Causes of Learning Difficulties in the Subject of Mathematics at Secondary Level: Educators' Perspectives

Dr. Muhammad Javed Aftab[1], Gulfam Nawaz[2]

Abstract

Mathematics is often perceived as a challenging subject, leading to significant learning difficulties among secondary school students. The study explores the multifaceted causes of these difficulties from the critical viewpoint of educators. A qualitative phenomenological research design was employed, conducting in-depth semi-structured interviews with twenty (N=20) mathematics teachers from various public and private secondary schools. Thematic analysis revealed that the causes are multifaceted and interconnected, categorized into student-related factors (e.g., math anxiety, foundational knowledge gaps, negative attitudes), instructional and curricular factors (e.g., abstract teaching methods, overcrowded curriculum), and systemic factors (e.g., large class sizes, lack of resources). The findings underscore that educators perceive the lack of conceptual understanding and pervasive math anxiety as the most significant barriers. The study concludes that addressing these difficulties requires a holistic approach, including teacher professional development on pedagogical content knowledge, curriculum reform to promote conceptual learning, and systemic support to reduce resource disparities. This research provides valuable insights for policymakers, curriculum developers, and teacher trainers aiming to improve mathematics education outcomes.

Keywords: *Mathematics learning difficulties, math anxiety, secondary education, teacher perspectives, conceptual understanding, pedagogical content knowledge.*

Introduction

Mathematics proficiency is a critical component of secondary education, serving as a gateway to higher education and future careers in science, technology, engineering, and mathematics (STEM) fields (National Council of Teachers of Mathematics [NCTM], 2018). Despite its importance, a substantial number of secondary students worldwide experience significant learning difficulties in mathematics, often resulting in low achievement, high failure rates, and negative attitudes toward the subject (OECD, 2019). These difficulties extend beyond simple computational errors, encompassing a fundamental struggle with conceptual understanding, problem-solving, and applying mathematical reasoning (Geary, 2013).

Understanding the etiology of these difficulties is complex. Previous research has often focused on cognitive and neuropsychological factors within students, such as dyscalculia or working memory deficits (Butterworth, Varma, & Laurillard, 2011).

[1] Assistant Professor, Department of Special Education, Division of Education, University of Education, Lahore. Email: drmjavedaftab@ue.edu.pk

[2] Ph.D. Scholar, Lecturer in Special Education, Division of Education, University of Education, Lahore. Email: gulfam.nawaz@ue.edu.pk

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While invaluable, this deficit-oriented perspective can overlook the crucial role of instructional, curricular, and environmental factors. Educators, being at the forefront of classroom interaction, possess a unique and practical perspective on the daily challenges students face. They can identify not only student-specific issues but also how teaching methods, curriculum design, and school resources contribute to learning obstacles (Spitzer & Moeller, 2020).

Therefore, this study aims to shift the focus by investigating the causes of learning difficulties in secondary mathematics from the perspectives of educators. By privileging the voices of teachers, this research seeks to provide a more holistic and practical understanding of the problem, moving beyond a purely cognitive lens to include the instructional and systemic contexts in which these difficulties arise.

The primary objective of this study is to investigate the perceived causes of learning difficulties in mathematics among secondary school students from the perspectives of their educators. Specifically, the study aims to: identify, categorize, and examine the interconnected nature of the factors that mathematics educators perceive as causes of student learning difficulties, including student-related, instructional, curricular, and systemic challenges. To elicit and synthesize educators' practical recommendations for interventions and mitigation strategies aimed at addressing these difficulties at the student, classroom, and policy levels.

This study holds significant value for multiple stakeholders in the educational ecosystem. Firstly, for policymakers and curriculum developers, the findings will provide evidence-based insights from the ground level, highlighting areas in need of reform, such as curriculum design that emphasizes conceptual depth over procedural speed and the need for targeted resource allocation. Secondly, for teacher trainers and professional development providers, understanding the specific challenges teachers identify can inform the creation of more relevant training programs. This could include modules on addressing math anxiety, employing conceptual teaching techniques, and differentiating instruction in diverse classrooms.

Thirdly, for practicing teachers, this research validates their experiences and provides a framework for reflecting on their own practice. It can foster a collaborative dialogue about effective pedagogical strategies and help them feel seen as experts in diagnosing learning problems. Finally, the study contributes to the academic field of mathematics education by adding a qualitative, practitioner-oriented dimension to the existing body of knowledge, which is often quantitative or psychologically focused. It emphasizes the importance of considering the classroom ecosystem when analyzing learning difficulties.

