



Strategies for Managing Classroom Difficulties to Boost Academic Performance in Mathematics Education at Ignatius Ajuru University of Education, Rivers State Nigeria

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ABSTRACT

This study investigated strategies for managing classroom difficulties to boost academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State Nigeria. The study was guided by two research questions and corresponding hypotheses. The study adopted a descriptive survey research design. The population for this study comprises 15 Mathematics Education lecturers at Ignatius Ajuru University of Education, Rivers State. Given the manageable size of the population, the census sampling technique was adopted, meaning that all 15 Mathematics Education lecturers at Ignatius Ajuru University of Education, Rivers State, were included in the study. Data were collected using a self-developed questionnaire, “Strategies for Managing Class Struggles for Effective Student Academic Performance in Mathematics Education Questionnaire (SMCSEASAPMEQ)”. The questionnaire was validated and tested for reliability using the test-retest method and the Cronbach Alpha technique, yielding a reliability coefficient of .770. Data analysis was performed using descriptive statistics (mean and standard deviation) to answer research questions and inferential statistics (independent t-tests) to test hypotheses, facilitated by SPSS version 27. Findings revealed that class struggles negatively influence students’ ability to perform well in mathematics. However, the use of structured management strategies such as scaffolded learning, self-efficacy development, peer collaboration, and differentiated instruction significantly contributes to improved academic performance. Notably, male lecturers reported higher usage of these strategies compared to their female counterparts, highlighting a gender-based difference in instructional practices. Conclusively, class struggles in mathematics education pose a significant barrier to student success, but can be managed with student-centred approaches effectively. Based on the findings, it is recommended, among others, that lecturers should be trained to identify and address class struggles through targeted support programs and early intervention strategies effectively.

Keywords: Strategies, Class Struggles, Effective, Student, Academic Performance, Mathematics Education, University of Education, Rivers State.

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INTRODUCTION

Mathematics education serves as a cornerstone of academic development, providing students with essential analytical, problem-solving, and logical reasoning skills that extend far beyond the classroom. The significance of mathematics in educational curricula cannot be overstated, as it forms the foundation for scientific advancement, technological innovation, and critical thinking processes that are increasingly vital in our modern world. At Ignatius Ajuru University of Education in Rivers State, where future educators are being prepared, the quality of mathematics education directly impacts not only individual student outcomes but also the broader educational landscape, as these students will eventually teach in schools across the region.

However, despite its fundamental importance, mathematics education faces persistent challenges that significantly impact student academic performance. Research consistently demonstrates that students encounter substantial difficulties in mathematics learning, with many experiencing what Stoehr (2017) asserted, that mathematics anxiety is a psychological phenomenon that manifests differently across individual learners. This anxiety often stems from negative past experiences, inadequate foundational knowledge, or inappropriate teaching methodologies that fail to accommodate diverse learning styles and capabilities. Students frequently struggle with abstract mathematical concepts, procedural fluency, and the ability to connect mathematical principles to real-world applications, creating barriers that can persist throughout their academic journey (Roohi et al., 2023).

The challenges in mathematics learning are particularly pronounced in the Nigerian educational context, where Adeneye et al. (2023) noted the nature of poor mathematics performance among students. These difficulties are compounded by various systemic issues, including inadequate resources, large class sizes, and limited access to modern teaching technologies. Furthermore, Obut et al. (2024) reveal that students' struggles in mathematics learning are deeply rooted in both cognitive and affective factors that require comprehensive intervention strategies.

Central to these educational challenges is the phenomenon of class struggles, which encompasses the various conflicts and tensions that arise within the mathematics classroom environment. These struggles manifest in multiple dimensions, including students' resistance to challenging mathematical tasks, fear of making mistakes, and reluctance to engage in mathematical discourse. Queen (2014) defined class struggle as an inherent aspect of the educational process, where students and teachers navigate competing interests, expectations, and approaches to learning. In mathematics education specifically, these struggles often emerge when students encounter cognitive dissonance between their existing knowledge and new mathematical concepts being introduced.

