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Teachers' Experiences in Addressing Student Confusion and Learning Challenges in Mathematics Among Junior High School Students

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ABSTRACT

Persistent gaps in mathematics achievement among Filipino learners have drawn attention to how teachers recognize and respond to students' confusion and learning challenges in actual classrooms. This study explored the experiences of junior high school Mathematics teachers in identifying and addressing student confusion and learning challenges in Mathematics as a basis for a proposed Classroom Intervention Program. A qualitative descriptive phenomenological design was employed. Nine purposively selected junior high school Mathematics teachers with at least three years of teaching experience at Fiat Lux Academe, Dasmariñas City, Cavite, Philippines, participated in individual semi-structured interviews, and the data were analyzed using Colaizzi's seven-step phenomenological method. Eight themes emerged: foundational knowledge gaps and difficulties in mathematical understanding; recognition and diagnosis of students' mathematical difficulties; differentiated, scaffolded, and contextualized instruction; mathematical anxiety, low confidence, and emotional barriers; instructional challenges and constraints in classroom remediation; instructional resources, professional collaboration, and institutional support; professional learning and changes in instructional practices; and essential components of a proposed Classroom Intervention Program. Teachers traced students' errors to unmastered prerequisite skills such as integers, fractions, factoring, and the interpretation of word problems; recognized confusion through observation, questioning, and analysis of written work; and responded through gradual release of responsibility, contextualized examples, visual and concrete representations, and structured peer support, while contending with limited time, large classes, absenteeism, and uneven resources. The study concludes that students' mathematical difficulties involve interconnected cognitive, emotional, and contextual dimensions and that effective remediation must be diagnostic, differentiated, emotionally supportive, and institutionally supported. The findings informed a proposed Classroom Intervention Program comprising diagnosis of learning gaps, foundational-skill strengthening, differentiated instruction, confidence building, remediation and continuity of learning, resource provision, teacher collaboration, and monitoring and evaluation, whose feasibility and effectiveness require subsequent validation and evaluation.

Keywords: *classroom intervention program, junior high school mathematics, student confusion, learning challenges, teachers' experiences, descriptive phenomenology*

INTRODUCTION

Mathematics develops learners' abilities to reason, solve problems, interpret information, and make evidence-based decisions, and mathematical competence is closely tied to Sustainable Development Goal 4 on inclusive and equitable quality education. Persistent disparities in mathematics achievement, however, show that

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access to schooling does not guarantee meaningful learning. In the Programme for International Student Assessment (PISA) 2022, Filipino 15-year-olds obtained a mean mathematics score of 355, far below the OECD average of 472, and only about 16% reached at least Level 2 proficiency compared with approximately 69% across OECD countries (OECD, 2023a). In the Trends in International Mathematics and Science Study (TIMSS) 2019, Filipino Grade 4 learners recorded a mean mathematics score of 297, against an international centrepoint of 500 (Mullis et al., 2020). These results indicate that difficulties emerge early and persist into adolescence.

The Second Congressional Commission on Education (EDCOM 2) has likewise identified persistent learning gaps, weak foundational competencies, inequities in educational opportunity, and systemic constraints in Philippine basic education (EDCOM 2, 2024). These concerns bear directly on the national vision articulated in AmBisyon Natin 2040, which regards education as the foundation of capable and productive citizens (National Economic and Development Authority [NEDA], 2016). Because mathematical learning is cumulative, learners who progress without mastering prerequisite concepts leave teachers in succeeding grades to address current competencies and previously unmastered skills at the same time, particularly in classrooms that differ widely in readiness, learning pace, prior knowledge, and academic support. Recent reforms, including the MATATAG Agenda and the National Learning Recovery Program, seek to strengthen foundational competencies, but it is teachers who translate these reforms into classroom practice.

National and international assessments establish the seriousness of the problem, yet they offer limited insight into how teachers experience the day-to-day realities of teaching mathematics to learners with diverse needs and persistent difficulties. Existing studies have largely measured student performance or examined specific instructional practices, and fewer have explored, from teachers' own accounts, how confusion is recognized, how instructional decisions are made, which constraints shape remediation, and what support teachers need. A context-sensitive inquiry grounded in teachers' experiences is therefore needed to inform interventions that are realistic and responsive to classroom conditions.

This study explored the experiences of junior high school Mathematics teachers at Fiat Lux Academe, Dasmariñas City, Cavite, in addressing student confusion and learning challenges in Mathematics, and asked how these experiences could inform a proposed Classroom Intervention Program. Specifically, it examined (1) how teachers identified and recognized student confusion and learning challenges during instruction; (2) the instructional strategies and classroom practice they used to address them; (3) the challenges they encountered in implementing interventions; (4) the forms of support, resources, and professional practices that helped them; and (5) their recommendations for a Classroom Intervention Program. The study was delimited to teachers' perspectives and did not evaluate the effectiveness of particular interventions or establish causal relationships between teaching strategies and student outcomes. Its findings are intended to inform Mathematics teachers, school heads and instructional leaders, curriculum developers and policymakers, teacher education institutions, and future researchers, in support of SDG 4, AmBisyon Natin 2040, and the reform directions identified by EDCOM 2.