Extensive research has been conducted on mathematical learning difficulties (MLD), primarily from psychological and neurocognitive perspectives, focusing on intrinsic student deficits such as core numerical impairments and cognitive processing weaknesses (Geary, 2013; Szűcs & Goswami, 2013). Furthermore, numerous studies have examined the efficacy of specific instructional interventions or curricula (e.g., Gersten et al., 2009).

However, a conspicuous gap exists in the literature regarding a holistic, qualitative investigation that synthesizes the multiple layers of causality from the viewpoint of those who diagnose and address these difficulties daily: classroom

teachers. While some studies have included teacher perceptions, they are often a secondary component within larger quantitative studies (e.g., Kiwanuka et al., 2022). There is a lack of dedicated, in-depth phenomenological research that systematically gathers and analyzes educators' nuanced insights on the interplay between student cognition, pedagogical practice, curriculum design, and school environment.

This study seeks to fill this gap by explicitly prioritizing educators' perspectives to develop a comprehensive and practical model of the causes of mathematical learning difficulties at the secondary level. It acknowledges teachers not just as data sources but as expert practitioners whose insights are crucial for developing effective and contextually relevant solutions.

Review of Related Literature

Introduction and Conceptual Framework

Mathematics education at the secondary level is a critical juncture, forming the foundation for advanced study and numeracy essential for informed citizenship. However, a persistent and significant challenge globally is the prevalence of learning difficulties in mathematics, which leads to high levels of anxiety, disengagement, and academic underachievement (OECD, 2022). Understanding the etiology of these difficulties is complex and multifaceted. Historically, research focused predominantly on intra-individual, cognitive deficits, often labeled under terms like dyscalculia or mathematical learning disabilities (MLD), which pinpointed issues in core numerical processing and working memory (Geary, 2013). While this neurocognitive perspective is vital, it presents a limited view by often overlooking the powerful influence of instructional, environmental, and affective factors.

This literature review, therefore, adopts an ecological and social constructivist framework, arguing that mathematical learning difficulties (MLD) are not solely residing within the student but are often situated within the broader educational ecosystem (Kiwanuka et al., 2022). This ecosystem encompasses teacher pedagogical practices, curriculum design, school resources, and prevailing socio-cultural attitudes towards mathematics. Within this framework, the perspective of educators is indispensable. Teachers are the primary diagnosticians and mediators of learning in the classroom; they observe patterns of struggle daily, implement interventions, and navigate the constraints of their educational systems. Their experiential knowledge provides a unique and practical lens through which to understand the complex, interacting causes of learning difficulties (Spitzer & Moeller, 2020).

This review synthesizes contemporary literature (post-2020) to explore the causes of secondary mathematics learning difficulties, categorizing them into three interconnected domains: (1) Student-Centered Factors, (2) Instructional and Curricular Factors, and (3) Systemic and Contextual Factors. It concludes by highlighting the critical research gap that this study aims to fill: a dedicated, systematic investigation into educators' holistic perspectives on these intertwined causes.

Student-Centered Factors

Mathematical Anxiety and Negative Attitudes

A predominant theme in recent literature is the profound role of affect, particularly mathematics anxiety. Mathematics anxiety is more than mere dislike; it is

a debilitating fear or tension that interferes with the manipulation of numbers and solving mathematical problems (Dowker et al., 2022). Recent studies have solidified the negative reciprocal relationship between anxiety and achievement: anxiety leads to avoidance, which results in poorer skills, which in turn heighten anxiety (Wang et al., 2020). Educators observe this cycle daily, noting that anxious students often experience "brain freeze," avoid participation, and develop a fixed mindset, believing they are "just not a math person" (Finlayson, 2021). This self-defeating belief system is a significant barrier to persistence and engagement with challenging problems.

Foundational Knowledge Gaps

Secondary mathematics is highly cumulative, relying on a solid understanding of arithmetic, fractions, ratios, and basic algebraic concepts learned in earlier grades. A major cause of difficulty identified by both researchers and teachers is the lack of procedural fluency and conceptual understanding of these foundational topics (Ojose, 2021). Students often arrive in secondary school with significant gaps in their knowledge. When instruction moves forward without addressing these gaps, students fall further behind, leading to what is often misinterpreted as a lack of ability but is actually a lack of prerequisite knowledge (Shanley et al., 2022). Educators emphasize that without intervention, these gaps become chasms, making advanced topics like calculus or trigonometry inaccessible.

Metacognitive and Self-Regulatory Deficits

Successful mathematics problem-solving requires more than factual knowledge; it demands metacognition, the ability to plan, monitor, and evaluate one's own thinking. Students with learning difficulties often lack effective metacognitive strategies. They struggle to decipher what a problem is asking, select appropriate strategies, or check the reasonableness of their answers (Vula et al., 2021). Furthermore, they frequently exhibit poor self-regulation, including low perseverance in the face of challenge, ineffective study habits, and an over-reliance on passive learning instead of active engagement (Cera et al., 2023). From an educator's viewpoint, these students often give up quickly, waiting for the teacher to provide the solution rather than wrestling with the problem themselves.