The complexity of class struggles in mathematics education is further illuminated by research on productive struggle. Russo and colleagues (2020) emphasised that elementary teachers hold varying beliefs about the role of struggle in mathematics learning, with some viewing it as necessary for deep understanding while others perceive it as potentially harmful to student confidence. This dichotomy reflects broader tensions within mathematics pedagogy regarding how to balance challenge with support, rigour with accessibility, and individual needs with curriculum demands.

Buckley and Sullivan (2023) added that anxiety and uncertainty are not obstacles to be eliminated but as natural components of the learning process that can be productively managed. Their research suggests that effective mathematics education requires careful attention to both

cognitive and emotional aspects of learning, creating classroom environments where students feel safe to struggle, make mistakes, and gradually build mathematical understanding. At Ignatius Ajuru University of Education, addressing these class struggles becomes particularly crucial as future mathematics educators must be equipped with both the theoretical understanding and practical strategies necessary to manage these complex dynamics effectively, ultimately ensuring improved student academic performance in mathematics across Rivers State's educational system.

Statement of the Problem

Class struggles have become a significant concern in mathematics education, impacting students' academic performance in universities. Students face numerous challenges in mathematics classrooms, leading to decreased motivation, poor academic achievement, and increased anxiety. Mathematics teachers often struggle to engage students, address individual learning needs, and promote a supportive learning environment. Students' difficulties in understanding mathematical concepts, coupled with inadequate teacher support, create a barrier to academic success. This situation leads to frustration, decreased confidence, and a negative attitude towards mathematics. Consequently, students' academic performance suffers, and their overall mathematical ability is hindered.

The persistence of class struggles in mathematics education necessitates immediate attention. Effective management strategies are essential to mitigate the negative impact on students' academic performance. Teachers must adopt innovative approaches to create a conducive learning environment, foster positive relationships, and cater to diverse learning needs. This study was aimed at investigating the strategies for managing classroom difficulties to boost academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State. The specific objectives are to investigate the impact of class struggles on students' academic performance and also identify class struggle management strategies that can improve students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State.

Research Questions

The following questions were raised to guide the study:

- How do class struggles impact students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State
- What class struggle management strategies can be employed to improve students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State

Hypotheses

The following hypotheses were formulated and statistically tested at a .05 level of significance:

- Class struggles have a significant impact on students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State.

- Effective class struggle management strategies can significantly improve students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State.

Theoretical framework

Albert Bandura's Self-Efficacy Theory, introduced in 1977 through his seminal work "Self-Efficacy: Toward a Unifying Theory of Behavioural Change," provides a powerful theoretical framework for understanding and addressing class struggles in mathematics education (Formella & Ugwuanyi, 2024). Emerging from social cognitive psychology, this theory emphasises that individuals' beliefs about their capabilities to perform specific tasks serve as crucial determinants of behavioural change and goal attainment, making it particularly relevant to educational contexts where student confidence and persistence are essential for academic success.

The theory posits that self-efficacy, an individual's belief in their ability to succeed in particular situations, fundamentally shapes behaviour, motivation, and overall well-being. In mathematics classrooms, this translates to students' perceptions of their mathematical capabilities directly influencing whether they will attempt challenging problems, the level of effort they invest in learning activities, and their persistence when confronted with difficulties (Abiodun, 2020). When students possess strong mathematical self-efficacy, they are more likely to engage actively with complex concepts, persist through challenging tasks, and maintain motivation despite temporary setbacks.

