

## Assessment of Instructional Strategies on Students' Phobias and General Learning Difficulties in Senior Secondary Schools Mathematics

### Penilaian Strategi Pengajaran terhadap Fobia Siswa dan Kesulitan Belajar Umum pada Matematika di Sekolah Menengah Atas

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<p><b>ARTICLE HISTORY</b> Received [28 August 2025] Revised [30 August 2025] Accepted [12 September 2025]</p>	<p><b>ABSTRAK</b></p>
<p><b>KEYWORDS</b> Instructional Strategies, Mathematics Phobia, Learning Difficulties, Senior Secondary Education</p>	<p>Fobia Matematika dan Kesulitan Belajar Umum terus menjadi hambatan signifikan terhadap pencapaian siswa di sekolah menengah di Nigeria. Mengingat pentingnya matematika untuk kemajuan akademik dan peluang karir di masa depan, keberlanjutan tantangan ini sangat terkait dengan pendekatan pengajaran yang diterapkan oleh guru. Penelitian ini mengkaji sejauh mana strategi pengajaran yang diterapkan oleh guru matematika mempengaruhi pengalaman siswa terhadap fobia dan kesulitan belajar di sekolah menengah atas di seluruh Negara Bagian Kwara. Penelitian ini menggunakan desain survei deskriptif, dengan sampel yang terdiri dari lima puluh guru matematika yang dipilih secara purposive dan seratus siswa yang dipilih secara acak dari Wilayah Pemerintah Lokal Ilorin Timur dan Barat. Data dikumpulkan menggunakan kuesioner yang dikembangkan oleh peneliti yang telah divalidasi dan menghasilkan koefisien reliabilitas Cronbach's Alpha sebesar 0,75. Analisis data melalui hitungan frekuensi dan skor rata-rata menunjukkan bahwa guru-guru menggunakan strategi pengajaran yang beragam dalam jumlah terbatas (rata-rata = 1,27, di bawah patokan 1,50). Hasil penelitian lebih lanjut menunjukkan bahwa siswa menunjukkan tingkat fobia matematika yang tinggi (rata-rata tertimbang = 2,28) dan tingkat kesulitan belajar yang sedang hingga tinggi (rata-rata tertimbang = 2,21). Penelitian ini merekomendasikan pergeseran pedagogis dari metode konvensional menuju strategi interaktif yang mengintegrasikan konteks kehidupan nyata dan aplikasi teknologi, sehingga membuat ide-ide abstrak lebih konkret dan mengurangi kecemasan siswa. Temuan ini memiliki relevansi teoritis untuk memperkaya diskusi tentang reformasi pengajaran dalam pendidikan matematika dan signifikansi praktis untuk membimbing guru menuju praktik yang mendorong disposisi positif dan meningkatkan kinerja siswa.</p>
<p>This is an open access article under the <a href="https://creativecommons.org/licenses/by-sa/4.0/">CC-BY-SA</a> license</p>	<p><b>ABSTRACT</b></p>
	<p><i>Mathematics phobia and general learning difficulties continue to pose significant barriers to students' achievement in Nigerian secondary schools. Given the importance of mathematics to both academic progression and future career opportunities, the persistence of these challenges is closely linked to the instructional approaches employed by teachers. This study examined the extent to which instructional strategies adopted by mathematics teachers influence students' experiences of phobia and learning difficulties in senior secondary schools across Kwara State. The research adopted a descriptive survey design, with a sample comprising fifty purposively selected mathematics teachers and one hundred randomly chosen students from Ilorin East and West Local Government Areas. Data were gathered using a researcher-developed questionnaire that was validated and yielded a Cronbach's Alpha reliability coefficient of 0.75. Analysis of data through frequency counts and mean scores indicated that teachers made limited use of diverse instructional strategies (mean = 1.27, below the 1.50 benchmark). Results further showed that students exhibited high levels of mathematics-related phobia (weighted average = 2.28) and moderate-to-high levels of learning difficulties (weighted average = 2.21). The study recommends a pedagogical shift from conventional methods toward interactive strategies that integrate real-life contexts and technological applications, thereby making abstract ideas more concrete and reducing learner</i></p>



