

An Assessment of Classroom Environment and Self-Efficacy Influence on Mathematics Achievement among Secondary School Students in AMAC, Abuja

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Abstract

This study examined the Influence of Classroom Environment and Self-Efficacy on Mathematics Achievement Among Secondary School Students in the Abuja Municipal Area Council (AMAC), Abuja. The study was guided by three research questions and two hypotheses. Two instruments were developed, namely: Classroom Environment and Student Self-Efficacy Questionnaire (CESSQ) and Mathematics Achievement Test (MAT), with reliability coefficient value of 0.87, respectively. A purposive sampling technique was used to select three schools with high population from the AMAC Area, while simple random sampling was adopted for the selection of 90 students from each school. A total of 255 students returned their instruments and participated in the study. Descriptive and inferential statistics were used for the analysis of the data collected. The findings showed that students agreed that their classrooms were well-lit and comfortable (mean = 3.02), and that the seating arrangements supported concentration and improved performance in mathematics (mean = 2.99). Students also expressed satisfaction with the availability of learning resources, which made the subject more engaging and easier to understand (mean = 2.98). Additionally, they felt safe and respected by their peers in mathematics classes (mean = 2.98). The correlation coefficient (r) was 0.086, and the p -value was 0.170. Since the p -value exceeds 0.05, the result is not statistically significant. It is recommended that schools provide ongoing teacher training to foster supportive classroom environments and ensure sufficient resources and facilities to enhance students' focus and interest in mathematics.

Keywords: Classroom environment, self-efficacy, academic achievements, mathematics, secondary school students

Cite this as: Oni, L. O., & Nungala, J. (2026). An Assessment of Classroom Environment and Self-Efficacy Influence on Mathematics Achievement among Secondary School Students in AMAC, Abuja. *Rima International Journal of Education*, 5(5), 173—189. DOI: <https://doi.org/10.65760/rijessu.v5.5.13>

Introduction

Mathematics is universally known as an essential subject in secondary education owing to its critical role in science, technology, engineering, and decision-making. It has long been recognised as one of the most important subjects taught in both primary and secondary education systems. Its fundamental role extends beyond school walls, underpinning scientific inquiry, technological innovation, economic planning, and everyday decision-making. Mathematics is believed to play a significant role in accelerating social, economic, and technological development.

In Nigeria, the educational policy accords high priority to the teaching of mathematics, which has made the subject for all secondary school students a compulsory entry requirement into all science and technology courses in tertiary institutions (Federal Republic of Nigeria, 2014). Oni (2019) also asserted that Mathematics is not only made a compulsory subject in the curriculum of the primary and secondary school levels of the Nigerian educational system, but also as a prerequisite to the study of science courses and admission to tertiary institutions. To celebrate the beauty and significance of mathematics and the role it plays in all and sundry's life, the 40th General Conference of UNESCO held on November 26th, 2019, approved the Declaration of March 14th as the International Day of Mathematics (International Mathematics Union, 2019).

As important as this subject is, the performance of students in both internal and external examinations has been a source of great concern to mathematics educators and education stakeholders (Oni, 2021). Research attributes poor performance to a range of factors, including negative attitudes toward mathematics, weak study habits, mathematics anxiety, inadequate instructional support, and limited access to learning resources (Dowker *et al.*, 2016; Yusuf & Adigun, 2021).

Recent Nigerian studies have continued to identify classroom conditions, instructional resources, teacher practices, and mathematics anxiety as important factors associated with students' mathematics learning and achievement. For example, Ndidi and Effiong (2020) found that class size and the availability of instructional facilities significantly influenced students' academic achievement in mathematics. Similarly, Ismail *et al.* (2022) reported that certain teacher behaviours and classroom practices could intensify

mathematics anxiety, whereas a supportive learning environment and positive motivational practices could help minimise it. In Lagos State, Oladejo et al. (2023) found that a culturo-techno-contextual approach reduced mathematics anxiety and improved mathematics achievement compared with traditional lecture teaching. More recently, Rasidat et al. (2025) reported inadequacies in ICT-based resources and mathematics laboratories in Nigerian junior secondary schools, highlighting continuing challenges concerning the availability of learning resources for mathematics teaching.