Literature Review

Mathematics Achievement and the Philippine Learning Context

International assessments consistently place Filipino learners among the lowest performers in mathematics. PISA 2022 showed that a substantial majority of Filipino 15-year-olds could not demonstrate baseline proficiency, defined as the ability to interpret simple situations mathematically and apply basic procedures to straightforward problems (OECD, 2023a). TIMSS 2019 results for Grade 4 learners pointed to similar difficulties at the elementary level (Mullis et al., 2020). Taken together, these findings suggest a systemic learning challenge that extends beyond individual learner characteristics to curriculum implementation, instructional practices, teacher preparedness, learning resources, and the capacity of schools to respond to diverse learning needs.

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EDCOM 2 (2024) characterized these outcomes as part of a broader crisis in Philippine education and called for strengthened teacher support, improved instructional quality, and targeted attention to foundational learning gaps. Foundational numeracy supports learning in science, technology, financial literacy, and everyday decision-making, and national development plans emphasize human capital and actual learning outcomes rather than participation alone (NEDA, 2016). These policy directions imply that improving mathematics achievement requires sustained attention to the classroom-level processes through which teachers identify and respond to learners experiencing difficulty.

Recognizing Student Confusion: Teacher Noticing and Formative Assessment

Recognizing confusion is a precondition for responding to it. Research on teacher noticing describes how teachers attend to, interpret, and respond to students' mathematical thinking during instruction, and van Es and Sherin (2026) emphasized that noticing in practice involves teachers actively shaping classroom interactions to surface and make sense of students' ideas. Signs of confusion may be subtle, including hesitation, silence, disengagement, or reluctance to attempt a task, so teachers must remain attentive to both academic and behavioral cues during lessons.

Formative assessment complements observation by providing ongoing evidence of student understanding. In a systematic review of formative assessment in inclusive secondary mathematics classrooms, Töllner et al. (2025) concluded that effective practice requires highly individualized diagnostics, guidance for teachers on appropriate next steps, and frequent, accessible feedback for students. Quizzes, exit tasks, questioning, and analysis of written solutions can help teachers locate the specific step or concept that students find difficult rather than merely recording incorrect answers.

The impact of formative assessment on achievement nonetheless depends on how it is implemented. Boström and Palm (2023), studying a formative assessment practice among secondary mathematics teachers, found no significant difference in student achievement between intervention and control classes, suggesting that the quality and responsiveness of teachers' use of assessment information matter more than the number of assessment activities. This underscores the importance of understanding how teachers interpret and act on the evidence they gather.

Differentiated and Scaffolded Instruction for Diverse Learners

Differentiated instruction calls for teachers to adapt content, processes, products, and learning environments to differences in students' readiness, interests, and learning profiles while maintaining meaningful learning goals (Tomlinson, 2017). In mathematics, where learners enter with different levels of prior knowledge and learning pace, uniform instruction may leave some students confused while under-challenging others. Mohammed et al. (2026), in a phenomenological study of Grade 7 students' experiences of differentiated instruction in an Ethiopian middle school, illustrated the value of examining how differentiation is experienced within actual classrooms.

Scaffolding provides temporary support that enables learners to accomplish tasks they cannot yet complete independently, consistent with Vygotsky's (1978) concept of the zone of proximal development. Modeling, guided practice, questioning, and the gradual release of responsibility allow teachers to support students while progressively encouraging independence. Varied representations also matter: Mayer (2021) showed that appropriately designed instruction combining verbal and visual information supports understanding, which is relevant to the use of diagrams, graphs, number lines, and manipulatives in mathematics.

Structured instructional models can further support learners with difficulties. In a Philippine study, Sagario et al. (2026) reported that Grade 7 students' problem-solving performance in physics improved after instruction using the 5E learning model, while noting the limited generalizability of a single-school design. Such findings suggest that structured, engaging approaches can help learners work through complex content, although their success depends on teachers' ability to adapt them to students' needs.

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Affective Dimensions of Learning Mathematics

Students' difficulties in mathematics are often accompanied by emotional and motivational barriers. PISA 2022 data showed that mathematics anxiety is negatively associated with mathematics performance and that supportive teacher–student relationships are associated with better outcomes (OECD, 2023b). Learners who fear making mistakes or believe they lack ability may avoid participation, conceal confusion, or give up after repeated failure.