The relevance of Self-Efficacy Theory to managing class struggles becomes particularly evident in the Nigerian educational context. Class struggles often emerge when students experience repeated failures or encounter concepts that exceed their perceived capabilities, creating negative feedback loops where decreased self-efficacy leads to reduced effort and poorer performance. Self-Efficacy Theory principles could also help educators interrupt these cycles through strategic interventions that build students' confidence by providing scaffolded opportunities for success, offering constructive feedback that emphasises growth and improvement, and fostering environments where challenges are reframed as opportunities for development rather than threats to self-worth. This approach transforms class struggles into catalysts for enhanced mathematical self-efficacy and improved academic performance.

CONCEPTUAL CLARIFICATION

Class Struggle

Class struggles in the educational context represent the multifaceted conflicts and tensions that emerge within classroom environments, encompassing both academic and social dimensions of the learning process. Queen (2014) defined class struggle as an inherent aspect of education where students and teachers navigate competing interests, expectations, and approaches to learning, creating dynamic interactions that can either facilitate or hinder educational progress. These struggles manifest in various forms, including student resistance to challenging academic tasks, conflicts between individual learning needs and standardised curriculum demands, and tensions arising from diverse socioeconomic backgrounds and educational preparedness levels.

In mathematics education specifically, class struggles often emerge when students encounter cognitive dissonance between their existing knowledge structures and new

mathematical concepts being introduced. Russo and colleagues (2020) emphasise that these struggles are not merely obstacles to be eliminated but represent complex pedagogical phenomena that require careful management, as teachers hold varying beliefs about whether struggle enhances deep mathematical understanding or potentially damages student confidence and motivation. Class struggles extend beyond simple academic difficulties to encompass the broader power dynamics, resource allocation issues, and institutional barriers that influence classroom interactions. These struggles can manifest as student disengagement, academic anxiety, behavioural disruptions, or withdrawal from mathematical discourse, ultimately impacting both individual learning outcomes and overall classroom climate, making their effective management crucial for successful mathematics education.

Class Struggles and Students' Academic Performance in Mathematics Education

Class struggles significantly impact students' academic performance in mathematics education through complex psychological and pedagogical mechanisms that influence both learning processes and educational outcomes. When students encounter difficulties in mathematics classrooms, these struggles can create barriers that extend beyond immediate comprehension issues to affect long-term academic achievement and mathematical confidence. Obut et al. (2024) revealed that students' struggles in learning mathematics are deeply rooted in both cognitive and affective factors, demonstrating how classroom tensions directly correlate with decreased performance levels, reduced engagement, and increased mathematical anxiety among learners.

The relationship between class struggles and academic performance becomes particularly pronounced when students experience repeated failures or encounter learning environments that inadequately support their diverse needs. These struggles often manifest as decreased motivation, avoidance behaviours, and reduced participation in mathematical activities, creating negative feedback loops that perpetuate poor performance. Buckley and Sullivan (2023) emphasise that while anxiety and uncertainty are natural components of mathematical learning, their mismanagement in classroom settings can transform productive cognitive challenges into detrimental academic barriers that significantly impair student achievement.

The impact of class struggles on academic performance is further complicated by institutional factors, teaching methodologies, and individual student characteristics, making it essential for educators to develop comprehensive strategies that address both the immediate symptoms of struggle and the underlying systemic issues that contribute to diminished mathematical performance and academic success.

Class Struggle Management Strategies to Improve Students' Academic Performance in Mathematics Education

Educators design mathematics tasks that promote productive struggle by maintaining high cognitive demand while providing appropriate scaffolding support. Luby (2022) asserted that teachers must balance challenge with support, allowing students to experience manageable difficulties that build resilience and mathematical understanding. This approach transforms struggles from barriers into learning opportunities that enhance problem-solving capabilities and mathematical confidence.

Teachers are expected to create structured opportunities for students to experience incremental successes in mathematics, thereby building their confidence and belief in their mathematical abilities. Russo et al (2020) pointed out that when students develop positive beliefs about their mathematical capabilities, they demonstrate increased persistence, engagement, and willingness to tackle challenging problems, ultimately leading to improved academic performance and reduced classroom tensions.