In Tanzania, negative student perceptions of mathematics have been statistically linked to low secondary school performance, as learners who view the subject as difficult tend to perform poorly in national examinations, underscoring the role of student attitudes and classroom factors in achievement gaps (Kalla *et al.* 2023). Likewise, evidence from Ghana similarly shows that senior high school students' perceptions of mathematics as challenging and their accompanying anxiety are linked to lower performance outcomes (Fokuo *et al.* 2022). A study of public secondary schools in Kenya also assessed the influence of students' attitudes on performance in mathematics, showing that students who perceived mathematics as a difficult subject were less motivated to learn mathematics and more likely to perform poorly in the subject (Karigi and Tumuti, 2015). Researchers and stakeholders will continuously seek solutions to these challenges., In this regard, Classroom environment and students' self-efficacy are not left behind as some of the factors causing students' low achievement in mathematics in secondary school.

The classroom environment includes physical, social, and psychological dimensions that influence students' experiences and interactions in a learning context. It includes teacher behaviours, peer relations, instructional practices, resources, physical layout, and the emotional support students perceive within classroom settings. The school environment plays an important role in students' overall development. A positive and nurturing school climate can support students' cognitive, social, emotional, and academic development, while the quality of the school environment is associated with important student outcomes (Zainal et al., 2023).

Self-efficacy can be seen as an individual's belief in their capacity to organise and execute actions required to produce specific performance attainments, and is fundamental to understanding students' motivation and resilience in

academic tasks. Some research also highlights the reciprocal nature of the relationship between self-efficacy and mathematics achievement: while self-efficacy contributes to performance gains, successful experiences in mathematics further strengthen students' confidence in their abilities, creating a positive feedback loop that reinforces both beliefs and outcomes over time. This pattern aligns with Bandura's theory of self-efficacy, which posits that mastery experiences are among the most powerful sources of efficacy and have cascading effects on achievement behaviours. Previous researchers have demonstrated the importance of mathematics self-efficacy beliefs and their impact on predicting students' mathematics performance.

Recent research indicates that mathematics self-efficacy is closely associated with students' learning behaviours, persistence, motivation, and mathematics performance. Students who have stronger beliefs in their mathematical capabilities are more likely to demonstrate engagement and persistence when learning mathematics (Street et al., 2024). Empirical evidence also indicates a significant relationship between mathematics self-efficacy and mathematics achievement, suggesting that students' perceptions of their mathematical competence are important in understanding their performance (Yang et al., 2024).

Student achievement in mathematics is influenced by a complex interplay of factors, particularly motivation, the learning environment, and students' self-beliefs. These factors encompass intrinsic interest in mathematics, positive teacher-student relationships, engaging and relevant curriculum, supportive peer interactions, self-efficacy, clearly defined learning goals, opportunities for intellectual challenge, and a classroom culture that emphasizes effort, understanding, and risk-taking. When students perceive their classroom environment as safe and encouraging, they are more likely to engage meaningfully with mathematical content, thereby improving their academic outcomes (Gonzalez, & Torres, 2021). An assessment of the classroom environment and students' self-efficacy is essential because these factors are empirically linked with mathematics achievement and overall learning outcomes. Research shows that students' beliefs about their ability to succeed in mathematics, self-efficacy, are strongly associated with their academic performance, with higher self-efficacy correlating with better achievement outcomes.

Statement of Problem

Despite many attempts and interventions designed to improve the mathematics performance of students in secondary school, the subject remains persistently low. Some of these attempts include organising seminars, workshops, conferences, and paper publications by the Mathematics Association of Nigeria (MAN), Science Teachers Association of Nigeria (STAN), among others. Students' performance in mathematics is still below expectations. This poor performance has been traced to multiple factors, such as ineffective teaching methods, inadequate learning resources, the abstract nature of the subject, fear, phobia, anxiety, and students' psychological dispositions, such as low self-efficacy. Also, a significant number of students exhibit poor academic achievement in mathematics due to a lack of confidence in their mathematical abilities. Students with low self-efficacy often avoid challenging tasks, feel overwhelmed by academic demands, and show inadequate perseverance when faced with mathematical tasks. Also, the issue of the classroom environment, which includes the physical setting, teacher-student interaction, instructional practices, and the availability of learning materials, and a poorly managed classroom has been found to contribute to students' low performance in mathematics. However, studies have acknowledged the importance of both self-efficacy and the learning environment; there is still a significant gap in understanding how these two factors jointly impact students' academic achievement in mathematics, particularly at the secondary school level. Therefore, this study seeks to examine the extent to which classroom environment and student self-efficacy influence academic achievement in mathematics among secondary school students in Abuja Municipal Area Council, Abuja FCT.