Beliefs about ability shape how learners respond to difficulty. Dweck (2006) distinguished between a fixed mindset, in which ability is regarded as unchangeable, and a growth mindset, in which ability is understood to develop through effort and learning. Teachers owns conduct also matters: across five studies, Porter et al. (2026) found that teachers who openly acknowledged uncertainty and mistakes fostered students' sense of acceptance and belonging, reduced the perceived threat of failure, and supported adolescents' interest, engagement, and learning. These findings suggest that a classroom culture in which mistakes are treated as part of learning can support students experiencing confusion.

Contextual Conditions and Classroom Intervention

Teachers' responses to learning difficulties are shaped by the environments in which they work. Bronfenbrenner's (1979) ecological perspective holds that individuals' experiences and actions are influenced by interconnected systems, from immediate classroom relationships to school policies and broader educational structures. Class size, instructional time, available materials, administrative support, professional development opportunities, and home support may therefore facilitate or constrain teachers' efforts to remediate mathematical difficulties (EDCOM 2, 2024).

Classroom interventions must also be described and evaluated with care. Hill et al. (2026) proposed structured reporting guidelines for classroom intervention research, arguing that inconsistent reporting of intervention features and setting-level factors makes it difficult to determine what works, for whom, and under what conditions. This perspective supports grounding interventions in actual classroom conditions and specifying their components clearly so that they can later be implemented and evaluated.

Although the reviewed literature addresses noticing, formative assessment, differentiation, scaffolding, and affective factors, few studies have examined how junior high school Mathematics teachers in the Philippine context experience these demands together and how their accounts could inform a context-responsive intervention. The present study addressed this gap.

Theoretical Framework

The study was anchored on three complementary theories. Differentiated Instruction Theory (Tomlinson, 2017) provided the primary lens for examining how teachers adjusted explanations, examples, materials, activities, remediation, and assessment in response to differences in students' readiness and learning needs. Social Constructivist Theory (Vygotsky, 1978) explained how students construct mathematical understanding through interaction, language, collaboration, and guided participation, and its concept of the zone of proximal development highlighted the role of scaffolding, modeling, questioning, feedback, and peer support in moving learners from confusion toward independent performance.

Ecological Systems Theory (Bronfenbrenner, 1979) provided a contextual explanation of how classroom conditions, relationships with students and colleagues, school leadership, institutional policies, resources, workload, and professional development influenced teachers' instructional responses. Together, these theories linked student differences and learning challenges, teachers' instructional responses, and the contextual conditions of mathematics teaching. They served as sensitizing perspectives that guided the interview questions and interpretation, not as predetermined categories for analysis.

Conceptual Framework

Figure 1 presents the conceptual framework of the study, which portrays teachers as navigators who guide students through learning difficulties in Mathematics. The framework begins with student confusion and learning

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challenges, including learning gaps, misconceptions, and difficulties in understanding and applying mathematical concepts. At its center is the teacher as learning navigator, who draws on assessment, observation, reflection, professional judgment, and guidance to recognize and respond to these challenges through instructional navigation strategies such as differentiated instruction, scaffolding, formative assessment, collaborative learning, feedback and reinforcement, and classroom interventions.

These strategies are directed toward students' learning progress, including improved understanding, engagement, and confidence. The teachers' experiences, strategies, challenges, and support needs, in turn, form the basis for a proposed Classroom Intervention Program comprising teacher support strategies, professional development, instructional enhancement, and a continuous improvement cycle. The program was developed from the themes that emerged from the participants' accounts rather than predetermined before analysis, and its contribution to learner outcomes requires subsequent implementation and evaluation.

