceived classroom environment among students.
2. To assess the learning outcomes of students.
3. To compare male and female students with respect to their perceived classroom environment.
4. To compare male and female students with respect to their learning outcomes.

2.4 Hypotheses

H₁: There is a significant difference between male and female students in their perceived classroom environment.

H₂: There is a significant difference between male and female students in their learning outcomes.

2.5 Variables of the Study

The study included the following variables:

Grouping Variable: Gender (Male/Female)

Study Variable 1: Classroom Environment

Study Variable 2: Learning Outcomes

2.6 Tools Used for Data Collection

Classroom Environment Scale: A structured Classroom Environment Scale was used to assess students' perceptions of their classroom environment. The scale covered aspects such as teacher–student interaction, peer relationships, classroom discipline, learning atmosphere, student participation, and classroom facilities. Responses were obtained on a five-point Likert scale ranging from *Strongly Agree* to *Strongly Disagree*.

Learning Outcomes: Students' learning outcomes were assessed using their academic achievement scores obtained from their most recent examination. Academic scores were used as an objective indicator of students' learning outcomes.

2.7 Procedure

Prior permission was obtained from the concerned educational institutions before commencing the data collection process. The purpose and objectives of the study were clearly explained to the participants, and they were informed that their participation was voluntary. The participants were also assured that the information provided by them would be used only for research purposes and that confidentiality would be maintained. The Classroom Environment Scale was administered to the selected students under appropriate and standardized conditions, ensuring that adequate instructions were provided and that students could respond freely to the items. Students' academic achievement scores were also recorded with the necessary permission from the concerned authorities. After completion of the data collection, the responses and academic achievement scores were carefully checked, coded, and systematically organized. The collected data were then entered into an appropriate format and prepared for statistical analysis using the selected statistical techniques.

2.8 Statistical Technique

The collected data were analyzed using Mean, Standard Deviation, and Independent Samples *t*-test. The independent samples *t*-test was used to determine whether significant differences existed between male and female students in their perceived classroom environment and learning outcomes. The level of significance was set at **0.05**.

2.9 Ethical Considerations

Participants were informed about the purpose of the study and their participation was voluntary. Confidentiality of the information provided by the students was maintained, and the collected data were used only for academic and research purposes.

3. Results

The collected data were analyzed using Mean, Standard Deviation, and independent samples *t*-test to examine gender differences in classroom environment and students' learning outcomes. The following results are based on illustrative data and should be replaced with the actual values obtained from the study.

Table 1: Gender-wise Comparison of Students on Classroom Environment

Gender	N	Mean	SD	t-value	p-value
Male	100	88.42	9.15	3.42	< .01
Female	100	93.18	8.72		

The mean score of female students ($M = 93.18$, $SD = 8.72$) was higher than that of male students ($M = 88.42$, $SD = 9.15$). The obtained *t*-value of 3.42 was statistically significant at the .01 level. This indicates that there was a significant difference between male and female students in their perception of classroom environment. Therefore, the first hypothesis was supported.

Table 2: Gender-wise Comparison of Students on Learning Outcomes

Gender	N	Mean	SD	t-value	p-value
Male	100	70.35	8.24	3.65	< .001
Female	100	74.62	7.91		

Female students obtained a higher mean learning outcome score ($M = 74.62$, $SD = 7.91$) compared with male students ($M = 70.35$, $SD = 8.24$). The obtained t -value of 3.65 was statistically significant at the .001 level. This indicates that there was a significant difference between male and female students in learning outcomes. Therefore, the second hypothesis was supported.

The results showed significant gender differences in both classroom environment and learning outcomes. Female students reported a more favourable classroom environment and also obtained higher learning outcome scores than male students in the illustrative dataset.

4. Discussion

The present study examined gender differences in students' perceptions of classroom environment and their learning outcomes. The findings indicated significant differences between male and female students on both variables. Female students obtained a higher mean score for classroom environment as well as higher learning outcome scores than male students. The significant difference in classroom environment suggests that male and female students may perceive their classroom experiences differently. Female students in the present illustrative findings reported a more favourable classroom environment. This may be related to differences in classroom participation, interaction with teachers, peer relationships, academic engagement, or perceptions of classroom support. A positive classroom environment can help students feel comfortable, respected, and motivated to participate in academic activities. The finding is consistent with the broader literature emphasizing the importance of classroom and school climate in students' educational experiences. Fraser (1998) noted that students' perceptions of their classroom environment provide important information about the quality of the learning process. Similarly, Thapa et al. (2013) highlighted the relationship between positive educational environments and student engagement and achievement.

A significant gender difference was also observed in learning outcomes, with female students obtaining higher mean scores than male students. This finding indicates that the academic performance of the two groups differed significantly in the present study. Differences in study habits, motivation, classroom engagement, academic participation, and learning behaviour may potentially contribute to such differences. The findings are also broadly in line with Allen et al. (2018), who emphasized the importance of supportive educational environments for students' academic and social-emotional development. A classroom characterized by positive teacher–student relationships, effective classroom management, encouragement, and active participation may create conditions that facilitate learning.

However, the findings should be interpreted cautiously. Since the present study used an independent samples t -test, it demonstrates differences between male and female groups but does not establish that classroom environment directly causes differences in learning outcomes. Other factors such as socioeconomic background, parental support, motivation, previous academic achievement, teaching methods, and individual differences may also influence students' learning outcomes.

Overall, the findings highlight the importance of creating a positive, inclusive, supportive, and student-centred classroom environment. Teachers should provide equal opportunities for participation, encourage communication, maintain positive relationships with students, and ensure that both male and female students receive appropriate academic support (Bharti, 2026; Bharti et al., 2026).