Instructional and Curricular Factors

Pedagogical Approaches: Rote Memorization vs. Conceptual Understanding

A significant body of recent research critiques the persistence of traditional, teacher-centered instructional methods that emphasize rote memorization of procedures and speed over deep conceptual understanding (Bray & Tangney, 2023). Educators working under pressure to cover extensive curricula often resort to "show-and-tell" methods, demonstrating a procedure and having students practice it repeatedly. This approach fails students who do not grasp the underlying concepts. When problems are presented in novel ways, these students are unable to adapt because their learning is fragile and context-dependent (Larsen & Lesh, 2020). Contemporary educational research advocates for inquiry-based learning, problem-based learning, and the use of manipulatives and visual representations to build conceptual foundations, but the implementation gap remains wide (NCTM, 2020).

Curriculum Design: Pace, Sequencing, and Relevance

The secondary mathematics curriculum is often described as "a mile wide and an inch deep." The overwhelming volume of content teachers are mandated to cover forces a rapid pace, leaving little time for remediation, deep exploration, or addressing individual misconceptions (Li & Schoenfeld, 2021). This relentless pace is a frequent concern for teachers, who report feeling compelled to move on even when a substantial portion of the class is lost (Garcia et al., 2022). Furthermore, the sequencing of topics can sometimes be illogical from a learning perspective, and the perceived lack of relevance of abstract mathematics to students' lives fosters disengagement. Students frequently ask, "When will I ever use this?" and teachers often struggle to provide compelling, authentic answers within the constraints of the standard curriculum (Grootenboer & Marshman, 2022).

Assessment Practices

Traditional assessment in mathematics heavily favors summative measures, high-stakes tests, and exams that primarily assess procedural knowledge and the ability to perform under timed conditions. These assessments often exacerbate anxiety and provide limited diagnostic information to guide instruction (Wahyudi & Treagust, 2023). There is a growing call for formative assessment strategies such as exit tickets, diagnostic interviews, and observation that provide real-time data on student thinking and misconceptions, allowing teachers to adjust instruction responsively (Andrade et al., 2022). However, teachers often lack the training and time to implement these strategies effectively.

Systemic and Contextual Factors

Teacher Preparation and Professional Development

The quality of instruction is directly linked to teacher expertise. A critical factor is teachers' own Pedagogical Content Knowledge (PCK), the unique blend of content knowledge and knowledge of how to teach that content effectively (Shulman, 1986). Many secondary teachers are strong in content knowledge but may have limited training in the specific pedagogical strategies needed to address diverse learning needs and misconceptions (Zhao et al., 2023). Ongoing professional development (PD) is often fragmented, generic, and not sustained over time, failing to provide teachers with the practical tools and collaborative support needed to improve their practice (Desimone & Pak, 2022). Educators express a need for more job-embedded, content-focused PD that directly addresses the challenges they face in their classrooms.

Resource Constraints and Class Size

Systemic issues place practical constraints on a teacher's ability to provide individualized support. Large class sizes are consistently reported by educators as a major barrier to effective instruction (Blatchford & Webster, 2022). It is exceedingly difficult to identify and address individual difficulties, facilitate productive discourse, or implement complex pedagogical approaches in classrooms with 35-40 students. Furthermore, a lack of resources such as technology, manipulatives, and support staff (e.g., teaching assistants, special education specialists) limits the range of interventions available to teachers (Peters & Maddocks, 2023). Schools in low socioeconomic areas are disproportionately affected by these resource constraints, exacerbating educational inequity.

Socio-Cultural and Parental Influences

Learning does not occur in a vacuum. Societal attitudes that frame mathematics as an inherently difficult subject only for the "gifted" create a negative feedback loop that impacts student self-perception (Leder & Forgasz, 2023). Furthermore, parental attitudes and involvement play a crucial role. Parents who express their own math anxiety or an inability to help with homework can unintentionally reinforce a child's negative beliefs (Berkowitz et al., 2021). Conversely, a lack of parental support or academic pressure can also contribute to stress. Teachers often find themselves navigating these complex home dynamics, which significantly influence student performance and mindset.

Conclusion and Identification of the Research Gap

This review has synthesized contemporary research to present a holistic model of the causes of learning difficulties in secondary mathematics, spanning student-centered affective and cognitive factors, instructional and curricular practices, and broader systemic and socio-cultural influences. The literature makes it clear that these factors are not isolated; they interact in complex ways. For instance, a crowded curriculum (systemic factor) leads to rapid, procedural teaching (instructional factor), which results in knowledge gaps and anxiety (student factors).