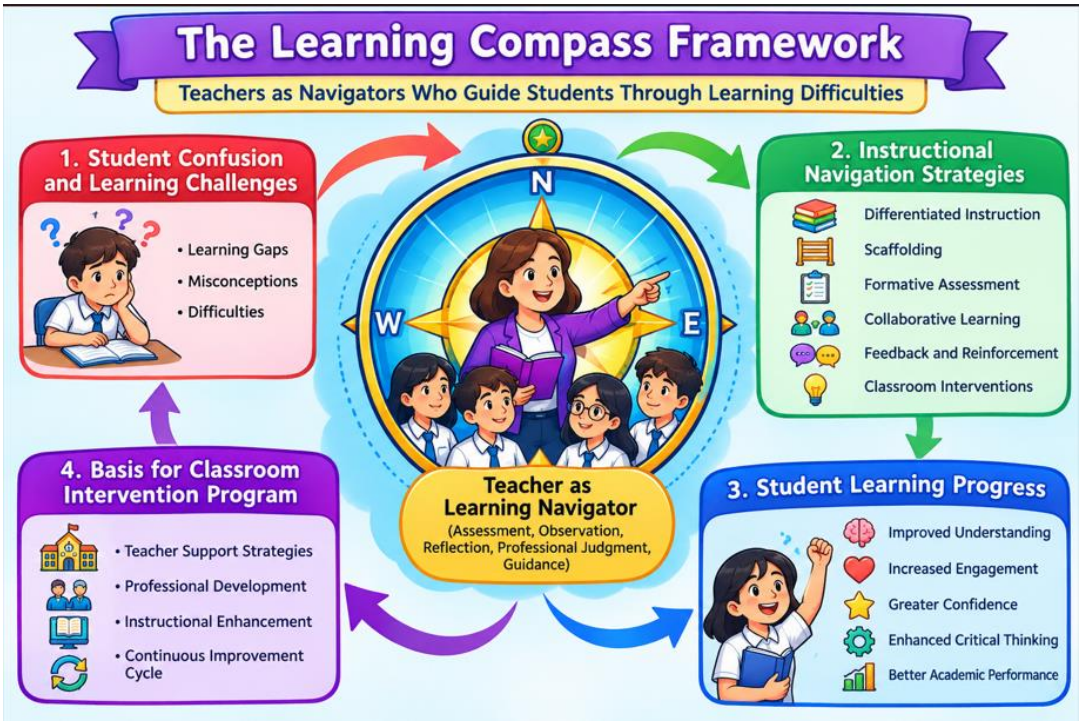


Figure 1. *Conceptual Framework of the Study*

METHODS

Research Design

The study employed a qualitative descriptive phenomenological design to explore and describe the lived experiences of junior high school Mathematics teachers in addressing student confusion and learning challenges in Mathematics. The design was appropriate because the study sought to understand how teachers experienced, perceived, and described the phenomenon based on their firsthand classroom experiences, rather than to measure learning challenges through numerical variables. The researcher practiced phenomenological bracketing, consciously identifying and setting aside, as far as possible, preconceived assumptions about Mathematics instruction and student learning challenges, and maintained reflexive notes throughout data generation and analysis.

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Research Locale

The study was conducted at Fiat Lux Academe, a school in Dasmariñas City, Cavite, in the CALABARZON region of the Philippines, where rapid urbanization and population growth have produced increasingly diverse school populations. The school provided access to junior high school Mathematics teachers with direct experience in addressing students' confusion, conceptual misunderstandings, and learning gaps, and offered a natural setting for understanding how learner diversity, instructional materials, technological resources, school-based support systems, and administrative arrangements influenced teachers' responses.

Participants and Sampling Technique

Nine junior high school Mathematics teachers were selected through purposive sampling. The inclusion criteria were current teaching of junior high school Mathematics at the school; at least three years of teaching experience; direct classroom experience with students demonstrating confusion, misconceptions, learning difficulties, or gaps in Mathematics; experience using instructional adjustments or classroom-based strategies to address these difficulties; and voluntary participation. Teachers who did not currently teach junior high school Mathematics or had no direct experience addressing learning difficulties were excluded, as were administrators, coordinators, and other personnel. The adequacy of the participant group was judged by the richness, relevance, and completeness of the accounts rather than statistical representativeness. Table 1 presents the participants' profiles.

Table 1. *Profile of the Participants (N = 9)*

Participant	Age	Sex	Educational Attainment	Years of Teaching	Grade Level Handled
P1	26	Male	BSEd	4	Grade 7
P2	26	Female	BSEd	4	Grades 7–9
P3	44	Female	BSEd; MAEd (Leadership)	15	Grades 4–9
P4	52	Female	BSE	16	Multiple grade levels
P5	24	Male	BSEd	3	Grade 9
P6	24	Male	BSEd	3	Not stated
P7	35	Male	BSEd	14	Grades 7–8
P8	26	Male	Not stated	4	Not stated
P9	28	Female	BS Mathematics	5	Grade 7

Note. BSEd = Bachelor of Secondary Education; BSE = Bachelor of Science in Education; MAEd = Master of Arts in Education. Years of teaching refer to service at the research locale.

Research Instrument

Data were generated through a validated semi-structured interview guide aligned with the research questions, covering how teachers recognized student confusion, the strategies they used, the challenges they encountered, the support and resources they drew on, the changes in their practice, and their recommendations for a Classroom Intervention Program. The guide allowed probing questions for clarification and depth. The researcher served as the primary instrument of data generation and interpretation, supplemented by field notes.

Data Gathering Procedure

After institutional approval was obtained, eligible teachers were invited and given informed consent forms explaining the purpose, procedures, potential risks and benefits, confidentiality measures, and their rights as participants. Individual semi-structured interviews of approximately 30 to 45 minutes were conducted and audio-recorded with the participants' permission, in English, Filipino, or both, according to each participant's preference. Recordings were labeled with participant codes, transcribed verbatim, and checked against the audio for accuracy. Transcripts, field notes, and analytic memos were organized by participant code and stored in password-protected files.