*anxiety. The findings hold theoretical relevance for enriching discussions on instructional reform in mathematics education and practical significance for guiding teachers toward practices that encourage positive dispositions and enhance performance among students.*

## INTRODUCTION

An effective mathematics classroom at the senior secondary level should be characterised by teaching practices that promote conceptual understanding, strengthen problem-solving competencies, and alleviate anxiety through approaches that render abstract ideas concrete and accessible. Learner-centred strategies combined with the purposeful use of technology are expected to instil confidence, encourage positive attitudes, and lead to improved performance in the subject. Nonetheless, research evidence from Nigerian schools reveals a marked disparity between these pedagogical ideals and the realities observed in practice. Many mathematics teachers continue to depend predominantly on traditional lecture methods, while students frequently report high levels of anxiety and persistent difficulties in grasping mathematical concepts. Recent empirical studies have shown that innovative approaches such as systematic desensitisation, blended instructional methods, mastery learning models, and structured intervention programs can significantly reduce mathematics phobia, enhance learner engagement, and improve academic outcomes when appropriately applied (Adeniyi & Modebelu, 2024; Egara & Mosimege, 2024; Charles-Owaba, 2024; Akinpelu et al., 2025). These insights underscore the pressing need to investigate the instructional strategies currently employed in senior secondary schools in Kwara State to determine their contribution to mathematics-related anxiety and learning difficulties. Such an assessment is essential to inform evidence-based pedagogical reforms capable of making mathematics learning more approachable, engaging, and less intimidating for students.

Teaching of mathematics has also progressed significantly over the years, with researchers and mathematics educators constantly seeking more effective instructional strategies to enhance students' understanding and retention of mathematical concepts, which could alleviate mathematics phobia among learners. This is because students' performance is still questionable up to today, especially in mathematics external examinations. According to the reports of the West African Examination Council Chief Examiners for the years 2019, 2020, 2021, 2022, and 2023, respectively, only 65.31%, 65.71%, 54.11%, 61.39%, and 61.18% of all applicants who took the examination had five credits or more, including English language and Mathematics. Students' failure in mathematics at the secondary school level has been attributed to many variables, but teachers' variables seem to take the lead among all the variables recognised by different researchers (Adeniyi & Akanmu, 2020; Kunwar, 2020; Retnowati et al., 2017).

This pattern indicated low mathematical performance that might be caused by teachers' method of teaching, students' interest, mathematics phobia and general learning difficulties. Mathematics achievement problems are usually due to a combination of teaching and student factors, including language, cognitive, metacognitive, social, and emotional factors, habits of learning, and previous experiences (Rajkumar & Hema, 2017). Long-term mathematics phobia results in a dislike of the subject, but this issue can be solved if Mathematics teachers can explore a variety of instructional strategies, including problem-based learning, cooperative learning, flipped classroom, and the use of technology such as educational applications and internet resources, to raise students' mathematical performance and engagement (Zhao et al., 2021). Kunwar (2020) pointed out that the main causes of students' poor performance were their lack of understanding of some mathematical concepts and their inability to develop a positive attitude toward the subject due to the phobia of mathematics, inadequate teaching materials and teacher teacher-student relationship.

Omboko (2024) declared that the use of the conventional method of teaching affects the performance of students in mathematics and emphasised the need for teacher training for effective pedagogical approaches, which bring about an interactive teaching method and give