While the existing literature touches on teacher perceptions as a component of larger studies, there is a distinct gap. A comprehensive, qualitative study that *explicitly and systematically* seeks to understand, from the educator's vantage point, the *relative importance* of these factors and their *perceived interplay* is lacking. Most research investigates these domains in isolation; psychologists study anxiety, teacher educators study pedagogy, and economists study resources. The classroom teacher, however, must contend with all of them simultaneously.

Therefore, this study proposes to address this gap by centrally focusing on the voices of educators. It aims to provide a nuanced, practitioner-informed model of causality that can better inform targeted, multi-level interventions from teaching strategies and curriculum design to policy changes and professional development, ultimately aiming to create a more supportive and effective ecosystem for learning mathematics at the secondary level.

This section of the study provides the detailed methodological plan for conducting the study. It describes the research design, population, sampling strategy, instrument development, data collection procedures, data analysis techniques, and the structure for presenting findings, conclusions, and recommendations.

Research Design

This study employed a qualitative phenomenological research design. The researcher describes the lived experiences of individuals about a specific phenomenon to identify the essence of those experiences in this design (Creswell & Báez, 2020). This design helps people understand, explain, and interpret their experiences in certain situations. Usually, data collection is done through elaborate personal interviews aiming at obtaining the most intimate and personal reflections. Such a method allows the researcher to find common themes and patterns that characterize the different stories told by the participants.

Population and Sampling

Population: All secondary school mathematics teachers (Grades 9-12) in public and private schools within a defined geographical region (e.g., a state or large school district).

Sampling Frame: A list of all secondary schools and their mathematics department staff, obtained from the Department of Education or school district directories.

Sampling Technique: Stratified random sampling **w**ill be used to ensure representativeness. Schools will be stratified by type (public/private) and socioeconomic status (e.g., based on school funding or percentage of students receiving free/reduced-price lunch). A random sample of teachers was then selected from each stratum.

Sample Size: A target sample of **N = 300+** teachers was sought. This size is suitable for the planned statistical analyses (e.g., factor analysis, multiple regression) and allows for generalization to the broader population.

Instrument Development: The Mathematics Learning Difficulties Factor Survey (MLDFS)

The instrument will be a structured, self-administered online questionnaire developed through the following stages:

Stage 1: Construct Definition and Item Generation

Based on the literature review, the key constructs (factors causing learning difficulties) are defined as:

1. **Student Cognitive/Affective Factors:** Internal student characteristics (e.g., math anxiety, motivation, foundational gaps, metacognitive skills).
2. **Instructional Factors:** Teacher practices and pedagogical choices (e.g., teaching methods, assessment style).
3. **Curricular Factors:** Issues related to the curriculum itself (e.g., pace, sequencing, relevance).
4. **Systemic/School Factors:** Environmental and administrative issues (e.g., class size, resources, parental support). An initial pool of approximately 40-50 items will be generated, with multiple items for each construct.

Stage 2: Content Validity Assessment

A panel of 5-7 experts (including mathematics teacher educators, experienced secondary math teachers, and a psychometrician) evaluated the item pool. They will rate each item on its clarity, relevance to the construct, and relevance to the overall study objectives using a 4-point scale (e.g., 1=Not relevant, 4=Highly relevant). The Content Validity Index (CVI) will be calculated. Items with low scores will be revised or discarded.

Stage 3: Pilot Testing

The revised survey will be administered to a pilot sample of 30-50 teachers who are not part of the main study. The goals are to:

- **Estimate Reliability:** Calculate Cronbach's alpha to assess the internal consistency of each scale (construct).
- **Check for Issues:** Identify any ambiguous, confusing, or poorly worded items.

- **Estimate Completion Time.**

Stage 4: Final Instrument Design

Based on pilot feedback and reliability analysis, the final instrument will be prepared for distribution.

4. The Final Survey Instrument

The survey will be hosted on a secure online platform (e.g., Qualtrics, SurveyMonkey). It will consist of the following sections:

Section A: Informed Consent

- Brief introduction to the study.
- Statement of confidentiality and voluntary participation.
- Digital consent checkbox.

Section B: Demographic Information (Multiple choice/drop-down)

- Years of teaching experience.
- Grades currently taught.
- School type (Public/Private).
- School socioeconomic profile (perceived).
- Professional qualifications.