Implementing peer tutoring and collaborative learning structures allows students to learn from each other in supportive environments that reduce individual performance anxiety. Buckley and Sullivan (2023) opined that reframing classroom dynamics to emphasise collective problem-solving and peer support helps students view struggles as shared experiences rather than personal failures, fostering a more positive mathematical learning community.

Teachers are expected to employ differentiated instructional strategies that address diverse learning needs, backgrounds, and mathematical readiness levels within the classroom. Stoehr (2017) noted that mathematics anxiety manifests differently across individual learners, requiring tailored approaches that consider students' unique challenges, learning styles, and emotional responses to mathematical content, ensuring that all students receive appropriate support to overcome their specific struggles.

REVIEW OF RELATED EMPIRICAL STUDIES

Obut et al. (2024) conducted a study aimed at exploring the various struggles students encounter in learning mathematics and how these struggles affect academic performance. Their research, based in the Philippines, revealed that cognitive difficulties, such as misunderstanding abstract concepts, as well as emotional challenges like anxiety and low self-confidence, were major barriers to effective mathematics learning. The study also highlighted instructional gaps, including a lack of teacher support and ineffective pedagogical approaches, which further exacerbate these struggles. Their findings suggest that without timely intervention, students' mathematical achievement continues to decline. The authors recommended the development of tailored instructional enhancements and learner support systems to address these challenges. The study aligns closely with findings from the present research, confirming that class struggles significantly impact students' academic outcomes in mathematics. It reinforces the importance of understanding the multifaceted nature of learning struggles and providing responsive, student-centred strategies to mitigate their effects.

Luby (2022) conducted a doctoral study focused on identifying strategies teachers can use to reduce anxiety and promote productive struggle among secondary school students in mathematics classrooms. Through interviews and classroom observations, Luby found that when teachers adopt practices such as clear goal-setting, formative feedback, collaborative learning, and scaffolding, students are more likely to remain engaged and persistent during difficult mathematical tasks. Her research emphasised that anxiety does not necessarily need to be eliminated; rather, it should be managed and reframed to encourage growth and learning. She proposed that creating psychologically safe classrooms allows students to take risks and learn from their mistakes, key aspects of productive struggle. These findings support the present study's conclusion that effective management of class struggles through intentional instructional strategies significantly enhances students' academic performance. The work revealed the value of equipping teachers with practical tools to transform struggles into meaningful, confidence-building learning experiences in mathematics education.

METHODOLOGY

This study adopted a descriptive survey research design to investigate the management of class struggles for effective student academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State. The population for this study comprises 15 Mathematics Education lecturers at Ignatius Ajuru University of Education, Rivers State. Given the manageable size of the population, the census sampling technique was adopted, meaning that all 15 Mathematics Education lecturers at Ignatius Ajuru University of Education, Rivers State, were included in the study. Data were collected using a self-developed questionnaire titled “Strategies for Managing Class Struggles for Effective Student Academic Performance in Mathematics Education Questionnaire (SMCSEASAPMEQ)”, measured on a five-point Likert scale ranging from Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always). The questionnaire was validated and tested for reliability using the test-retest method and the Cronbach Alpha technique, yielding a reliability coefficient of .770. Data analysis was performed using descriptive statistics (mean and standard deviation) to answer research questions and inferential statistics (independent t-tests) to test hypotheses, facilitated by SPSS version 27. Meanwhile, a total of 15 questionnaires were distributed; 12(80%) were retrieved, valid and used for the analysis.

RESULTS

Research Questions One: How do class struggles impact students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State?