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Data Analysis

The data were analyzed using Colaizzi's (1978) seven-step phenomenological method: (1) repeated reading of the transcripts for familiarization; (2) extraction of significant statements related to the phenomenon; (3) formulation of meanings; (4) clustering of formulated meanings into themes; (5) development of an exhaustive description; (6) condensation of the description into a fundamental structure; and (7) member checking, in which the synthesized findings were presented to selected participants for confirmation. Throughout the analysis, the researcher maintained an audit trail of analytical decisions and compared interpretations with the original transcripts. Differentiated Instruction, Social Constructivist, and Ecological Systems theories served as interpretive perspectives but were not used to predetermine the themes. Cross-participant comparison was used to identify recurring patterns while retaining divergent accounts.

Trustworthiness was established using the criteria of Lincoln and Guba (1985). Credibility was supported through verbatim transcription, repeated engagement with the transcripts, and participant verification; transferability through detailed description of the context, participants, and procedures; dependability through an audit trail documenting each analytical step; and confirmability through reflexivity, bracketing, and continual return to the participants' original statements.

Ethical Considerations

Approval was obtained from the relevant institutional authorities before data collection, and the study followed applicable institutional research policies and ethical standards, including respect for persons, beneficence, and justice. Participants received informed consent forms and were informed that participation was voluntary and that they could decline or withdraw without penalty. Participant codes (P1 to P9) replaced names in transcripts, analysis, and reporting; identifying information was removed from the transcripts; and research data were stored securely with access limited to the researcher and authorized individuals. Participants' accounts were represented accurately and respectfully.

RESULTS AND DISCUSSION

The analysis yielded eight interrelated themes, summarized in Table 2. The first two themes describe the nature of students' difficulties and how teachers identified them; the third and fourth describe teachers' instructional responses and students' emotional barriers; the fifth and sixth describe the constraints, resources, and support that shaped remediation; the seventh describes teachers' professional learning; and the eighth consolidates their recommendations for a Classroom Intervention Program. Quotations in Filipino are followed by English translations in brackets.

Table 2. *Emergent Themes and Their Key Elements*

Theme	Key Elements	Participants
1. Foundational knowledge gaps and difficulties in mathematical understanding	Gaps in operations, integers, fractions, decimals, factoring, and substitution; difficulty connecting representations; word-problem interpretation linked to reading comprehension	P1, P2, P3, P5, P9
2. Recognition and diagnosis of students' mathematical difficulties	Behavioral and nonverbal cues; concealed confusion; analysis of recurring errors; questioning and assessment; dependence on teacher guidance	P1–P9
3. Differentiated, scaffolded, and contextualized instruction	Gradual release ("I do, we do, you do"); chunking and step-by-step instruction; real-life contexts; visual and concrete materials; structured peer teaching; revising unsuccessful strategies	P1–P6, P8, P9

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Theme	Key Elements	Participants
4. Mathematical anxiety, low confidence, and emotional barriers	Fixed beliefs about ability; fear of mistakes; learned helplessness; patience, trust, encouragement; contrasting emphasis on student responsibility	P2–P9
5. Instructional challenges and constraints in classroom remediation	Limited time; large classes; diverse readiness; curriculum pacing; absenteeism; study habits; limited home support and resources; teacher fatigue	P1, P2, P4–P9
6. Instructional resources, professional collaboration, and institutional support	Worksheets, visual aids, digital resources; limits of technology access; collegial sharing and LAC sessions; need for protected time, materials, coaching, and funding	P1–P9
7. Professional learning and changes in instructional practices	Needs in diagnosis, differentiation, anxiety, literacy, representations, and technology; shifts toward patience, frequent checking, mastery, and mistake-friendly classrooms	P1–P9
8. Essential components of a proposed Classroom Intervention Program	Diagnostic assessment; prerequisite review; small-group and differentiated remediation; practice and progress monitoring; materials; structured peer support; positive reinforcement; parent communication	P1–P9

Note. Participants listed are those whose accounts were cited as contributing to each theme in the analysis.

Foundational Knowledge Gaps and Difficulties in Mathematical Understanding

Teachers traced many of students' difficulties to incomplete prerequisite knowledge. They described learners who struggled with basic operations, integers, fractions, decimals, factoring, and substitution, and who had difficulty connecting verbal descriptions with equations or moving among tables, graphs, equations, and real-life situations. P1 explained that students "often understand… basic arithmetic… But pag meron ng mga, uh, application, doon na po sila nagkakaroon ng struggles" [but once there is application, that is where they struggle], particularly when substituting values from a word problem into a formula. P5 described Grade 9 students who could identify the standard form of a quadratic equation but became confused when choosing a solution method; on examining their work, the teacher found weaknesses in factoring and multiplying binomials that had to be reviewed before the intended lesson could proceed. P1 and P3 also linked difficulties with word problems to reading comprehension.