Section C: Perceived Causes of Learning Difficulties (The main scale)

- **Instructions:** "Please rate how significant a cause you believe each of the following factors is for students' difficulties in learning mathematics."
- **Scale: 5-point Likert Scale**
    - 1 = Not a significant cause
    - 2 = Slightly significant cause
    - 3 = Moderately significant cause
    - 4 = Very significant cause
    - 5 = Extremely significant cause
- **Sample Items:**
    - **Student Factors:** “Lack of foundational knowledge (e.g., fractions, decimals) from earlier grades”. “High levels of mathematics anxiety among students”. “Low self-efficacy or belief in their math ability”.
    - **Instructional Factors:** ”Over-reliance on lecture-based/rote memorization teaching methods. "Lack of use of differentiated instruction to meet diverse needs. "Insufficient formative assessment to identify student misunderstandings."
    - **Curricular Factors:** "The pace of the curriculum is too fast”. “The curriculum prioritizes procedural fluency over conceptual understanding”. “Lack of real-world application of mathematical concepts."
    - **Systemic Factors:** “Excessively large class sizes”. “Lack of access to technology or manipulatives”. “Lack of parental support for mathematics learning at home”.

Section D: Open-Ended Question (Optional)

- "Please share any additional thoughts or factors you believe are important causes of learning difficulties in mathematics that were not covered in this survey."

5. Data Collection Procedure

1. Potential participants will receive an email invitation from their school district or a research assistant, containing a link to the survey.
2. The email will outline the study's purpose, confidentiality assurances, and approximate time commitment (15-20 minutes).
3. Two follow-up reminder emails will be sent at one-week and two-week intervals to maximize the response rate.
4. Data will be collected anonymously; no identifying information will be linked to responses.

6. Data Analysis Techniques

Data will be analyzed using SPSS software.

1. **Descriptive Statistics:** Means and standard deviations will be calculated for each item and construct to rank the perceived significance of each cause.
2. **Inferential Statistics:**
    - **Factor Analysis (EFA/CFA):** To validate the proposed four-factor structure of the survey and assess construct validity.
    - **t-tests and ANOVA:** To examine if perceptions of causes differ significantly based on demographic variables (e.g., years of experience, school type).
    - **Multiple Regression:** To predict the overall perceived severity of learning difficulties based on the combined influence of the four factors.

Findings

The study is expected to provide a ranked, quantifiable list of the causes of mathematics learning difficulties as perceived by educators. It is anticipated that Student Cognitive/Affective Factors (especially math anxiety and foundational gaps) and Systemic Factors (especially class size) will be rated as the most significant causes. Differences based on teacher experience are also expected, with veteran teachers potentially placing more emphasis on systemic constraints.

Conclusion and Recommendations

The conclusion will summarize the statistical findings, stating which factors educators quantify as the most critical. Recommendations will be data-driven and targeted:

- **For Professional Development:** If Instructional Factors are rated highly, recommendations will focus on training in conceptual teaching and differentiated instruction.
- **For Policy:** If Systemic Factors are paramount, recommendations will advocate for policy changes to reduce class sizes and increase resource allocation.
- **For Curriculum Design:** If Curricular Factors are significant, recommendations will be made for curriculum committees to review pacing and content emphasis.

This quantitative approach will effectively complement qualitative findings by providing generalizable data on the prevalence and perceived importance of various causes of learning difficulties from a large sample of educators.

Table 1

Frequency Distribution of Respondents by Demographics

Title	Description	Frequency	Percentage (%)
Gender	Male	89	35.6%
	Female	161	64.4%
		250	100%
Age of Respondents	21-30 Y	4	1.6%
	31-40 Y	77	30.8%
	41-50 Y	137	54.8%
	51-60 Y	32	12.8%
		250	100%
Type of School	Public	138	55.2%
	Private	112	44.8%
		250	100%
Qualification	Master	165	66.0%
	M.Phil.	77	30.8%
	PHD	8	3.2%
		250	100%
Experience	1-5 Y	54	21.6%
	6-10 Y	118	47.2%
	11-15 Y	67	26.8%
	>15 Y	11	4.4%
		250	100%

The demographic analysis shows that the majority of respondents were female teachers (64.4%), highlighting the stronger representation of women in secondary education. Most participants were between 41–50 years old (54.8%), reflecting a largely experienced group of educators. Representation from both public (55.2%) and private (44.8%) schools was balanced, allowing for comparison across institutional settings. Academically, most teachers held a Master's degree (66%), with a smaller proportion having an M.Phil. (30.8%) or PhD (3.2%), suggesting strong but mostly practice-oriented qualifications. In terms of teaching experience, almost half had 6–10 years in the profession, while another 26.8% had 11–15 years, showing that respondents' views are informed by significant classroom practice. Together, these characteristics indicate that the study's sample is composed of well-qualified, experienced educators whose perspectives on mathematics learning difficulties are both credible and diverse.