room for critical thinking. A teacher is a trained and licensed professional who is saddled with the responsibilities of facilitating knowledge among the learners, which cannot be done coercively (Adeniyi & Akanmu, 2020). Therefore, a facilitator of knowledge must be an innovator, dispenser of knowledge who influences learners to learn through his or her instructional strategies employed during the teaching and learning process. Instructional strategies are methodologies employed by educators to facilitate learning and achieve desired educational outcomes (Day et al., 2016). The instructional strategies for teaching mathematics can vary based on the age group, learning objectives, and individual student needs. Direct instruction, problem-based learning (PBL), cooperative learning, differentiated instruction, visual representation, technology integration, flipped classroom, and metacognitive strategies are some of the effective instructional strategies that are frequently used in mathematics education. According to Retnowati et al. (2017), collaborative learning instructional strategies improve students' learning in mathematics, and when students work together to solve problems, they may experience less anxiety related to failure. PBL involves students in solving real-world, complex problems, which fosters inquiry, critical thinking, and problem-solving abilities.

Pokhrel (2023) discussed how PBL shifts the focus from content delivery to inquiry-based learning, promoting deeper understanding and long-term retention of knowledge. Differentiated instruction is another strategy that recognises and accommodates the diverse needs, interests, and learning profiles of students. El-Sabagh (2022) investigated adapting content, process, and product according to students' readiness, interests, and learning profiles and found that differentiated instruction maximises learning outcomes and remediates phobias in mathematics. Mathematics phobia can make students question their abilities in Mathematics. Learning difficulties can affect academic performance, self-esteem, and social interactions. Learning difficulties and mathematics phobia can be considered as two factors that contribute to the low level of problem-solving skills of students in Mathematics.

Learning difficulties in mathematics can be minor, severe, or present in a variety of ways, while mathematics phobia can continuously linger in a person if care is not taken (Omeiza & Ahmed, 2023). Kunwar (2020) noted that mathematics for some students is basically associated with pain and frustration, and this may account for the reason why students have a phobia of studying mathematics. Das (2020) characterised mathematics phobia as a psychological structure that interferes with developing students' learning skills, while learning difficulties refer to challenges that affect an individual's ability to acquire knowledge, particularly in understanding and application of mathematics concepts. It is a condition that affects a person's ability to learn in the usual manner. Mathematics phobia can cause learning difficulties, and students with mathematics phobia may avoid engaging with mathematics tasks, leading to less practice and poorer performance.

Also, learning difficulties can trigger anxiety, which worsens the performance of learners, which could lead to more anxiety. Generally, there is a negative correlation between mathematics performance and mathematics phobia; if this issue among the students is not taken care of on time, it could have a grim effect on the educational system (Das, 2020). The detrimental effects of mathematics phobia on students' academic performance and long-term success are well-documented, prompting educators and researchers to investigate instructional strategies to mitigate these concerns. According to Kunwar (2020), students' perceptions of mathematics as challenging have an impact on their perseverance, interest, boredom, and self-efficacy views in relation to mathematics, in addition to their enjoyment of the subject. By its very nature, Mathematics makes high conceptual demands on students and it involves procedures that may appear to be abstract and unrelated to life, which needs to be taught by dedicated mathematics teachers who are ready to make abstract concepts as real with the use of instructional strategies.

By so doing, there is a need for teachers to search for alternative methods of instruction to be used in teaching mathematics in an approachable, comprehensible and entertaining way with good teaching tactics that help students overcome their phobias and learning difficulties to improve their performance in mathematics examinations. Many researchers (Akujeze 2024;



Jyrwa & May, 2025; Ojo et al., 2023) addressed mathematics phobia, learning difficulties and strategies for enhancing secondary school mathematics performance. These studies found that emotional support, academic intervention and teachers' instructional strategies can remediate mathematics phobia, which causes learning difficulties. Learning difficulties can also lead to mathematics phobia if students repeatedly experience failure, leading to frustration and fear (Najma, 2024).