These accounts show that repeating explanations of a new concept did not resolve difficulties rooted in earlier learning. The cumulative nature of these gaps is consistent with international evidence that many Filipino learners lack baseline mathematical proficiency (Mullis et al., 2020; OECD, 2023a) and with EDCOM 2's (2024) concern about weak foundational competencies. From a social constructivist perspective, learners whose prerequisite knowledge is incomplete are working beyond their zone of proximal development, which explains why teachers needed to revisit earlier skills before new content became accessible (Vygotsky, 1978).

Recognition and Diagnosis of Students' Mathematical Difficulties

Teachers recognized difficulties through behavioral cues, written work, questioning, and assessment. P6 described body language such as looking out the window, extreme quietness, or reluctance to raise a hand, noting that some students became noisy because "nahihiya silang aminin na hindi nila maintindihan yung lesson" [they are embarrassed to admit that they do not understand the lesson]. P9 observed that Grade 7 learners "rarely call out, 'Teacher, hindi ko po naiintindihan' [Teacher, I don't understand]" and instead used "subtle coping mechanisms that hide their confusions," such as copying everything from the board but freezing when asked to solve a problem independently. P4, P6, P7, and P9 indicated that confusion could remain concealed, so the absence of questions did not imply understanding.

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Teachers also analyzed recurring errors to determine whether difficulties involved concepts, procedures, prerequisite knowledge, mathematical language, or problem interpretation. P3 summarized this stance: "mistakes are clues, not failures… My job is to understand the thinking behind it." This diagnostic orientation reflects the practice of teacher noticing described by van Es and Sherin (2026) and the emphasis of Töllner et al. (2025) on individualized diagnostics that inform next steps. Because the mere frequency of formative assessment activities may not improve achievement (Boström & Palm, 2023), the participants' attention to interpreting students' thinking, rather than simply collecting results, appears central to responsive remediation.

Differentiated, Scaffolded, and Contextualized Instruction

Teachers described a repertoire of adjustable strategies. P1, P6, and P9 used the "I do, we do, you do" sequence, moving from demonstration to guided and then independent practice, while P4 divided complex topics such as slope, intercept, and graphing into smaller parts. P2 found real-life contextualization most useful, "specifically using money or temperature for integers. I use bank account analogy." P6 used number lines and algebra tiles, and P9 used the Concrete–Representational–Abstract approach. P3 valued peer teaching because "the tutor learn[s] by teaching and the struggling students feel less scared," whereas P9 found that unstructured peer tutoring allowed stronger students to complete the work for others and subsequently assigned specific partner roles. P1, P5, and P8 described revising their approaches when an initial strategy did not work.

These practices are consistent with the principles of differentiated instruction, which call for adapting instruction to learners' readiness and needs (Mohammed et al., 2026; Tomlinson, 2017), and with the gradual release of responsibility and scaffolding implied by the zone of proximal development (Vygotsky, 1978). The use of visual and concrete representations aligns with evidence that combining verbal and visual information supports understanding (Mayer, 2021), and the participants' experience with peer tutoring shows that collaborative learning is effective only when structured and monitored. As with structured approaches such as the 5E model (Sagario et al., 2026), the value of these strategies depended on teachers' adaptation to learners' responses.

Mathematical Anxiety, Low Confidence, and Emotional Barriers

Teachers described students whose mathematical difficulties were accompanied by low confidence, fear of mistakes, and fixed beliefs about ability. P3 described the challenge of "watching a student who has given up. So they decided they are not a math person," adding that breaking through this belief was harder than teaching polynomials. P9 encountered the belief that "hindi talaga pamilya natin ang magaling sa math" [our family is just not good at math] and described patterns of learned helplessness. Teachers responded with patience, encouragement, trust, and opportunities to correct mistakes; P2 stated that "you cannot rush a student who is confused about negative numbers… If you get frustrated, they shut down." In contrast, P7 emphasized students' responsibility for reviewing notes, completing seatwork, and practicing independently.

These accounts are consistent with evidence that mathematics anxiety is associated with lower performance and that supportive teacher–student relationships matter (OECD, 2023b). Students' beliefs that mathematical ability is inherited or fixed mirror the fixed mindset described by Dweck (2006), and the participants' efforts to normalize mistakes parallel findings that teachers who model openness about errors foster students' belonging, reduce the perceived threat of failure, and support engagement (Porter et al., 2026). The findings indicate that emotional support must accompany targeted mathematical instruction rather than replace it.