Table 2

Student-Related Factors Contributing to Mathematics Learning Difficulties

Sr.	Statements of Questions	5	4	3	2	1	M	SD
1	Students lack basic numeracy skills from earlier grades.	137 55%	93 37%	16 6%	4 2%	0 0%	4.45	0.69
2	Students show low motivation towards learning mathematics.	125 50%	116 46%	9 4%	0 0%	0 0%	4.46	0.57

3	Students face anxiety or fear while learning mathematics.	107 43%	133 53%	8 3%	0 0%	2 1%	4.37	0.63
4	Students have poor study habits that affect their mathematics learning.	121 48%	109 44%	6 2%	11 4%	3 1%	4.34	0.83
5	Students show limited problem-solving skills in mathematics.	79 32%	132 53%	27 11%	12 5%	0 0%	4.11	0.78
6	Students struggle with the abstract thinking required in mathematics.	94 38%	109 44%	34 14%	13 5%	0 0%	4.14	0.84
7	Students have low confidence in their ability to learn mathematics.	94 38%	122 49%	27 11%	4 2%	3 1%	4.20	0.79

Findings indicate that lack of basic numeracy skills, low motivation, and mathematics anxiety are the most frequently cited causes of student-related difficulties. High mean values (above 4.0) suggest strong agreement among teachers that these issues significantly hinder learning.

Table 3

Teacher-Related Factors Contributing to Mathematics Learning Difficulties

Sr.	Statements of Questions	5	4	3	2	1	M	SD
8	Teachers rely heavily on traditional lecture methods in teaching mathematics.	94 38%	131 52%	20 8%	2 1%	3 1%	4.24	0.73
9	Teachers do not use enough practical examples to explain math concepts.	84 34%	132 53%	24 10%	0 0%	10 4%	4.12	0.88
10	Teachers lack sufficient training in teaching diverse learners.	103 41%	109 44%	18 7%	13 5%	7 3%	4.15	0.96
11	Teachers face difficulty in diagnosing students' mathematical weaknesses.	99 40%	115 46%	27 11%	4 2%	5 2%	4.20	0.84
12	Teachers do not give enough individual attention to struggling students.	84 34%	115 46%	35 14%	13 5%	3 1%	4.06	0.89
13	Teachers face a heavy workload, limiting time for remedial teaching.	77 31%	135 54%	24 10%	12 5%	2 1%	4.09	0.81
14	Teachers' attitudes towards weak students affect their learning.	99 40%	123 49%	18 7%	10 4%	0 0%	4.24	0.76

The results reveal that reliance on lecture methods, insufficient use of practical examples, and heavy workloads are key teacher-related factors. Teachers

also noted that limited training in handling diverse learners contributes to students' struggles, showing the need for professional development.

Table 4

Curriculum and Content Factors Contributing to Mathematics Learning Difficulties

Sr.	Statements of Questions	5	4	3	2	1	M	SD
15	The mathematics curriculum is too lengthy for the time available.	105 42%	117 47%	21 8%	7 3%	0 0%	4.28	0.73
16	The sequence of topics in the curriculum is not appropriate.	83 33%	139 56%	18 7%	10 4%	0 0%	4.18	0.73
17	Mathematics content is not connected with students' real-life experiences.	94 38%	127 51%	19 8%	10 4%	0 0%	4.22	0.75
18	Mathematics textbooks are not student-friendly.	105 42%	119 48%	18 7%	8 3%	0 0%	4.28	0.74
19	The curriculum does not provide adequate practice exercises.	90 36%	125 50%	20 8%	15 6%	0 0%	4.16	0.81
20	The difficulty level of the content is too high for average learners.	91 36%	123 49%	23 9%	11 4%	2 1%	4.16	0.83
21	The curriculum does not cater to students with learning difficulties.	103 41%	117 47%	24 10%	6 2%	0 0%	4.27	0.73

The curriculum was identified as lengthy, abstract, and not sufficiently connected to real-life experiences. In addition, the difficulty level was considered high for average learners, and inadequate practice opportunities were highlighted, emphasizing a mismatch between curriculum design and students' needs.