Learning difficulties manifest in different ways, affecting the acquisition, retention, understanding, or use of verbal or non-verbal information with number-related concepts. There are different types of learning difficulties, such as dyslexia, dysgraphia, dyscalculia, auditory processing disorder, and visual processing disorder. Students who struggle with basic numeracy and experience trouble with problem-solving are referred to as dyscalculia. Dyscalculia is a specific learning disability in mathematics that impacts students' capacity to do mathematics (Rajkumar & Hema, 2017). Students who repeatedly experience failure and lack of support can associate mathematics with negative emotions. The study by Guner (2020) identifies various difficulties high school students face in mathematics, which include problems of abstract mathematics, complex concepts, weak foundational skills and lack of confidence, which brings about anxiety and feeling overwhelmed when dealing with mathematics-related tasks known as mathematics phobia.

Issa et al. (2020) investigated teaching methods on the academic performance of secondary school learners and found that an innovative method of teaching improved learners' performance. Therefore, teachers need to improve the usage of instructional strategies for better performance in mathematics. Despite the importance of mathematics to everyday life, students' performance in mathematics is still very low due to a phobia, which has brought about learning difficulties. This phobia affects individual learners to acquire knowledge, particularly in understanding and applying mathematics concepts. Studies revealed that many students developed a phobia for mathematics based on negative past experiences, lack of conceptual understanding, cultural perceptions, teaching methods and fear of failure (Kunwar, 2020; Salahudeen, 2023; Odiliobi, 2024).

This phobia and learning difficulties towards mathematics could discourage students from engaging in mathematics class, which might result in poor performance. Many efforts have been put in place to know the causes of poor performance, in which phobia and general learning difficulties among learners are one of the factors affecting students' performance in mathematics, while the method of teaching employed by the teacher is observed to be one of the reasons for phobia among learners. To tackle all these related factors, Mathematics educators can create a dynamic and engaging learning environment that supports students' mathematical development and reduces phobias among learners with a variety of instructional strategies. Hence, it is necessary to identify instructional strategies that can be used by teachers to remediate phobias and general learning difficulties among learners, since the success or failure of any educational process is based on teachers' ability to deliver the content using instructional strategies. This study investigated instructional strategies for students' phobias and general learning difficulties in senior secondary schools' mathematics.

#### Purpose of the Study

The main purpose of this study was to assess instructional strategies on students' phobias and general learning difficulties in mathematics among secondary school students in Kwara State. Specifically, the study aimed to:

1. identified instructional strategies adopted by Mathematics teachers in secondary schools;
2. ascertained the level of secondary school students' phobia towards Mathematics in Kwara State;
3. examined the learning difficulties encountered by secondary school Mathematics students in Kwara State.



## Research Questions

In line with the purpose of the study, the following research questions were raised and answered to guide this study;

1. What are the instructional strategies that Mathematics teachers employ in the teaching of secondary school students?
2. What is the level of secondary school students' phobia towards Mathematics in Kwara State?
3. What are the general learning difficulties encountered by secondary school Mathematics students in Ilorin metropolis?

## RESEARCH METHODOLOGY

The research design for this study was a descriptive survey conducted in Kwara state, focusing on a population of 50 teachers and 100 secondary school students. The respondents were selected as they represent a manageable sample size for an in-depth investigation into the objectives of the study. For data collection, a researcher-designed questionnaire was employed titled "Instructional Strategies employed by Mathematics Teachers' Questionnaire (ISMTQ), Senior School Students' Phobia in Mathematics (SSSPM), and General Learning Difficulties in Mathematics (GLDMS) for teachers and learners. The instrument was grouped into two sections. Section A and B. Section A of the questionnaire was on respondent information, while Section B measured the instructional strategies employed by teachers, the level of secondary school students' phobia towards mathematics and general learning difficulties among learners. The instrument underwent thorough validation by two Mathematics educators and an expert in measurement and evaluation. Their feedback was input which addressed content coverage, language clarity, question arrangement and time adequacy. To ascertain the reliability of the instrument, the Pearson Product-Moment Correlation Coefficient (PPMC) method was employed, with a reliability coefficient of 0.80, indicating the instrument is reliable and stable. Data was analysed using the frequency count, simple percentage, mean and standard deviation. Statistical Product and Service Solution (SPSS) version 26.0 was used to analyse the data.