Descriptive Statistics Table: Class struggles impact students' academic performance in mathematics education

S/N	Item	Mean	SD.	Decision
1	My student finds it difficult to understand mathematical concepts in class	3.65	0.52	Often
2	Class struggles (e.g., difficulty understanding concepts, lack of engagement) affect my students' academic performance	3.80	0.48	Often
3	I feel frustrated or discouraged when my students are faced with challenging mathematics problems in class	3.42	0.60	Often
4	I help my students alleviate class struggles and improve their academic performance	4.00	0.50	Often
Grand Mean		3.72		Often

Table one presents the descriptive statistics on lecturers' perceptions of how class struggles impact students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State. All four items recorded mean scores above the criterion mean of 3.0, indicating general agreement among the respondents. Item 1, which states that students find it difficult to understand mathematical concepts in class, had a mean of 3.65, suggesting that lecturers recognise a consistent struggle with comprehension. Item 2 had the highest relevance to the research question, with a mean of 3.80, strongly indicating that class struggles, such as difficulty understanding concepts and lack of engagement, significantly affect academic performance. Lecturers also expressed emotional involvement, as seen in item 3 (mean-3.42), where they reported feeling frustrated or discouraged when students face mathematical challenges. Importantly, item 4 showed that lecturers actively assist students in overcoming these

struggles (mean=4.00). The grand mean of 3.72 confirms a collective agreement that class struggles significantly impact students' academic performance, thus answering the research question affirmatively.

Research Question Two: What class struggle management strategies can be employed to improve students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State?

Descriptive Statistics Table: Class struggle management strategies to improve students' academic performance in mathematics education

S/N	Class Struggle Management Strategy	Mean	SD.	Decision
5	I employ scaffolded productive struggle implementation strategies to improve students' academic performance in mathematics education	4.10	0.60	Often
6	I adopted building mathematical self-efficacy through successful experiences as a strategy to improve students' academic performance in mathematics education	4.25	0.55	Often
7	I employ collaborative peer learning and support systems as a strategy to improve students' academic performance in mathematics education	4.05	0.70	Often
8	I employ differentiated instruction and individualised support as a strategy to improve students' academic performance in mathematics education	4.40	0.50	Often
Grand Mean		4.20		Often

Table two presents the descriptive statistics on class struggle management strategies used by mathematics education lecturers at Ignatius Ajuru University of Education to improve students' academic performance. The data revealed that all four strategies recorded mean scores above the criterion mean of 3.0, indicating they are used more than occasionally, with all scoring in the "Often" range (mean ≥ 4.0). Lecturers reported frequently employing scaffolded productive struggle strategies (Mean = 4.10), which guide students through complex problems in a structured way. The use of self-efficacy-building strategies (Mean = 4.25) shows that fostering students' belief in their mathematical abilities is a common and intentional approach. Likewise, collaborative peer learning systems (Mean = 4.05) and differentiated instruction (Mean = 4.40) are widely adopted to tailor support to individual student needs. With a grand mean of 4.20, the findings suggest that these class struggle management strategies are consistently and actively employed, demonstrating their perceived effectiveness in enhancing mathematics academic performance.

TEST OF HYPOTHESES

Hypothesis One: There is no significant difference between male and female lecturers in the class struggles that have a significant impact on students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State

Hypothesis Testing Table on Class Struggles: Has a significant impact on students' academic performance in mathematics education

Lecturers	N	\bar{x}	SD.	Df	t	t-tab	Sig.	Decision
Male	9	3.78	0.44	11	2.49	2.228	.033	Significant (Reject Ho)
Female	3	3.10	0.40					

The independent samples t-test was conducted to examine whether there is a significant difference between male and female lecturers' perceptions of the impact of class struggles on students' academic performance in mathematics education. The result shows that $t = 2.49$ is greater than $t_{\text{tab}} = 2.228$, and the p-value (0.033) < 0.05 , indicating a statistically significant difference. Therefore, the null hypothesis is rejected, and it implies that gender influences lecturers' perceptions. Male lecturers reported a higher mean perception (3.78) compared to female lecturers (3.10), suggesting that they view class struggles as having a greater impact on students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State.

Hypothesis Two: There is no significant difference between male and female lecturers in the use of effective class struggle management strategies to improve students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State.