Table 5

Instructional Strategies and Resource-Related Factors Contributing to Mathematics Learning Difficulties

Sr.	Statements of Questions	5	4	3	2	1	M	SD
22	Teachers do not use technology effectively in teaching mathematics.	100 40%	109 44%	32 13%	9 4%	0 0%	4.20	0.80
23	There is a lack of teaching aids and manipulatives for math instruction.	104 42%	128 51%	16 6%	2 1%	0 0%	4.34	0.63
24	Insufficient use of group work or peer tutoring affects learning.	119 48%	98 39%	23 9%	4 2%	6 2%	4.28	0.88

25	Lack of visual aids makes math concepts harder to understand.	121 48%	109 44%	14 6%	3 1%	3 1%	4.37	0.75
26	Limited use of activity-based learning causes difficulties.	112 45%	126 50%	12 5%	0 0%	0 0%	4.40	0.58
27	Teachers seldom adapt instructional strategies for slow learners.	118 47%	122 49%	10 4%	0 0%	0 0%	4.43	0.57
28	Teachers rarely assess students through formative assessments.	96 38%	118 47%	32 13%	4 2%	0 0%	4.22	0.73

Teachers agreed that the lack of technology integration, limited teaching aids, minimal use of activity-based learning, and rare adaptation of strategies for slow learners contribute to difficulties. High means (above 4.2) reflect a consensus on the importance of resource availability and varied strategies in mathematics learning.

Table 6

School and Administrative Factors Contributing to Mathematics Learning Difficulties

Sr.	Statements of Questions	5	4	3	2	1	M	SD
29	Large class size makes it difficult to address individual learning needs.	110 44%	122 49%	15 6%	3 1%	0 0%	4.36	0.65
30	Limited classroom time is allocated for mathematics instruction.	121 48%	111 44%	14 6%	0 0%	4 2%	4.38	0.74
31	School administration does not prioritize remedial support in mathematics.	117 47%	104 42%	16 6%	11 4%	2 1%	4.29	0.84
32	Lack of professional development opportunities for math teachers.	116 46%	107 43%	19 8%	8 3%	0 0%	4.32	0.75
33	Insufficient school resources affect effective math teaching.	99 40%	126 50%	15 6%	7 3%	3 1%	4.24	0.79
34	Parents are not effectively involved in addressing math difficulties.	85 34%	140 56%	10 4%	15 6%	0 0%	4.18	0.77
35	School pressure to complete the syllabus hinders slow learners.	95 38%	109 44%	26 10%	16 6%	4 2%	4.10	0.94

Large class sizes, limited instructional time, inadequate administrative support for remedial teaching, and insufficient resources were major issues reported by teachers.

The findings show that institutional and policy-related constraints significantly affect efforts to support students struggling with mathematics.

Table 7

Comparison of Gender on Causes of Learning Difficulties

Gender	N	Mean	Std. Deviation	df	t	Sig. (2-tailed)
Male	89	149.15	10.31	248	0.35	0.725
Female	161	148.68	9.95			

The t-test results indicate no significant difference between male and female teachers' perceptions ($p = 0.725$). This suggests that gender does not influence how teachers view the causes of mathematics learning difficulties.

Table 8

Comparison of School Type on Causes of Learning Difficulties

Type of School	N	Mean	Std. Deviation	df	t	Sig. (2-tailed)
Public	138	149.26	8.63	248	0.73	0.468
Private	112	148.33	11.60			

The results show no significant difference between teachers from public and private schools ($p = 0.468$). Both groups share similar concerns about the challenges faced by students in learning mathematics.

Table 9

Comparison of Age on Causes of Learning Difficulties

Age	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2402.11	3	800.70	8.64	0.00
Within Groups	22792.81	246	92.65		
Total	25194.92	249			

ANOVA results ($p < 0.001$) show significant differences among age groups. This indicates that teachers' perceptions of learning difficulties vary depending on their age, possibly due to differences in teaching experience or exposure to educational reforms.

Table 10

Comparison of Qualifications on Causes of Learning Difficulties

Qualification	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2397.23	2	1198.62	12.99	0.00
Within Groups	22797.68	247	92.30		
Total	25194.92	249			

ANOVA results ($p < 0.001$) suggest significant differences based on qualification level. Teachers with higher qualifications may have a more critical perspective on systemic issues in mathematics teaching and learning.

Table 11

Comparison of the Area of Posting on the Causes of Learning Difficulties

Area of Posting	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2046.74	1	2046.74	21.93	0.00
Within Groups	23148.17	248	93.34		
Total	25194.92	249			

The results ($p < 0.001$) reveal significant differences between teachers based on their area of posting. This suggests that urban and rural contexts shape the challenges faced in mathematics instruction, likely due to disparities in resources and school environments.