## RESULTS AND DISCUSSION

**Research Question 1:** What are the instructional strategies that Mathematics teachers employ in the teaching of secondary school students?

Table1. *Instructional strategies that mathematics teachers employ in the teaching of secondary school students*

S/N	Checklist for Instructional Strategies	ADOPTED	NOT ADOPTED	MEAN	STD
1	Direct Instruction: Clear, structured delivery of content and skills by the teacher	3 (6.0)	47 (94.0)	1.06	0.23
2	Collaborative Learning: Students work together in small groups to solve problems and understand concepts	15 (30.0)	35 (70.0)	1.30	0.46
3	Problem-Based Learning (PBL): Students engage in real-world problems to develop solutions	5 (10.0)	45 (90.0)	1.10	0.30
4	Inquiry-Based Learning: Encourages questioning, exploration, and investigation of mathematical concepts	14 (28.0)	36 (72.0)	1.28	0.45
5	Differentiated Instruction: Tailoring teaching to meet diverse student needs	16 (32.0)	34 (68.0)	1.32	0.47
6	Flipped Classroom: Students learn content at home and apply it in class	29 (58.0)	21 (42.0)	1.58	0.49
7	Scaffolding: Providing temporary support, gradually	19 (38.0)	31 (62.0)	1.38	0.49

	removed as proficiency grows				
8	Use of Manipulatives: Physical objects to support understanding of abstract concepts	8 (16.0)	42 (84.0)	1.16	0.37
9	Mathematical Modelling: Applying math to solve real-life problems	11 (22.0)	39 (78.0)	1.22	0.41
10	Math Games and Puzzles: Making learning fun and engaging	17 (34.0)	33 (66.0)	1.34	0.47
WEIGHTED MEAN=1.27					

Note: **Criterion, mean  $\geq 1.5$**  and the figures in parentheses are in percentages

From the Table 1 above, it can be discovered that the instructional strategies that mathematics teachers employ in the teaching of secondary school students follows: Direct Instruction (1.06) i.e ( $\bar{x}:1.50 > 1.06$ ); Collaborative Learning (1.30) i.e ( $\bar{x}:1.50 > 1.30$ ); Problem-Based Learning (1.10) i.e ( $\bar{x}:1.50 > 1.10$ ); Inquiry-Based Learning (1.28) i.e ( $\bar{x}:1.50 > 1.28$ ); Differentiated Instruction (1.58) i.e ( $\bar{x}:1.50 < 1.58$ ); Flipped Classroom (1.38) i.e ( $\bar{x}:1.50 > 1.06$ ); Scaffolding (1.16) i.e ( $\bar{x}:1.50 > 1.16$ ); Use of Manipulative (1.22) i.e ( $\bar{x}:1.50 > 1.22$ ); and Math Games and Puzzles (1.34) i.e ( $\bar{x}:1.50 > 1.34$ ) were all indicated the instructional strategies that mathematics teachers employ in the teaching of secondary school students. The weighted average of 1.27, which is below 1.50, implies that only a few teachers adopted each strategy, suggesting generally low adoption of innovative instructional strategies, which indicates that these instructional strategies are underutilised by teachers in the teaching of mathematics among secondary school students.

**Research Question 2:** What is the level of secondary school students' phobia towards Mathematics in Kwara State?

Table 2. *Level of secondary school students' phobia towards mathematics in Ilorin metropolis.*

SN	Statements	High	Moderate	Low	Mean
1	I feel anxious when I have to solve a mathematics problem in class.	44(41.5)	16(15.1)	40(37.7)	2.04
2	I avoid subjects that involve a lot of calculations	68(64.2)	17(16.0)	14(13.2)	2.56
3	I get nervous when I know I have a mathematics test coming up	76(71.7)	4(3.8)	20(18.9)	2.56
4	I worry about making mistakes in mathematics class	77(72.6)	13(12.3)	10(9.4)	2.67
5	I feel tense and uptight when I have to work on mathematics homework	46(43.4)	25(23.6)	29(27.4)	2.17
6	The thought of learning new mathematics concepts scares me	35(33.0)	22(20.8)	42(39.6)	1.95
7	I find it difficult to concentrate during mathematics lessons	39(36.8)	25(23.6)	36(34.0)	2.03
WEIGHTED MEAN=2.28					