5. Conclusion

The present study was conducted to examine differences in classroom environment and learning outcomes among male and female students. The findings indicated significant differences between the two groups in both perceived classroom environment and learning outcomes. Female students obtained higher mean scores on both variables in the illustrative analysis. These findings indicate that students' classroom experiences and academic performance may vary across gender, highlighting the importance of understanding students' perceptions and educational needs within the classroom setting.

The findings suggest that the classroom environment is an important aspect of students' educational experiences. A supportive, positive, well-organized, and inclusive classroom can provide favourable conditions for students' participation, motivation, interaction, and academic development. Teachers have an important role in creating such an environment by encouraging active participation, maintaining positive teacher–student relationships, providing constructive feedback, offering equal learning opportunities, and responding appropriately to students' academic needs. A classroom atmosphere in which students feel respected, supported, and comfortable may encourage greater involvement in learning activities.

Overall, the study highlights the need for educational institutions to promote student-centred, inclusive, and supportive classroom environments. Such environments can help create favourable conditions for students' academic engagement and development. However, the present t -test analysis only establishes group differences and does not demonstrate a causal effect of classroom environment on learning outcomes. The differences observed may also be influenced by other factors such as motivation, study habits, family background, socioeconomic conditions, previous academic performance, and teaching practices. Therefore, the findings should be interpreted cautiously. Further research using larger and more diverse samples, along with additional statistical techniques, may provide a deeper understanding of the relationship between classroom environment and students' academic performance and may help identify factors that contribute to positive educational outcomes (Bharti, 2023).

6. References

1. Allen, K. A., Kern, M. L., Vella-Brodrick, D., Hattie, J., & Waters, L. (2018). What schools need to know about fostering school belonging: A meta-analysis. *Educational Psychology Review*, 30, 1–34.
2. Bharti, J. (2016). Anxiety among UP Board students in Uttar Pradesh, India. *International Journal of Indian Psychology*, 3(2), 117–121. <https://doi.org/10.25215/0302.085>
3. Bharti, J. (2020a). Mental health with stigma & nurturing resilience during COVID-19 outbreak. *Saudi Journal of Nursing and Health Care*, 3(7), 188–193. <https://doi.org/10.36348/sjnhc.2020.v03i07.001>
4. Bharti, J. (2020b). Preventive steps of COVID-19 increases OCD symptoms: Review based perspective. *International Journal of Advances in Engineering and Management*, 2(1), 484–487. <https://doi.org/10.35629/5252-45122323>
5. Bharti, J. (2021). Chinese body clock: In-depth review based perspective. *EPRA International Journal of Research and Development*, 6(8), 26–29.
6. Bharti, J. (2024). Effect of improper waste disposal on environmental, physical, and emotional well-being of human beings. *Waste Management and Treatment*, 26–38.
7. Bharti, J. (2026). The Psychological Impact of Societal Beauty Standards: A Systematic Review of Body Image Issues, Awareness Campaigns and the Role of Palliative Care in the Digital Era. *Indian Journal of Palliative Care*, 32, 26–32. doi: 10.25259/IJPC_111_2025
8. Bharti, J., & Bhatnagar, P. (2018). Psychological well-being and quality of life among person with intellectually disabled and physically disabled. *Indian Journal of Health and Wellbeing*, 9(1), 118–121.
9. Bharti, J., & Bhatnagar, P. (2020). Silent pain of caregivers: A qualitative study. *Saudi Journal of Humanities and Social Sciences*, 5(7), 353–362. <https://doi.org/10.36348/sjhss.2020.v05i07.001>
10. Bharti, J., Singh, H., & Srivastava, A. S. (2023). Tharu and Buksa tribes' attitudes toward child and maternal health and educational services in Uttarakhand: A qualitative study. *Statistics*, 18(8), 14–20.
11. Bharti, J., Singh, R. (2026). Psychological correlates of COVID-19 on emotional maturity and value orientation among Indian youth. *Discover Psychology*, 6, 241. <https://doi.org/10.1007/s44202-026-00780-x>
12. Bharti, J., Verma, S. & Mishra, S. (2026). Lived experiences and everyday life of older residents living in old age homes. *Discover Aging*, 1, 8. <https://doi.org/10.1007/s44518-026-00008-z>
13. Fraser, B. J. (1998). Classroom environment instruments: Development, validity and applications. *Learning Environments Research*, 1(1), 7–33.
14. Fraser, B. J. (2007). Classroom learning environments. In S. K. Abell & N. G. Lederman (Eds.), *Handbook of research on science education* (pp. 103–124). Lawrence Erlbaum Associates.
15. Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development*, 72(2), 625–638.
16. Pianta, R. C., Hamre, B. K., & Allen, J. P. (2012). Teacher-student relationships and engagement: Conceptualizing, measuring, and improving the capacity of classroom interactions. In S. L. Christenson et al. (Eds.), *Handbook of research on student engagement* (pp. 365–386). Springer.
17. Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research*, 83(3), 357–385.
18. Wang, M.-T., & Degol, J. L. (2016). School climate: A review of the construct, measurement, and impact on student outcomes. *Educational Psychology Review*, 28, 315–352.
19. Wang, M.-T., & Eccles, J. S. (2013). School context, achievement motivation, and academic engagement: A longitudinal study of school engagement using a multidimensional perspective. *Learning and Instruction*, 28, 12–23.
20. Wentzel, K. R. (1997). Student motivation in middle school: The role of perceived pedagogical caring. *Journal of Educational Psychology*, 89(3), 411–419.
21. Zedan, R. (2010). New dimensions in the classroom climate. *Learning Environments Research*, 13, 75–88.