Instructional Challenges and Constraints in Classroom Remediation

Teachers identified limited instructional time, large classes, differences in prior knowledge, curriculum pacing, absenteeism, weak study habits, limited home support, and unequal access to resources as constraints on remediation. P6 described 45-minute periods with "forty plus students kada section" [more than forty students per section], making it difficult to provide individualized attention, as well as students who lacked support at home, internet access, or calculators; P6 also described emotional exhaustion from responding to multiple needs. P9 described classes of 35 to 40 learners and the difficulty of balancing targeted help with the needs of the whole class. P4 described the dilemma of whether to slow down for students returning from absences, while P7

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prioritized following the textbook and pacing schedule rather than spending extended time on a few struggling students.

These accounts illustrate the ecological influences on teachers' instructional decisions (Bronfenbrenner, 1979). Teachers' responses were constrained not by lack of willingness but by classroom and institutional conditions, consistent with the systemic constraints identified by EDCOM 2 (2024). The divergence between participants who emphasized mastery and those who emphasized curriculum coverage reveals the competing demands that teachers must reconcile, suggesting that remediation requires organizational arrangements rather than reliance on individual teachers' initiative.

Instructional Resources, Professional Collaboration, and Institutional Support

Teachers drew on worksheets, diagnostic tests, textbooks, visual aids, and digital resources such as Khan Academy, YouTube, and GeoGebra. P3 recorded short video lessons that struggling students could "pause, rewind and watch as many times as they need without feeling embarrassed." However, P4 and P6 noted that flipped-classroom approaches failed when students lacked internet access or could not learn from the videos independently. Professional collaboration was an important source of support: P9 described learning action cell sessions in which teachers shared intervention worksheets and visual aids, but stressed the need for "a dedicated intervention that [is] embedded in the regular class program," because remedial work was "squeezed into recess, lunch breaks, or after-school hours." Teachers requested ready-made and leveled materials, diagnostic and progress-monitoring tools, protected time, coaching, administrative support, and funding.

These findings reinforce the ecological view that teachers' capacity to intervene depends on resources, collegial relationships, and school structures (Bronfenbrenner, 1979). They also suggest that technology-based strategies must be accompanied by low-technology alternatives to avoid widening inequities, and that school-level arrangements, including protected intervention time and shared resource banks, are needed to sustain remediation (EDCOM 2, 2024).

Professional Learning and Changes in Instructional Practices

Teachers identified professional learning needs in diagnostic assessment, differentiated instruction and remediation, mathematical anxiety, literacy-related difficulties, multiple representations, and educational technology, and P6 valued coaching, classroom observation, and feedback. They also described changes in their practice. P5 became "more patient… and more observant," no longer assuming that quiet students understood the lesson and using a table, a graph, an equation, or a real-life situation to present the same concept. P3 established a classroom mindset in which mistakes were accepted as part of learning, P4 began lessons by asking students what they noticed and wondered, P6 shifted from lecture-oriented teaching toward conceptual understanding, and P9 used entry slips to check readiness. P7, by contrast, continued to emphasize curriculum pacing.

These changes reflect the development of teacher noticing through practice (van Es & Sherin, 2026) and the need for guidance on diagnostics and next steps identified by Töllner et al. (2025). The requested forms of professional learning, which are practical, classroom-based, and focused on diagnosis and differentiation, align with the differentiated instruction framework (Tomlinson, 2017) and indicate that professional development should be embedded in teachers' actual instructional problems.

Essential Components of a Proposed Classroom Intervention Program

Teachers recommended that intervention begin with diagnostic assessment and proceed to foundational-skill development, differentiated and small-group remediation, regular practice, progress monitoring, accessible materials, structured peer support, confidence building, and communication with parents or guardians. P6 stated that the first component should be diagnostic assessment "para malaman natin kung saan mismo ang problema ng bata" [so that we know exactly where the student's problem is], followed by individualized or small-group remediation rather than identical activities for all. P9 proposed brief prerequisite warm-ups on arithmetic, integers, fractions, or decimals; small groups of four to six students "so kids feel safe asking question[s]"; hands-on manipulatives and visuals; and progress tracking that lets students "celebrate small wins." P9 also stressed

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explaining to parents that remediation is support rather than punishment, and P7 recommended additional study time and a clear school policy for students needing extra work.

The participants thus viewed intervention as a coordinated, cyclical process of diagnosis, targeted instruction, monitoring, and adjustment rather than the provision of supplementary worksheets. This view is consistent with the emphasis on individualized diagnostics and feedback (Töllner et al., 2025) and with the call to specify intervention components and setting conditions clearly so that interventions can be evaluated (Hill et al., 2026). The participants' accounts supported the design of the program but did not establish its effectiveness.