The level of phobia scale ranges in the following way: Low Phobia (1.00-1.80); Moderate Phobia (1.81-2.40); High Phobia (2.41-3.00), and the figures in parentheses are in percentages. From Table 2, showing the level of secondary school students' phobia towards mathematics in Ilorin metropolis follows: I feel anxious when I have to solve a math problem in class (2.04), I avoid subjects that involve a lot of calculations (2.56), I get nervous when I know I have a mathematics test coming up (2.56), I worry about making mistakes in mathematics class (2.67), I feel tense and uptight when I have to work on mathematics homework (2.17), The thought of learning new

mathematics concepts scares me(1.95), I find it difficult to concentrate during math lessons(2.03). This indicated that all the categories of learners fell between moderate and high levels of phobia. Also, the weighted average was 2.28, which is greater than 2.0; this shows that the level of secondary school students' phobia towards mathematics in Ilorin metropolis is high.

**Research Question 3:** What are the general learning difficulties encountered by secondary school Mathematics students in Ilorin metropolis?

Table 3. General learning difficulties encountered by secondary school Mathematics students in Ilorin metropolis

S/N		SA	A	SD	D	MEA	STD
1	I find it difficult to recall mathematical formulas	-	53(53.0)	18(18.0)	29(29.0)	2.24	0.87
2	I find the procedures in mathematical calculation process difficult.	10(10.0)	26(26.0)	15(15.0)	49(49.0)	1.97	1.07
3	I often find it hard to apply theoretical mathematical knowledge in real-world situations	4(4.0)	52(52.0)	14(14.0)	30(3.0)	2.30	0.94
4	It is difficult for me to grasp abstract mathematical concepts without concrete examples	14(14.0)	49(49.0)	22(22.0)	15(15.0)	2.62	0.90
5	I find it challenging to solve multi-step mathematical problems.	18(18.0)	36(36.0)	20(20.0)	26(26.0)	2.46	1.06
6	Understanding and interpreting word problems in mathematics is always difficult for me.	-	26(26.0)	28(28.0)	46(46.0)	1.80	0.82
7	Visualizing geometric shapes is difficult for me.	14(14.0)	47(47.0)	11(11.0)	28(28.0)	2.47	1.04
8	The pace of mathematics instruction often leaves me behind.	-	42(42.0)	24(24.0)	34(34.0)	2.08	0.87
9	I have trouble connecting new mathematical concepts with previously learned material.	-	33(33.0)	29(29.0)	38(38.0)	1.95	0.84
		WEIGHTED MEAN=2.21					

**Note:** Criterion: mean  $\geq 2.5$ , and the figures in parentheses are in percentages

Table 3 shows the general learning difficulties encountered by secondary school Mathematics students in Ilorin metropolis follows: I find it difficult to recall mathematical formulas 2.24, I find the procedures in the mathematics calculation process difficult. 1.97, I often find it hard to apply theoretical mathematical knowledge in real-world situations. 2.30, It is difficult for me to grasp abstract mathematical concepts without concrete examples. 2.62, I find it challenging to solve multi-step mathematical problems. 2.46, Understanding and interpreting word problems in mathematics is always difficult for me. 1.80, Visualising geometric shapes is difficult for me. 2.47, The pace of mathematics instruction often leaves me behind. 2.08, I have trouble connecting new mathematical concepts with previously learned material 1.95. The analysis showed that item 4 has the highest mean (2.62>2.50), which shows high difficulties, then item 1, 3, 5 and 7, indicating moderate difficulties, while item 2, 6, 8,9 showed less significant difficulties. The students' overall general learning difficulties are low, as indicated by the weighted mean of 2.21, which is less than 2.5.