Objective of the Study

1. To examine the influence of classroom environment on mathematics achievement among secondary school students
2. To investigate the influence of self-efficacy on mathematics achievement among secondary school students
3. To determine the joint effect of classroom environment and self-efficacy on mathematics achievement

4. To examine the moderating role of gender in the relationship between classroom environment, self-efficacy, and mathematics achievement

Research Questions

1. What is the influence of classroom environment on mathematics achievement among secondary school students?
2. What is the influence of self-efficacy on mathematics achievement among secondary school students?
3. To what extent do the classroom environment and self-efficacy jointly influence students' achievement in mathematics?

Hypotheses

H₀₁: There is no significant relationship between gender and perceived influence of the classroom environment on students' academic achievement in mathematics.

H₀₂: There is no significant relationship between class level and perceived impact of self-efficacy on students' academic achievement in mathematics.

Methodology

A descriptive survey research design was adopted for this study. The target population comprised all students in Senior Secondary Two (SS2) at selected government-established secondary schools within the Abuja Municipal Area Council (AMAC) in the Federal Capital Territory (FCT). A purposive sampling technique was used to select three (3) schools with large student populations. Simple random sampling was used to select 90 Senior Secondary School students, two (SSII) from each school. A total of 255 students returned their questionnaires and participated in the study. Two instruments were developed, namely the Classroom Environment and Student Self-Efficacy Questionnaire (CESSQ), which has a reliability coefficient of 0.87, and the Mathematics Achievement Test (MAT). The MAT consists of 20 multiple-choice questions with four options (A-D). These questions covered topics that students had been taught. The instruments were validated by experts before being administered by the researcher. The collected data were analyzed using descriptive and inferential statistical methods.

Results

Research Question One: What is the influence of classroom environment on mathematics achievement among secondary school students?

Table 1: Classroom environment's influence on the academic achievement of secondary school students in mathematics

S/N	Item	SA	A	D	SD	Mean	St. Dev.
1.	The seating arrangement in my mathematics classroom helps me concentrate and perform better in the subject.	84 (32.9)	102 (40.0)	51 (20.0)	18 (7.1)	2.99	0.903
2.	My mathematics classroom is bright enough and comfortable, making it an ideal space for learning.	73 (28.6)	126 (49.4)	43 (16.9)	13 (5.1)	3.02	0.813
3.	I feel safe and respected by my peers in the mathematics class.	72 (28.2)	122 (47.8)	46 (18.0)	15 (5.9)	2.98	0.837
4.	My mathematics teacher creates a supportive classroom atmosphere	73 (28.6)	93 (36.5)	53 (20.8)	36 (14.1)	2.80	1.011
5.	The noise level in the mathematics classroom is low enough for effective learning	38 (14.9)	82 (32.2)	68 (26.7)	67 (26.3)	2.36	1.028
6.	Learning resources displayed during a mathematics lesson make the subject quite interesting and understandable.	78 (30.6)	112 (43.9)	46 (18.0)	19 (7.5)	2.98	0.887
7.	I find the mathematics classroom visually stimulating and motivating	56 (22.0)	123 (48.2)	58 (22.7)	18 (7.1)	2.85	0.83
8.	My mathematics teacher maintains classroom discipline effectively.	86 (33.7)	111 (43.5)	43 (16.9)	15 (5.9)	3.05	0.861
9.	I have enough space and comfort to work efficiently in mathematics class	58 (22.7)	105 (41.2)	72 (28.2)	20 (7.8)	2.79	0.884
10.	A positive classroom environment motivates me to perform well in mathematics.	110 (43.1)	103 (40.4)	29 (11.4)	13 (5.1)	3.22	0.840
11.	My mathematics teacher encourages the active participation of every student in the class	110 (43.1)	98 (38.4)	32 (12.5)	15 (5.9)	3.19	0.872

Note. Percentages in parentheses

In response to the research question on how the classroom environment influences students' academic achievement in mathematics, Table 1 presents students' perceptions across eleven key indicators of the learning environment. The findings reveal that various components of the classroom setting significantly shape students' engagement and academic outcomes in mathematics. The item with the highest level of agreement was the assertion that a positive classroom environment motivates students to perform well in mathematics, with a mean score of 3.22. Closely following this were students' perceptions that their mathematics teachers encourage the active participation of every student (mean = 3.19) and maintain effective classroom discipline (mean = 3.05). These responses underscore the critical role of teacher behaviour and classroom management in creating a conducive environment for learning.