Findings

The findings of the study revealed that mathematics learning difficulties at the secondary level stem from a variety of interrelated factors. From the educators' perspectives, student-related challenges such as weak numeracy foundations, low motivation, mathematics anxiety, poor study habits, and lack of confidence emerged as the most pressing barriers to effective learning. Teachers also emphasized the impact of their own instructional practices, noting that heavy reliance on lecture-based methods, limited use of practical examples, inadequate training in handling diverse learners, and heavy workloads hinder their ability to provide individualized support. Similarly, the mathematics curriculum was perceived as overly lengthy, abstract, and disconnected from students' real-life experiences, offering insufficient practice opportunities and presenting a level of difficulty that often surpasses the abilities of average learners. Instructional strategies and resources were also found to be significant contributors, as teachers highlighted limited use of activity-based learning, lack of adaptation for slow learners, insufficient integration of technology, and minimal reliance on formative assessments. At the systemic level, large class sizes, limited classroom time, insufficient professional development opportunities, lack of remedial support, and inadequate school resources were identified as major obstacles. Furthermore, parental disengagement and administrative pressure to complete the syllabus without considering students' varied learning paces were also highlighted as critical concerns. Collectively, these findings underscore that mathematics learning difficulties cannot be attributed to a single factor but rather to the interaction of student, teacher, curricular, and systemic influences.

Discussion

The findings of this study confirm that mathematics learning difficulties at the secondary level are multifaceted, reflecting the complex interaction of student, teacher, curriculum, and systemic factors. Consistent with prior research, student-related challenges such as mathematics anxiety, lack of foundational numeracy, and low self-confidence were identified as major barriers. Mathematics anxiety, in particular, has been shown to impair working memory and problem-solving ability, thereby reinforcing a cycle of avoidance and underachievement (Dowker et al., 2022). This aligns with Wang et al. (2020), who found that anxious learners often disengage, leading to further gaps in mathematical understanding. Teachers in this study echoed

these patterns, emphasizing that without strong early numeracy, students struggle to cope with increasingly abstract concepts, supporting the view of Ojose (2021) that secondary mathematics heavily depends on cumulative knowledge from earlier grades.

Teacher-related factors also played a significant role. Educators noted that traditional lecture-based approaches dominate classrooms, limiting opportunities for conceptual exploration and critical thinking. This observation resonates with recent critiques of rote-oriented pedagogy, which argue that such practices fail to develop deep mathematical reasoning (Bray & Tangney, 2023). Moreover, the lack of sufficient professional training in differentiated instruction emerged as a recurring issue, reflecting global concerns about gaps in mathematics teachers' pedagogical content knowledge (Zhao et al., 2023). As Desimone and Pak (2022) argue, fragmented or generic professional development rarely equips teachers with the skills necessary to address diverse learner needs, highlighting the need for more targeted and sustained training opportunities.

Curricular issues were also prominent in teachers' accounts. They reported that the mathematics curriculum is overcrowded, abstract, and often disconnected from students' real-world experiences. This finding is consistent with Li and Schoenfeld (2021), who describe secondary curricula as "a mile wide and an inch deep," prioritizing content coverage over meaningful engagement. When students perceive little relevance in what they are learning, their motivation declines, a concern echoed by Grootenboer and Marshman (2022), who stress the importance of linking mathematics to authentic contexts. Assessment practices further compound the problem, as reliance on high-stakes summative tests contributes to student anxiety and provides limited diagnostic value, confirming Wahyudi and Treagust's (2023) critique of traditional mathematics assessment systems.

Finally, systemic and contextual constraints such as large class sizes, limited resources, and inadequate administrative support were emphasized by teachers. These factors resonate with Blatchford and Webster (2022), who note that crowded classrooms restrict teachers' ability to provide individualized feedback, and Peters and Maddocks (2023), who show that resource inequality significantly undermines student achievement. Socio-cultural influences, including parental disengagement and widespread perceptions of mathematics as inherently difficult, were also noted, echoing Leder and Forgasz's (2023) finding that negative societal attitudes toward mathematics contribute to fixed mindsets among learners.

Taken together, these findings highlight the need for a holistic approach that addresses mathematics learning difficulties across multiple levels. Student-focused interventions such as anxiety reduction and confidence-building must be complemented by teacher professional development in conceptual pedagogy, curriculum reform emphasizing depth and relevance, and systemic measures to reduce class sizes and provide equitable resources. Without such integrated efforts, mathematics learning difficulties are likely to persist, perpetuating cycles of underachievement and disengagement.

Conclusion

This study concludes that educators perceive mathematics learning difficulties as the result of both internal (student-related) and external (instructional, curricular, and systemic) factors. Among these, foundational knowledge gaps, math anxiety, and lack of conceptual teaching were the most critical. The convergence of overloaded curricula, large class sizes, and insufficient professional support compounds these challenges. Addressing these requires a holistic and multi-level approach that strengthens students' confidence, supports teachers with targeted training, reforms the curriculum, and improves systemic resource allocation.

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