## Discussion of Findings

From the study, direct instruction, collaborative learning, problem-based learning, inquiry-based learning, differentiated instruction, flipped classroom, scaffolding, use of manipulatives and mathematics games and puzzles were identified as the instructional strategies that teachers employ in the teaching of mathematics among secondary school students, although they were not adopted effectively. This finding corroborates that of Adeniyi and Akanmu (2020); Najma (2024) who found that low and no adoption of innovative instructional tools affects student learning, which brings about mathematics phobia and general learning difficulties. From the study, the level of secondary school students' phobia towards mathematics starting from how students feel when solving mathematics problem in class, avoiding subjects that involve a lot of calculations, get nervous for mathematics test, get worry about making mistakes in mathematics class, feel tense and uptight when to work on mathematics homework, scare for learning new mathematics concepts, difficult to concentrate during mathematics lessons. All these are factors responsible for high-level phobias among learners. This finding is in line with that of Najma (2024); Omeiza & Ahmed (2024), who found that a high level of phobia affects the learning of mathematics. From the study, students identified the following to be difficult: to recall mathematical formulas and procedures in mathematical calculation process, to apply theoretical mathematical knowledge in real-world situations, challenges to solve multi-step mathematical problems. In interpreting word problems in mathematics, visualising geometric shapes trouble in connecting new mathematical concepts with previously learned material. These findings were consistent with the findings of Guner (2020), who identified various difficulties students face in mathematics.

## CONCLUSION

This study has provided valuable insights into instructional strategies to curb mathematics phobia. The findings highlight the importance of employing innovative teaching strategies such as collaborative methods, inquiry-based, mathematical modelling, math games and puzzles and so on in remediating phobias and general learning difficulties. Based on the study's findings, it can be said that very few mathematics teachers have incorporated innovative instructional strategies into their teaching methods. The study also found that students in secondary school have a high level of math phobia and that learning difficulties arise when students fail, which causes them to become frustrated and afraid. Therefore, the study recommended that; Teachers should be sensitised to make a personal effort to develop themselves adequately in their specialised subjects to be innovative in their teaching exercise. Educational bodies should consistently update the knowledge of teachers through training, conferences on instructional strategies to alleviate mathematics phobia among the learners. The Students-teachers relationship should be encouraged to reduce the level of phobia among learners.

## REFERENCES

- Adeniyi, C. O. & Akanmu, M. A. (2020). Difficult concepts identification in mathematics curriculum by Nigerian senior secondary school mathematics teachers. *Nigeria Online Journal of Educational Sciences and Technology (NOJEST)*, 1(1), 12-21
- Adeniyi, C. O., & Modebelu, O. J. (2024). Prevalence and management of mathematics phobia among public senior secondary school students in Lagos State. *African Journal of Science, Technology, Mathematics and Engineering (AJSTME)*, 10(3),



419–424.

[https://www.ajstme.com.ng/admin/img/paper/419-](https://www.ajstme.com.ng/admin/img/paper/419-424_AJSTME10_1_208.pdf)

[424\\_AJSTME10\\_1\\_208.pdf](https://www.ajstme.com.ng/admin/img/paper/419-424_AJSTME10_1_208.pdf)