Students also agreed that their classrooms were adequately lit and comfortable (mean = 3.02), and that the seating arrangement supported concentration and better performance in mathematics (mean = 2.99).

Similarly, students expressed satisfaction with the availability of learning resources, which made the subject more interesting and understandable (mean = 2.98). Additionally, they reported feeling safe and respected by their peers in the mathematics class (mean = 2.98). These factors, ranging from physical comfort to emotional safety, are evidently essential in facilitating cognitive focus and academic success in mathematics. On a slightly lower yet still positive note, students indicated that their mathematics classrooms were visually stimulating and motivating (mean = 2.85), that their teachers created supportive classroom atmospheres (mean = 2.80), and that they had enough space and comfort to work efficiently (mean = 2.79). While these aspects were rated moderately high, they suggest potential areas for improvement in the overall classroom experience. However, one notable area of concern emerged from the data: the level of noise in the mathematics classroom. With a mean score of 2.36, this item had the lowest rating, indicating that many students found the classroom too noisy for effective learning. In summary, the data suggest that the classroom environment significantly influences students' achievement in mathematics. Positive factors such as teacher support, active participation, discipline, and resource availability were found to enhance academic outcomes.

Research Question Two: What is the influence of self-efficacy on mathematics achievement among secondary school students?

Table 2: The Influence of students' self-efficacy on their academic achievement in mathematics

S/N	Item	SA	A	D	SD	Mean	St. Dev.
1.	Confidence is shown when solving difficult mathematics problems.	98 (38.4)	107 (42.0)	34 (13.3)	16 (6.3)	3.13	0.869
2.	Strong belief in one's ability is essential for success in mathematics when effort is applied.	120 (47.1)	105 (41.2)	20 (7.8)	10 (3.9)	3.31	0.781
3.	Anxiety tends to arise when faced with unfamiliar mathematical problems.	99 (38.8)	104 (40.8)	39 (15.3)	13 (5.1)	3.13	0.855
4.	Mastery of mathematics skills is achievable with the right mindset	121 (47.5)	100 (39.2)	24 (9.4)	10 (3.9)	3.30	0.798
5.	Persistence is maintained despite experiencing poor results in mathematics	70 (27.5)	123 (48.2)	44 (17.3)	18 (7.1)	2.96	0.855
6.	Understanding of mathematical concepts is within the learner's capability.	92 (36.1)	114 (44.7)	36 (14.1)	13 (5.1)	3.12	0.834
7.	Mathematics assignments can be completed independently without assistance	95 (37.3)	90 (35.3)	50 (19.6)	20 (7.8)	3.02	0.941
8.	High performance in mathematics assessments is expected with strong self-belief.	116 (45.5)	105 (41.2)	20 (7.8)	14 (5.5)	3.27	0.827
9.	Adequate preparation contributes to readiness for mathematics tests	128 (50.2)	89 (34.9)	32 (12.5)	6 (2.4)	3.33	0.785
10.	Academic achievement in mathematics improves through consistent personal effort.	138 (54.1)	87 (34.1)	22 (8.6)	8 (3.1)	3.39	0.776

Note. Percentages in parentheses

Table 2 provides insights into how students' self-efficacy influences their performance in mathematics. The results indicate a generally high level of agreement among students that confidence, belief in one's ability, and consistent effort positively affect academic achievement. The highest mean score (3.39) was recorded for the belief that academic success in mathematics improves through consistent personal effort, followed by adequate preparation for tests (3.33), and the belief that self-confidence enhances performance (3.27). These findings suggest that students recognize the importance of mindset and preparation in achieving success. Students also expressed confidence in understanding mathematical concepts (3.12), solving difficult

problems (3.13), and working independently (3.02). While anxiety when faced with unfamiliar problems was noted (mean = 3.13), many students still reported maintaining persistence despite poor results (mean = 2.96).

Research Question Three: To what extent do classroom environment and self-efficacy jointly influence students' achievement in mathematics?