Independent t-test Table on the effective class struggle management strategies to improve students' academic performance in mathematics education

Lecturers	N	\bar{x}	S.D	Df	t	t-tab	Sig.	Decision
Male	9	4.30	0.40	11	2.58	2.228	.027	Significant (Reject H_0)
Female	3	3.80	0.35					

An independent samples t-test was conducted to determine whether there is a significant difference between male and female lecturers in the use of class struggle management strategies to improve students' academic performance in mathematics education. The results show a t-value of 2.58, which is greater than the critical value of 2.228, with a p-value of .027, less than 0.05. Therefore, the null hypothesis is rejected, indicating a statistically significant difference. Male lecturers (Mean = 4.30) reported a higher use of these strategies than female lecturers (Mean = 3.80), suggesting that male lecturers are more proactive or consistent in applying management strategies to support students facing classroom struggles in mathematics education at Ignatius Ajuru University of Education, Rivers State.

DISCUSSION OF FINDINGS

Class struggles have a significant impact on students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State

The results of the independent samples t-test indicated a statistically significant difference between male and female lecturers' perceptions regarding the impact of class struggles on students' academic performance. Male lecturers, on average, perceived a higher level of negative impact from struggles such as difficulty in understanding mathematical concepts and lack of classroom engagement. This finding aligns with Obut et al. (2024), who explored students' struggles in learning mathematics and identified key barriers such as poor foundational knowledge, anxiety, and lack of motivation. Their study emphasised that class struggles significantly hinder students' mathematical achievement, especially when support mechanisms are lacking. Similarly, Queen (2014) argued that class-based disparities and socio-academic pressures influence how students engage with classroom content, particularly in subjects perceived as difficult, such as mathematics. These findings underscore the critical need for

context-aware teaching strategies and support systems that recognise and address the roots of class struggles, particularly in Nigerian tertiary institutions where economic, social, and psychological barriers often converge to affect academic outcomes.

Effective class struggle management strategies can significantly improve students' academic performance in mathematics education at Ignatius Ajuru University of Education, Rivers State.

Findings from the independent samples t-test revealed a significant difference in strategy use between male and female lecturers, with male lecturers reporting more frequent use of management strategies. Overall, the result showed that class struggle management strategies, such as scaffolded instruction, peer support, self-efficacy building, and differentiated instruction, are perceived to significantly improve student outcomes. This result is strongly supported by Luby (2022), who emphasised the effectiveness of specific teaching strategies in reducing mathematics-related anxiety and promoting productive struggle. Her study outlined interventions such as collaborative learning, supportive feedback, and goal-setting as methods that reduce cognitive overload and help students persist through mathematical challenges. Additionally, Buckley and Sullivan (2023) argued that reframing anxiety and uncertainty in the classroom by normalising struggle as part of learning empowers students and enhances resilience. The current findings confirm that effective strategy implementation plays a critical role in addressing class struggles and improving academic performance. This has significant implications for mathematics educators in Nigerian universities, who must prioritise not only content delivery but also adaptive teaching practices that support students emotionally and cognitively.

CONCLUSION

Class struggles in mathematics education encompass a range of challenges such as difficulty understanding abstract concepts, low engagement, anxiety, and lack of individualised academic support. At Ignatius Ajuru University of Education, these struggles significantly affect students' academic performance, especially in mathematics, a subject often perceived as complex and demanding. Therefore, class struggles pose a substantial barrier to student success in mathematics education. However, when effectively managed through student-centred instructional approaches, these challenges can be transformed into opportunities for growth and deeper understanding. It is therefore essential for the university to support lecturers in adopting evidence-based teaching strategies that promote resilience, engagement, and academic achievement among mathematics students.

Recommendations

Based on the findings, the following recommendations were made:

- Lecturers should be trained to identify and address class struggles through targeted support programs and early intervention strategies effectively.
- Mathematics educators should integrate proven management strategies like scaffolded instruction and collaborative peer learning into teaching practices daily.

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