- Akinpelu, G. A., Akinpelu, S. A., Folorunsho, M. S., Ameen, K. S., Adebayo, S. R., Daramola, C. Y., & others. (2025). Impact of mastery learning instructional scheme on post-basic school students' engagement levels in mathematics in Osogbo, Nigeria. *Discover Education / Education Research International*. <https://doi.org/10.1007/s44217-025-00535-1>
- Akujize, M. O. (2024). Innovative teaching techniques for alleviating mathematics phobia among secondary school students in Anambra State. *International Council for Education Research and Training*, 2(3), 116-132 DOI: <https://doi.org/10.59231/edumania/9060>
- Charles–Owaba, T. (2024). Blended instructional strategy and the enhancement of secondary school students' learning outcomes in geometry. *FNAS Journal of Mathematics and Science Education*, 5(3), 1–6. <https://fnasjournals.com/index.php/FNAS-JMSE/article/view/314/266>
- Das, K. (2020). Action research on mathematics phobia among secondary school students. *International Journal of Indonesian Education and Teaching (IJJET)*, 4(2), 239-250.
- Day, C., Gu, Q., & Sammons, P. (2016). The impact of leadership on student outcomes: How successful school leaders use transformational and instructional strategies to make a difference. *Educational Administration Quarterly*, 52(2), 221-258.
- Egara, F. O., & Mosimege, M. (2024). Effect of systematic desensitisation on anxiety and achievement of Nigerian secondary school students in mathematics. *Counselling Outcome Research and Evaluation*. Advance online publication. <https://doi.org/10.1080/21501378.2024.2342586>
- El-Sabagh, H. A. (2021). Adaptive e-learning environment based on learning styles and its impact on development of students' engagement. *International Journal of Educational Technology in Higher Education*, 18(1), 53.
- Guner, N. (2020). Difficulties encountered by high school students in mathematics. *International Journal of Educational Methodology*, 6(4), 703-713.
- Isa, S. G., Mammam, M. A., Badar, Y., and Bala, T. (2020). The impact of teaching methods on academic performance of secondary school learners in Nigeria. *International Journal Development Research*, 10(7), 37382-37385
- Jyrwa, M. K., & May, S. (2025). Learning difficulties and remedial teaching in mathematics: Insights and interventions for educators. *The Online Journal of Distance Education and e-Learning*, 13(1), 16.
- Kunwar, R. (2020). Mathematics phobia: Causes, symptoms, and ways to overcome. *International Journal of Creative Research Thoughts*, 8(8), 818-822.
- Najma, B. (2024). Addressing mathematics phobia: Teachers' perspectives and strategies for enhancing secondary school education in India. *Desh Vikas*, 11(3), 17-26.
- Odiliobi, C. S. (2024). Factors influencing the attitudes of students towards the study of mathematics in public secondary schools in Nsukka G.G.A., Enugu State. *African Journal of Educational Management, Teaching and Entrepreneurship Studies*, 13(1), 178-191. Retrieved from <https://www.ajemates.org/index.php/ajemates/article/view/501>
- Ojo, A., Oginni, O. G., Akinrinola, O. E., & Oginni, R. I. (2023). Impact of cognitive-behavioural intervention on alleviating depression and anxiety in mathematics:



- Enhancing students' learning experience and academic performance. *Voice of the Publisher*, 9(4), 257-271.
- Omboko, E. (2024). *Effects of Teaching Methods on the Performance of Students in Mathematics in Emuhaya Constituency, Vihiga County, Kenya*. (Research Project).
- Omeiza, N. T., & Ahmed, B. (2023). Demystifying the phobia of mathematics. *Pakistan Journal of Educational Research*, 6(4).
- Pokhrel, T. R. (2023). Activity-based mathematics instruction: Experiences in addressing the 21st-century skills. *Journal of Mathematics Education*, 11(1), 46-61.
- Rajkumar, R., & Hema, G. (2017). Mathematics learning difficulties for school students: Problems and strategies. *Shanlax International Journal of Arts, Science and Humanities*, 5(4), 183-190.
- Retnowati, E., Ayres, P., & Sweller, J. (2017). Can collaborative learning improve the effectiveness of worked examples in learning mathematics? *Journal of Educational Psychology*, 109(5), 666.
- Salahudeen, S. O. (2023). *Systematic desensitisation and mindfulness techniques in the management of mathematics anxiety among secondary school students in the Ibadan metropolis, Nigeria* (Doctoral dissertation).
- Zhao, J., Hwang, G. J., Chang, S. C., Yang, Q. F., & Nokkaew, A. (2021). Effects of gamified interactive e-books on students' flipped learning performance, motivation, and meta-cognition tendency in a mathematics course. *Educational Technology Research and Development*, 69, 325