Table 3: Perceived Joint Influence of Classroom Environment and Self-Efficacy on Students' Achievement in Mathematics

S/N	Item	SA	A	D	SD	Mean	St. Dev.
1.	A good classroom environment increases my confidence in learning mathematics	142 (55.7)	90 (35.3)	15 (5.9)	8 (3.1)	2.99	0.903
2.	I do better in mathematics when I feel comfortable in the classroom	115 (45.1)	103 (40.4)	28 (11.0)	9 (3.5)	3.02	0.813
3.	When I believe in myself and have a supportive classroom, I perform better in mathematics.	152 (59.6)	81 (31.8)	13 (5.1)	9 (3.5)	2.98	0.837
4.	I feel more confident solving problems when my mathematics teacher encourages me	135 (52.9)	94 (36.9)	19 (7.5)	7 (2.7)	2.80	1.011
5.	I am more focused in mathematics class when the environment is quiet and organized.	146 (57.3)	85 (33.3)	19 (7.5)	5 (2.0)	2.36	1.028
6.	My belief in my mathematical ability improves when I receive positive feedback from teachers.	131 (51.4)	95 (37.3)	24 (9.4)	5 (2.0)	2.98	0.887
7.	A calm classroom helps me apply my mathematical skills better	115 (45.1)	107 (42.0)	24 (9.4)	9 (3.5)	2.85	0.83
8.	My self-confidence in mathematics grows in a well-managed classroom.	102 (40.0)	107 (42.0)	34 (13.3)	12 (4.7)	3.05	0.861
9.	I understand mathematics concepts better when I feel supported in class.	119 (46.7)	87 (34.1)	32 (12.5)	17 (6.7)	2.79	0.884
10.	Both my self-belief and classroom setup affect how well I do in mathematics	99 (38.8)	106 (41.6)	35 (13.7)	15 (5.9)	3.22	0.840

Note. Percentages in parentheses

Table 3 presents data on how the interaction between classroom environment and self-efficacy influences students' achievement in mathematics. The responses indicate a strong perceived synergy between these two factors. Students agreed that a good classroom environment increases their confidence in learning mathematics (mean = 2.99) and that they perform better when they

feel comfortable in class (mean = 3.02). A combined effect was also clearly acknowledged, with students affirming that believing in themselves while having a supportive classroom leads to better performance (mean = 2.98), and that both self-belief and classroom setup affect their achievement (mean = 3.22), the highest mean recorded in this section. Positive teacher feedback was also seen as boosting belief in mathematical ability (mean = 2.98), and self-confidence was reported to grow in well-managed classrooms (mean = 3.05). These results suggest that emotional support and structured classroom settings jointly strengthen students' motivation and performance. Moreover, students reported increased focus in quiet, organized environments (mean = 2.36), and improved application of skills in calm classrooms (mean = 2.85). Feeling supported in class also enhanced understanding of math concepts (mean = 2.79).

In summary, the findings suggest that both classroom environment and self-efficacy contribute significantly and in combination to students' academic success in mathematics.

Hypothesis One: There is no significant relationship between gender and perceived influence of the classroom environment on students' academic achievement in mathematics.

Table 4: The Relationship between gender and perceived influence of classroom environment on students' academic achievement in mathematics

		Gender	AEAAscore
Gender	PPMC	1.000	- 0.067
	P-value		0.287
AEAAscore	PPMC	- 0.067	1.000
	P- value	0.287	.

PPMC – Pearson Product-Moment Correlation; P-value – Significant value

* Correlation is significant at the 0.05 level (2-tailed)

Table 4 presents the Pearson Product-Moment Correlation (PPMC) analysis conducted to determine the relationship between gender and students' perception of how the classroom environment affects their academic achievement in mathematics. The correlation coefficient (r) was -0.067, and the corresponding p-value was 0.287. Since the p-value is greater than the 0.05 significance level, the result is not statistically significant. This indicates that there is no significant relationship between students' gender and their perceived influence on the classroom environment on mathematics achievement. Therefore, the null hypothesis is retained, suggesting that male

and female students generally perceive the influence of the classroom environment on their mathematics performance in similar ways.

Hypothesis 2: There is no significant relationship between class level and perceived impact of self-efficacy on students' academic achievement in mathematics.

Table 5: The Relationship between class level and perceived impact of self-efficacy on students' academic achievement in mathematics

		Class Level	CESESAscore
Class Level	PPMC	1.000	0.086
	P-value		0.170
CESESAscore	PPMC	0.086	1.000
	P- value	0.170	.

PPMC – Pearson Product-Moment Correlation; P-value – Significant value

* Correlation is significant at the 0.05 level (2-tailed)

Table 5 presents the Pearson Product-Moment Correlation (PPMC) analysis used to determine the relationship between students' class level and their perceived impact of self-efficacy on achievement in mathematics. The correlation coefficient (r) was 0.086, and the corresponding p-value was 0.170. Since the p-value is greater than the 0.05 level of significance, the result is not statistically significant. This indicates that there is no significant relationship between students' class level and how they perceive the impact of self-efficacy on their academic achievement in mathematics.