Proposed Classroom Intervention Program

Based on the findings, a Classroom Intervention Program was developed to provide a structured and responsive approach to supporting junior high school learners who experience difficulties in Mathematics. It follows a continuous cycle of assessment, planning, intervention, monitoring, and adjustment and comprises eight key result areas (Table 3). The duration, frequency, grouping arrangements, and criteria for progress are to be set according to the school's context and resources. Before full implementation, the program should be reviewed by Mathematics education specialists, experienced teachers, and administrators and piloted to examine its feasibility, acceptability, resource requirements, and outcomes.

Table 3. *Key Result Areas of the Proposed Classroom Intervention Program*

Key Result Area	Core Strategies	Expected Output
1. Identification and diagnosis of learning gaps	Short diagnostic pre-assessment of prerequisite skills; review of written solutions and common errors; questioning, observation, and skill checklists	Learner skill-gap profiles and priority competencies for intervention
2. Strengthening foundational mathematical skills	Leveled practice sets; step-by-step worked examples and guided practice; revisiting prerequisite skills; catch-up exercises for absent learners	Targeted practice sets, worked examples, answer keys, and completed learner exercises
3. Differentiated, scaffolded, and contextualized instruction	Tasks with varying support; modeling to guided to independent practice; visual, concrete, and contextualized representations; peer tutoring with clear roles; exit checks	Adapted lesson activities, visual aids, scaffolded exercises, and formative-check records
4. Mathematical confidence, participation, and emotional support	Mistake-friendly routines; specific feedback acknowledging effort and improvement; low-stakes checks; referral of persistent concerns to support personnel	Supportive classroom routines, check-in records, and referrals when needed
5. Classroom remediation and continuity of learning	Remediation within an approved timetable; short small-group sessions by skill gap; catch-up packets; prioritization of essential skills	Remediation schedule, activity packets, and completion records
6. Learning resources and access to materials	Shared bank of leveled worksheets, diagnostic items, worked examples, and visuals; digital resources where accessible; printed alternatives	Organized resource bank with digital and non-digital options
7. Teacher collaboration and professional learning	LAC and department discussions of common errors and effective explanations; sharing of materials; peer consultation; identification of training needs	Shared resources, meeting notes, agreed strategies, and professional development priorities
8. Monitoring, evaluation, and improvement	Records of attendance, activities, and formative checks; comparable pre- and post-checks; periodic review; adjustment of support; implementation report	Learner progress records, review notes, and recommendations for continuation or revision

Note. Condensed from the study's program matrix. The program is proposed and has not been implemented or evaluated.

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CONCLUSION

Students' difficulties in Mathematics involved gaps in foundational knowledge, conceptual understanding, procedural skills, and word-problem interpretation, and diagnostic practices, including observation, questioning, and analysis of written work, helped teachers identify specific learning needs. Differentiated, scaffolded, and contextualized instruction enabled teachers to address diverse needs, although strategies had to be adjusted to students' readiness and the concepts being taught. Emotional support was essential in addressing mathematics anxiety, low confidence, and reluctance to participate, but needed to be accompanied by targeted instruction. Limited time, large classes, diverse needs, curriculum demands, and resource constraints affected sustained remediation, while professional learning and collaboration helped teachers refine their practices and share strategies.

The study shows that mathematical difficulty cannot be understood as a problem of student performance alone; it involves the interaction of prior knowledge, instructional responsiveness, learner confidence, classroom conditions, and institutional support. By placing teachers' experiences at the center of inquiry, the study contributes a context-grounded account of how Filipino junior high school Mathematics teachers recognize and respond to student confusion and translates these insights into a proposed Classroom Intervention Program. Because the findings reflect the experiences of nine teachers in one school, they are not statistically generalizable, and the program's feasibility and effectiveness require validation, implementation, and systematic evaluation.

Recommendations

Based on the findings and conclusions, the following recommendations are offered:

1. Mathematics teachers may use diagnostic assessment and analysis of student work to identify prerequisite gaps, misconceptions, procedural errors, and difficulties with mathematical language, and may apply differentiated instruction, guided practice, contextualized examples, visual and concrete materials, structured peer support, and continuous progress monitoring.
2. School administrators may provide protected time for remediation within the regular schedule, adequate instructional materials including low-technology options, collaborative planning time, and professional development focused on diagnosis, differentiation, scaffolding, and supporting learners with low confidence.
3. Curriculum coordinators and education policymakers may develop guidance for aligning remediation with curriculum requirements and prerequisite competencies, taking into account class size, staffing, instructional time, teacher training, and resource availability.
4. Parents and guardians may support learners through positive communication about Mathematics and reasonable opportunities for practice, and schools may explain to families that remediation is a form of support rather than punishment.
5. Future researchers may validate, pilot, and evaluate the proposed Classroom Intervention Program using appropriate pre- and post-intervention measures; include the perspectives of students, parents, and school leaders; and compare teachers' experiences across grade levels, school types, class sizes, and resource conditions.

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