Discussion

The findings of this study revealed that the classroom environment especially teacher encouragement of participation, effective classroom discipline, adequate lighting and comfort, appropriate seating arrangement, availability of learning resources, have positive influence on students' engagement and performance in mathematics. The highest-rated item, which states that a positive classroom environment motivates students to perform well aligns with research showing that supportive and well-managed classrooms foster motivation, interest, and academic engagement in mathematics (Klieme et al., 2022; Tosto et al., 2016). The strong ratings for teacher-led factors such as active participation and classroom discipline further corroborate studies indicating that teachers' behaviour and instructional climate are central to creating learning spaces that promote achievement (Praetorius et al., 2023).

However, the relatively low mean for noise level suggests that environmental distractions may hinder effective learning. This finding is consistent with evidence that disorganized or noisy classrooms reduce students' concentration and cognitive engagement, thereby negatively affecting mathematics performance (Maxwell & Evans, 2020). Overall, these results support the view that while classroom environment may not always directly predict achievement, it plays a critical indirect role by shaping students' motivation and learning experiences (Tosto et al., 2016).

The results further indicate that students strongly believe that confidence, effort, preparation, and persistence core indicators of self-efficacy that enhance their achievement in mathematics. The highest mean scores for consistent personal effort, adequate preparation, and belief in one's ability reflect Bandura's (1997) assertion that efficacy beliefs influence how much effort learners invest in tasks and how long they persist in the face of difficulty. These results are consistent with recent large-scale studies demonstrating that mathematics self-efficacy is a robust predictor of mathematics performance across educational levels (Yang et al., 2024). Although students acknowledged experiencing anxiety when faced with unfamiliar problems, many still reported persistence despite poor results. This supports research indicating that students with strong self-efficacy are better able to cope with mathematics anxiety and remain engaged in problem-solving tasks (Bornaa et al., 2023). Thus, the findings reinforce the conclusion that self-efficacy functions as a psychological driver of mathematics achievement by promoting resilience, confidence, and sustained effort.

The study further revealed that the synergistic relationship between classroom environment and self-efficacy. Students affirmed that a good classroom environment increases their confidence and that comfort in the classroom improves performance. Both self-belief and classroom setup jointly affect achievement. This directly supports empirical models showing that classroom environment influences achievement through the mediation of self-efficacy and interest (Tosto et al., 2016; Klieme et al., 2022). Teacher encouragement and positive feedback were also identified as important factors that strengthen students' belief in their mathematical abilities, consistent with findings that teacher support enhances self-efficacy, which in turn improves performance (Praetorius et al., 2023). The emphasis on quiet and organized classrooms and calm learning spaces further highlights how structured environments facilitate

students' application of mathematical skills, supporting prior research linking classroom orderliness with improved academic outcomes (Maxwell & Evans, 2020).

Recommendations

Based on the reviewed evidence on the influence of classroom environment and students' self-efficacy on mathematics achievement, the following recommendations are proposed:

1. School administrators and government agencies should prioritise the provision of adequate instructional facilities.
2. Teachers should adopt supportive, respectful, and encouraging classroom practices
3. Mathematics teachers should consciously incorporate mastery experiences, guided practice, and constructive feedback.
4. Regular training, workshops, and seminars should be organised to equip teachers with skills for managing classroom climate effectively.
5. Overcrowded classrooms should be addressed through better planning and recruitment of qualified teachers.
6. The use of visual aids, manipulatives, and activity-based learning approaches should be encouraged to make mathematics learning more meaningful and less abstract.

Conclusion

Mathematics remains a foundational subject for scientific, technological, and socio-economic development, yet students' persistent poor performance continues to challenge educators and policymakers. Evidence from the literature shows that beyond cognitive ability, the classroom environment and students' self-efficacy beliefs play crucial roles in shaping mathematics achievement. A supportive, well-resourced, and psychologically safe classroom climate enhances students' engagement and willingness to learn, while strong self-efficacy beliefs motivate persistence, resilience, and improved performance in mathematical tasks. The interaction between these environmental and personal factors suggests that improving mathematics

achievement requires a holistic approach that addresses both the learning context and the learners' beliefs about their capabilities. Therefore, deliberate efforts toward creating conducive classroom conditions and fostering students' confidence in their mathematical abilities are essential strategies for improving mathematics outcomes among secondary school students.

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